

## Evidence Base for Collaborative Care

### Foundational Evidence Base and Reviews

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1. Archer J, Bower P, Gilbody S, et al. Collaborative care for depression and anxiety problems. *Cochrane Database of Systematic Reviews* 2012, Issue 10. Art. No.: CD006525. DOI: [10.1002/14651858.CD006525.pub2](https://doi.org/10.1002/14651858.CD006525.pub2)

**Summary:** In a Cochrane systematic review of 79 clinical trials of Collaborative Care, the authors concluded Collaborative Care is associated with significant improvement in depression and anxiety outcomes compared with usual care, and represents a useful addition to clinical pathways for adult patients with depression and anxiety.

### **Scientific Abstract:**

**Background:** Common mental health problems, such as depression and anxiety, are estimated to affect up to 15% of the UK population at any one time, and health care systems worldwide need to implement interventions to reduce the impact and burden of these conditions. Collaborative care is a complex intervention based on chronic disease management models that may be effective in the management of these common mental health problems.

**Objectives:** To assess the effectiveness of collaborative care for patients with depression or anxiety.

**Search methods:** We searched the following databases to February 2012: The Cochrane Collaboration Depression, Anxiety and Neurosis Group (CCDAN) trials registers (CCDANCTR-References and CCDANCTR-Studies) which include relevant randomised controlled trials (RCTs) from MEDLINE (1950 to present), EMBASE (1974 to present), PsycINFO (1967 to present) and the Cochrane Central Register of Controlled Trials (CENTRAL, all years); the World Health Organization (WHO) trials portal (ICTRP); ClinicalTrials.gov; and CINAHL (to November 2010 only). We screened the reference lists of reports of all included studies and published systematic reviews for reports of additional studies.

**Selection criteria:** Randomised controlled trials (RCTs) of collaborative care for participants of all ages with depression or anxiety.

**Data collection and analysis:** Two independent researchers extracted data using a standardised data extraction sheet. Two independent researchers made 'Risk of bias' assessments using criteria from The Cochrane Collaboration. We combined continuous measures of outcome using standardised mean differences (SMDs) with 95% confidence intervals (CIs). We combined dichotomous measures using risk ratios (RRs) with 95% CIs. Sensitivity analyses tested the robustness of the results.

**Main results:** We included seventy-nine RCTs (including 90 relevant comparisons) involving 24,308 participants in the review. Studies varied in terms of risk of bias. The results of primary analyses demonstrated significantly greater improvement in depression outcomes for adults with depression treated with the collaborative care model in the short-term (SMD -0.34, 95% CI -0.41 to -0.27; RR 1.32, 95% CI 1.22 to 1.43), medium-term (SMD -0.28, 95% CI -0.41 to -0.15; RR 1.31, 95% CI 1.17 to 1.48), and long-term (SMD -0.35, 95% CI -0.46 to -0.24; RR 1.29, 95% CI 1.18 to 1.41). However, these significant benefits were not demonstrated into the very long-term (RR 1.12, 95% CI 0.98 to 1.27). The results also demonstrated significantly greater improvement in anxiety outcomes for adults with anxiety treated with the collaborative care model in the short-term (SMD -0.30, 95% CI -0.44 to -0.17; RR 1.50, 95% CI 1.21 to 1.87), medium-term (SMD -0.33, 95% CI -0.47 to -0.19; RR 1.41, 95% CI 1.18 to 1.69), and long-term (SMD -0.20, 95% CI -0.34 to -0.06; RR 1.26, 95% CI 1.11 to 1.42). No comparisons examined the effects of the intervention on anxiety outcomes in the very long-term. There was evidence of benefit in secondary outcomes including medication use, mental health quality of life, and patient satisfaction, although there was less evidence of benefit in physical quality of life.

**Authors' conclusions:** Collaborative care is associated with significant improvement in depression and anxiety outcomes compared with usual care, and represents a useful addition to clinical pathways for adult patients with depression and anxiety.

2. Gilbody S, Bower P, Fletcher J, Richards D, Sutton AJ. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. *Arch Intern Med.* 2006;166(21):2314-21.

**Summary:** The first systematic review and meta-analysis of Collaborative Care trials, showing that in 37 randomized trials, Collaborative Care was significantly more effective than usual care and improved depression outcomes at 6 months and for up to 5 years.

**Scientific Abstract:**

**Background:** Depression is common in primary care but is suboptimally managed. Collaborative care, that is, structured care involving a greater role of nonmedical specialists to augment primary care, has emerged as a potentially effective candidate intervention to improve quality of primary care and patient outcomes. **Methods:** To quantify the short-term and longer-term effectiveness of collaborative care compared with standard care and to understand mechanisms of action by exploring between-study heterogeneity, we conducted a systematic review of randomized controlled trials that compared collaborative care with usual primary care in patients with depression. We searched MEDLINE (from the beginning of 1966), EMBASE (from the beginning of 1980), CINAHL (from the beginning of 1980), PsycINFO (from the beginning of 1980), the Cochrane Library (from the beginning of 1966), and DARE (Database of Abstracts of Reviews of Effectiveness) (from the beginning of 1985) databases from study inception to February 6, 2006. **Results:** We found 37 randomized studies including 12 355 patients with depression receiving primary care. Random effects meta-analysis showed that depression outcomes were improved at 6 months (standardized mean difference, 0.25; 95% confidence interval, 0.18-0.32), and evidence of longer-term benefit was found for up to 5 years (standardized mean difference, 0.15; 95% confidence interval, 0.001-0.31). When exploring determinants of effectiveness, effect size was directly related to medication compliance and to the professional background and method of supervision of case managers. The addition of brief psychotherapy did not substantially improve outcome, nor did increased numbers of sessions. Cumulative meta-analysis showed that sufficient evidence had emerged by 2000 to demonstrate the statistically significant benefit of collaborative care. **Conclusions:** Collaborative care is more effective than standard care in improving depression outcomes in the short and longer terms. Future research needs to address the implementation of collaborative care, particularly in settings other than the United States.

3. Huffman JC, Niazi SK, Rundell JR, Sharpe M, Katon WJ. Essential articles on collaborative care models for the treatment of psychiatric disorders in medical settings: a publication by the Academy of Psychosomatic Medicine Research and Evidence-Based Practice Committee. *Psychosomatics.* 2014;55:109-122.

**Summary:** A collection and summary of essential articles on collaborative care.

**Scientific Abstract:**

**Background:** Collaborative care interventions for psychiatric disorders combine several components integrated into the medical setting: (1) systematic psychiatric assessment, (2) use of a nonphysician care manager to perform longitudinal symptom monitoring, treatment interventions, and care coordination, and (3) specialist-provided

stepped-care recommendations. Collaborative care interventions have now been evaluated in a wide spectrum of care settings and offer great promise as a way of increasing quality of patient care, improving health of populations, and reducing health care costs.

**Methods:** A systematic search of PubMed/MEDLINE databases was performed for publications between January 1970 and May 2013 to identify articles describing collaborative care and related interventions. Identified articles were then evaluated independently by multiple reviewers for quality and importance; additional articles were identified by searching reference lists and through recommendations of senior content-matter experts. The articles considered to be both of high quality and most important were then placed into categories and annotated reviews performed.

**Results:** Over 600 articles were identified of which 67 were selected for annotated review. The results reported in these articles indicate that collaborative care interventions for psychiatric disorders have been consistently successful in improving key outcomes in both research and clinical intervention studies; cost analyses also suggest that this model is cost effective.

**Conclusions:** Collaborative care models for psychiatric disorders are likely to serve an increasingly large role in health care given their effect on patient and population outcomes and their focus on integration of care.

4. Panagioti M, Bower P, Kontopantelis E, et al. Association between chronic physical conditions and the effectiveness of collaborative care for depression: an individual participant data meta-analysis. *JAMA Psychiatry*. 2016;73:978-989.

**Summary:** The authors reviewed 31 clinical trials and found that number of and type of chronic physical conditions did not influence treatment effect of collaborative care, showing evidence that collaborative care is effective for people with depression and chronic physical health conditions.

#### **Scientific Abstract:**

**Importance:** Collaborative care is an intensive care model involving several health care professionals working together, typically a physician, a case manager, and a mental health professional. Meta-analyses of aggregate data have shown that collaborative care is particularly effective in people with depression and comorbid chronic physical conditions. However, only participant-level analyses can rigorously test whether the treatment effect is influenced by participant characteristics, such as chronic physical conditions.

**Objective:** To assess whether the effectiveness of collaborative care for depression is moderated by the presence, type, and number of chronic physical conditions.

**Data sources:** Data were obtained from MEDLINE, EMBASE, PubMed, PsycINFO, CINAHL Complete, and Cochrane Central Register of Controlled Trials, and references from relevant systematic reviews. The search and collection of eligible studies was ongoing until May 22, 2015.

**Study selection:** This was an update to a previous meta-analysis. Two independent reviewers were involved in the study selection process. Randomized clinical trials that compared the effectiveness of collaborative care with usual care in adults with depression and reported measured changes in depression severity symptoms at 4 to 6 months after randomization were included in the analysis. Key search terms included depression, dysthymia, anxiety, panic, phobia, obsession, compulsion, posttraumatic, care management, case management, collaborative care, enhanced care, and managed care.

**Data extraction and synthesis:** Individual participant data on baseline demographics and chronic physical conditions as well as baseline and follow-up depression severity symptoms were requested from authors of the eligible studies. One-step meta-analysis of individual participant data using appropriate mixed-effects models was performed.

**Main outcomes and measures:** Continuous outcomes of depression severity symptoms measured using self-reported or observer-rated measures.

**Results:** Data sets from 31 randomized clinical trials including 36 independent comparisons (N = 10 962 participants) were analyzed. Individual participant data analyses found no significant interaction effects, indicating that the presence (interaction coefficient, 0.02 [95% CI, -0.10 to 0.13]), numbers (interaction coefficient, 0.01 [95% CI, -0.01 to 0.02]), and types of chronic physical conditions do not influence the treatment effect.

**Conclusions and relevance:** There is evidence that collaborative care is effective for people with depression alone and also for people with depression and chronic physical conditions. Existing guidance that recommends limiting collaborative care to people with depression and physical comorbidities is not supported by this individual participant data meta-analysis.

#### 5. Moriarty AS, Coventry PA, Hudson JL, et al. The role of relapse prevention for depression in collaborative care: A systematic review. *J Affect Disord.* 2020;15:618-644.

**Summary:** The authors reviewed 93 clinical trials of collaborative care with over half including monitoring or relapse prevention, and concluded the “established key features of collaborative care, particularly structured management plans and scheduled patient follow-up, facilitated the delivery of these relapse prevention strategies.”

#### **Scientific Abstract:**

**Background:** Relapse (the re-emergence of depression symptoms before full recovery) is common in depression and relapse prevention strategies are not well researched in primary care settings. Collaborative care is effective for treating acute phase depression but little is known about the use of relapse prevention strategies in collaborative care. We undertook a systematic review to identify and characterise relapse prevention strategies in the context of collaborative care.

**Methods:** We searched for Randomised Controlled Trials (RCTs) of collaborative care for depression. In addition to published material, we obtained provider and patient manuals from authors to provide more detail on intervention content. We reported the extent to which collaborative care interventions addressed four relapse prevention components.

**Results:** 93 RCTs were identified. 31 included a formal relapse prevention plan; 42 had proactive monitoring and follow-up after the acute phase; 39 reported strategies for optimising sustained medication adherence; and 20 of the trials reported psychological or psycho-educational treatments persisting beyond the acute phase or focussing on long-term health/relapse prevention. 30 (32.3%) did not report relapse prevention approaches.

**Limitations:** We did not receive trial materials for approximately half of the trials, which limited our ability to identify relevant features of intervention content.

**Conclusion:** Relapse is a significant risk amongst people treated for depression and interventions are needed that specifically address and minimise this risk. Given the advantages of collaborative care as a delivery system for depression care, there is scope for more consistency and increased effort to implement and evaluate relapse prevention strategies.

#### 6. Thota AB, Sipe TA, Byard GJ, Zometa CS, Hahn RA, McKnight-Eily LR, et al. Collaborative care to improve the management of depressive disorders: a community guide systematic review and meta-analysis. *Am J Prev Med.* 2012;42(5):525-38.



**Summary:** A systematic review of 69 studies of Collaborative Care (an update to 6.2 Gilbody, et al.) found robust evidence for the effectiveness of Collaborative Care.

**Scientific Abstract:**

**CONTEXT:** To improve the quality of depression management, collaborative care models have been developed from the Chronic Care Model over the past 20 years. Collaborative care is a multicomponent, healthcare system-level intervention that uses case managers to link primary care providers, patients, and mental health specialists. In addition to case management support, primary care providers receive consultation and decision support from mental health specialists (i.e., psychiatrists and psychologists). This collaboration is designed to (1) improve routine screening and diagnosis of depressive disorders; (2) increase provider use of evidence-based protocols for the proactive management of diagnosed depressive disorders; and (3) improve clinical and community support for active client/patient engagement in treatment goal-setting and self-management. **EVIDENCE ACQUISITION:** A team of subject matter experts in mental health, representing various agencies and institutions, conceptualized and conducted a systematic review and meta-analysis on collaborative care for improving the management of depressive disorders. This team worked under the guidance of the Community Preventive Services Task Force, a nonfederal, independent, volunteer body of public health and prevention experts. Community Guide systematic review methods were used to identify, evaluate, and analyze available evidence. **EVIDENCE SYNTHESIS:** An earlier systematic review with 37 RCTs of collaborative care studies published through 2004 found evidence of effectiveness of these models in improving depression outcomes. An additional 32 studies of collaborative care models conducted between 2004 and 2009 were found for this current review and analyzed. The results from the meta-analyses suggest robust evidence of effectiveness of collaborative care in improving depression symptoms (standardized mean difference [SMD]=0.34); adherence to treatment (OR=2.22); response to treatment (OR=1.78); remission of symptoms (OR=1.74); recovery from symptoms (OR=1.75); quality of life/functional status (SMD=0.12); and satisfaction with care (SMD=0.39) for patients diagnosed with depression (all effect estimates were significant). **CONCLUSIONS:** Collaborative care models are effective in achieving clinically meaningful improvements in depression outcomes and public health benefits in a wide range of populations, settings, and organizations. Collaborative care interventions provide a supportive network of professionals and peers for patients with depression, especially at the primary care level.

7. Unützer J, Katon W, Callahan CM, Williams JW, Jr., Hunkeler E, Harpole L, et al. Collaborative-care management of late-life depression in the primary care setting. *JAMA*. 2002;288(22):2836-45.

**Summary:** The primary results of the IMPACT Collaborative Care clinical trial which included n=1801 older adults with depression and showed treatment with Collaborative Care more than doubled the effectiveness of depression treatment.

**Scientific Abstract:**

**CONTEXT:** Few depressed older adults receive effective treatment in primary care settings. **OBJECTIVE:** To determine the effectiveness of the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) collaborative care management program for late-life depression. **DESIGN:** Randomized controlled trial with recruitment from July 1999 to August 2001. **SETTING:** Eighteen primary care clinics from 8 health care organizations in 5 states. **PARTICIPANTS:** A total of 1801 patients aged 60 years or older with major depression (17%), dysthymic disorder (30%), or both (53%). **INTERVENTION:** Patients were randomly assigned to the IMPACT intervention (n = 906) or to usual care (n = 895). Intervention patients had access for up to 12 months to a depression care manager who was supervised by a psychiatrist and a primary care expert and who offered education, care management, and support of antidepressant management by the patient's primary care physician or a brief psychotherapy for

depression, Problem Solving Treatment in Primary Care. MAIN OUTCOME MEASURES: Assessments at baseline and at 3, 6, and 12 months for depression, depression treatments, satisfaction with care, functional impairment, and quality of life. RESULTS: At 12 months, 45% of intervention patients had a 50% or greater reduction in depressive symptoms from baseline compared with 19% of usual care participants (odds ratio [OR], 3.45; 95% confidence interval [CI], 2.71-4.38;  $P < .001$ ). Intervention patients also experienced greater rates of depression treatment (OR, 2.98; 95% CI, 2.34-3.79;  $P < .001$ ), more satisfaction with depression care (OR, 3.38; 95% CI, 2.66-4.30;  $P < .001$ ), lower depression severity (range, 0-4; between-group difference, -0.4; 95% CI, -0.46 to -0.33;  $P < .001$ ), less functional impairment (range, 0-10; between-group difference, -0.91; 95% CI, -1.19 to -0.64;  $P < .001$ ), and greater quality of life (range, 0-10; between-group difference, 0.56; 95% CI, 0.32-0.79;  $P < .001$ ) than participants assigned to the usual care group. CONCLUSION: The IMPACT collaborative care model appears to be feasible and significantly more effective than usual care for depression in a wide range of primary care practices.

**8. Unützer J, Schoenbaum M, Druss BG, Katon WJ. Transforming mental health care at the interface with general medicine: report for the Presidents Commission. *Psychiatr Serv.* 2006;57(1):37-47.**

**Summary:** This report describes a background report prepared for the President's New Freedom Commission on Mental Health, and summarizes literature including on mental illness and the medical care system, barriers to effective care, quality improvement strategies, and key policy recommendations for overcoming barriers to use of evidence-based models including collaborative care.

**Scientific Abstract:**

This paper is based on a report commissioned by the Subcommittee on Mental Health Interface With General Medicine of the Presidents New Freedom Commission on Mental Health. Although mental and medical conditions are highly interconnected, medical and mental health care systems are separated in many ways that inhibit effective care. Treatable mental or medical illnesses are often not detected or diagnosed properly, and effective services are often not provided. Improved mental health care at the interface of general medicine and mental health requires educated consumers and providers; effective detection, diagnosis, and monitoring of common mental disorders; valid performance criteria for care at the interface of general medicine and mental health; care management protocols that match treatment intensity to clinical outcomes; effective specialty mental health support for general medical providers; and financing mechanisms for evidence-based models of care. Successful models exist for improving the collaboration between medical and mental health providers. Recommendations are presented for achieving high-quality care for common mental disorders at the interface of general medicine and mental health and for overcoming barriers and facilitating use of evidence-based quality improvement models.

**9. Fortney JC, Pyne JM, Edlund MJ, et al. A randomized trial of telemedicine-based collaborative care for depression. *J Gen Intern Med.* 2007;22:1086-1093.**

**Summary:** The Telemedicine Enhanced Antidepressant Management (TEAM) trial enrolled  $n=395$  patients from small Veterans' Affairs (VA) primary care clinics lacking on-site psychiatrists. Collaborative care was delivered remotely by off-site RN care managers and psychiatrists who were located at the same academic health center. Care managers provided care management by phone every two weeks including assessment using semi-structured scripts, with an average of 7 phone contacts per patient, and met face-to-face with psychiatrists for case review. Those randomized to collaborative care showed an increased rate of depression improvement at 6 months, with twice as many individuals experiencing depression remission at 12 months, compared to usual care.

**Scientific Abstract:**

**Background:** Evidence-based practices designed for large urban clinics are not necessarily portable into smaller isolated clinics. Implementing practice-based collaborative care for depression in smaller primary care clinics presents unique challenges because it is often not feasible to employ on-site psychiatrists.

**Objective:** The purpose of the Telemedicine Enhanced Antidepressant Management (TEAM) study was to evaluate a telemedicine-based collaborative care model adapted for small clinics without on-site psychiatrists.

**Design:** Matched sites were randomized to the intervention or usual care.

**Participants:** Small VA Community-based outpatient clinics with no on-site psychiatrists, but access to telepsychiatrists. In 2003-2004, 395 primary care patients with PHQ9 depression severity scores  $\geq 12$  were enrolled, and followed for 12 months. Patients with serious mental illness and current substance dependence were excluded.

**Measures:** Medication adherence, treatment response, remission, health status, health-related quality of life, and treatment satisfaction.

**Results:** The sample comprised mostly elderly, white, males with substantial physical and behavioral health comorbidity. At baseline, subjects had moderate depression severity (Hopkins Symptom Checklist, SCL-20 = 1.8), 3.7 prior depression episodes, and 67% had received prior depression treatment. Multivariate analyses indicated that intervention patients were more likely to be adherent at both 6 (odds ratio [OR] = 2.1,  $p = .04$ ) and 12 months (OR = 2.7,  $p = .01$ ). Intervention patients were more likely to respond by 6 months (OR = 2.0,  $p = .02$ ), and remit by 12 months (OR = 2.4,  $p = .02$ ). Intervention patients reported larger gains in mental health status and health-related quality of life, and reported higher satisfaction.

**Conclusions:** Collaborative care can be successfully adapted for primary care clinics without on-site psychiatrists using telemedicine technologies.

**10. Pomerantz AS, Corson JA, Detzer MJ. The challenge of integrated care for mental health: leaving the 50 minute hour and other sacred things. J Clin Psychol Med Settings. 2009;16(1):40-6.**

**Summary:** This narrative article describes challenges to integrated care to those new to working in integrated care settings, and experiences of a clinic system.

**Scientific Abstract:**

A growing body of research has demonstrated the effectiveness of integrating mental/behavioral healthcare with primary care in improving health outcomes. Despite this rich literature, such demonstration programs have proven difficult to maintain once research funding ends. Much of the discussion regarding maintenance of integrated care has been focused on lack of reimbursement. However, provider factors may be just as important, because integrated care systems require providers to adopt a very different role and operate very differently from traditional mental health practice. There is also great variability in definition and operationalization of integrated care. Provider concerns tend to focus on several factors, including a perceived loss of autonomy, discomfort with the hierarchical nature of medical care and primary care settings, and enduring beliefs about what constitutes "good" treatment. Providers may view integrated care models as delivering substandard care and passively or actively resist them. Dissemination of available data regarding effectiveness of these models is essential (e.g. timeliness of treatment, client satisfaction). Increasing exposure and training in these models, while maintaining the necessary training in traditional mental health care is a challenge for training at all levels, yet the challenge clearly opens new opportunities for psychology and psychiatry.

**11. Croghan T, Brown J. Integrating Mental Health Treatment Into the Patient Centered Medical Home.** (Prepared by Mathematica Policy Research under Contract No. HHSA290200900019I TO2.) Rockville, MD: Agency for Healthcare Research and Quality., 2010 Contract No.: AHRQ Publication No. 10-0084-EF.

**Summary:** A comprehensive multi-chapter report on the patient centered medical home and strategies of integrating mental health treatment.

**Scientific Abstract:**

Efforts to improve the quality and efficiency of primary care have recently focused on the concept of the Patient Centered Medical Home (PCMH). Given that primary care serves as a main venue for providing mental health treatment, it is important to consider whether the adoption of the PCMH model is conducive to delivery of such treatment. This paper identifies the conceptual similarities in and differences between the PCMH and current strategies used to deliver mental health treatment in primary care. Even though adoption of the PCMH has the potential to enhance delivery of mental health treatment in primary care, several programmatic and policy actions are needed to facilitate integration of high-quality mental health treatment within a PCMH.

**12. Katon W, Unützer J, Wells K, Jones L. Collaborative depression care: history, evolution and ways to enhance dissemination and sustainability.** *Gen Hosp Psychiatry.* 2010;32(5):456-64.

**Summary:** A review authored by four keynote speakers at the 2009 NIMH Mental Health Services Meeting, describing history and current strategies for development and implementation of Collaborative Care, including new demonstration projects.

**Scientific Abstract:**

**OBJECTIVE:** To describe the history and evolution of the collaborative depression care model and new research aimed at enhancing dissemination. **METHOD:** Four keynote speakers from the 2009 NIMH Annual Mental Health Services Meeting collaborated in this article in order to describe the history and evolution of collaborative depression care, adaptation of collaborative care to new populations and medical settings, and optimal ways to enhance dissemination of this model. **RESULTS:** Extensive evidence across 37 randomized trials has shown the effectiveness of collaborative care vs. usual primary care in enhancing quality of depression care and in improving depressive outcomes for up to 2 to 5 years. Collaborative care is currently being disseminated in large health care organizations such as the Veterans Administration and Kaiser Permanente, as well as in fee-for-services systems and federally funded clinic systems of care in multiple states. New adaptations of collaborative care are being tested in pediatric and ob-gyn populations as well as in populations of patients with multiple comorbid medical illnesses. New NIMH-funded research is also testing community-based participatory research approaches to collaborative care to attempt to decrease disparities of care in underserved minority populations. **CONCLUSION:** Collaborative depression care has extensive research supporting the effectiveness of this model. New research and demonstration projects have focused on adapting this model to new populations and medical settings and on studying ways to optimally disseminate this approach to care, including developing financial models to incentivize dissemination and partnerships with community populations to enhance sustainability and to decrease disparities in quality of mental health care.

13. Roy-Byrne P, Craske MG, Sullivan G, Rose RD, Edlund MJ, Lang AJ, et al. Delivery of Evidence-Based Treatment for Multiple Anxiety Disorders in Primary Care: A Randomized Controlled Trial. *JAMA*. 2010;303(19):1921-8.

**Summary:** This report describes the primary results of a large (n=1004) randomized trial of Collaborative Care treatment for patients with anxiety disorders in 17 primary care clinics, compared to usual care, and showed treatment with Collaborative Care was associated with significantly better patient outcomes at follow-up.

**Scientific Abstract:**

**Context:** Improving the quality of mental health care requires moving clinical interventions from controlled research settings into real-world practice settings. Although such advances have been made for depression, little work has been performed for anxiety disorders. **Objective** To determine whether a flexible treatment-delivery model for multiple primary care anxiety disorders (panic, generalized anxiety, social anxiety, and posttraumatic stress disorders) would be better than usual care (UC). **Design, Setting, and Patients:** A randomized controlled effectiveness trial of Coordinated Anxiety Learning and Management (CALM) compared with UC in 17 primary care clinics in 4 US cities. Between June 2006 and April 2008, 1004 patients with anxiety disorders (with or without major depression), aged 18 to 75 years, English- or Spanish-speaking, were enrolled and subsequently received treatment for 3 to 12 months. Blinded follow-up assessments at 6, 12, and 18 months after baseline were completed in October 2009. **Intervention:** CALM allowed choice of cognitive behavioral therapy (CBT), medication, or both; included real-time Web-based outcomes monitoring to optimize treatment decisions; and a computer-assisted program to optimize delivery of CBT by nonexpert care managers who also assisted primary care clinicians in promoting adherence and optimizing medications. **Main Outcome Measures:** Twelve-item Brief Symptom Inventory (BSI-12) anxiety and somatic symptoms score. Secondary outcomes included proportion of responders ( $\geq 50\%$  reduction from pretreatment BSI-12 score) and remitters (total BSI-12 score  $< 6$ ). **Results** A significantly greater improvement for CALM vs UC in global anxiety symptoms was found (BSI-12 group mean differences of -2.49 [95% confidence interval {CI}, -3.59 to -1.40], -2.63 [95% CI, -3.73 to -1.54], and -1.63 [95% CI, -2.73 to -0.53] at 6, 12, and 18 months, respectively). At 12 months, response and remission rates (CALM vs UC) were 63.66% (95% CI, 58.95%-68.37%) vs 44.68% (95% CI, 39.76%-49.59%), and 51.49% (95% CI, 46.60%-56.38%) vs 33.28% (95% CI, 28.62%-37.93%), with a number needed to treat of 5.27 (95% CI, 4.18-7.13) for response and 5.50 (95% CI, 4.32-7.55) for remission. **Conclusion:** For patients with anxiety disorders treated in primary care clinics, CALM compared with UC resulted in greater improvement in anxiety symptoms, depression symptoms, functional disability, and quality of care during 18 months of follow-up.

14. Zatzick DF, Roy-Byrne P, Russo J, et al. A randomized effectiveness trial of stepped collaborative care for acutely injured trauma survivors. *Arch Gen Psychiatry*. 2004;61:498-506.

**Summary:** The authors report results of a clinical trial including n=120 individuals hospitalized for care of acute injuries treated with Collaborative Care or usual care post hospital discharge, and found those receiving Collaborative Care has significantly better mental health outcomes including lower PTSD symptom severity and rates of alcohol abuse/dependence.

**Scientific Abstract:**

**Context:** Although posttraumatic stress disorder (PTSD) and alcohol abuse frequently occur among acutely injured trauma survivors, few real-world interventions have targeted these disorders.

**Objective:** We tested the effectiveness of a multifaceted collaborative care (CC) intervention for PTSD and alcohol abuse.

**Design:** Randomized effectiveness trial.

**Participants:** We recruited a population-based sample of 120 male and female injured surgical inpatients 18 or older at a level I trauma center.

**Intervention:** Patients were randomly assigned to the CC intervention (n = 59) or the usual care (UC) control condition (n = 61). The CC patients received stepped care that consisted of (1) continuous postinjury case management, (2) motivational interviews targeting alcohol abuse/dependence, and (3) evidence-based pharmacotherapy and/or cognitive behavioral therapy for patients with persistent PTSD at 3 months after injury.

**Main outcome measures:** We used the PTSD symptomatic criteria (PTSD Checklist) at baseline and 1, 3, 6, and 12 months after injury, and alcohol abuse/dependence (Composite International Diagnostic Interview) at baseline and 6 and 12 months after injury.

**Results:** Random-coefficient regression analyses demonstrated that over time, CC patients were significantly less symptomatic compared with UC patients with regard to PTSD ( $P = .01$ ) and alcohol abuse/dependence ( $P = .048$ ). The CC group demonstrated no difference (-0.07%; 95% confidence interval [CI], -4.2% to 4.3%) in the adjusted rates of change in PTSD from baseline to 12 months, whereas the UC group had a 6% increase (95% CI, 3.1%-9.3%) during the year. The CC group showed on average a decrease in the rate of alcohol abuse/dependence of -24.2% (95% CI, -19.9% to -28.6%), whereas the UC group had on average a 12.9% increase (95% CI, 8.2%-17.7%) during the year.

**Conclusions:** Early mental health care interventions can be feasibly and effectively delivered from trauma centers. Future investigations that refine routine acute care treatment procedures may improve the quality of mental health care for Americans injured in the wake of individual and mass trauma.

**15. Katon W, Unützer J. Consultation psychiatry in the medical home and accountable care organizations: achieving the triple aim. Gen Hosp Psychiatry. 2011;33(4):305-10.**

**Summary:** A focused summary of clinical epidemiology of patients with comorbid physical and psychiatric illnesses, Collaborative Care, and related health care policy.

#### **Scientific Abstract:**

We are in a time of increasing concern about unsustainable increases in health care costs to Medicare, Medicaid, employers and individuals. At the same time, more than half of patients with mental health needs do not receive care in any given year, and untreated mental disorders can be important drivers of high health care costs. As in the rest of health care, we are challenged with achieving the “triple aim” of improving access to care while at the same time improving quality and outcomes of care and reducing total health care costs. To achieve this triple aim, psychiatrists of the future will have to shift professional roles. In addition to traditional consultation liaison activities focused on individual patients in outpatient clinics or hospital settings, psychiatrists should have important roles in monitoring behavioral health needs, treatments and treatment outcomes for defined populations of patients and providing supervision and guidance to interdisciplinary teams of primary care and behavioral health providers caring for a defined panel of patients.

**16. Gilbody S, Lewis H, Adamson J, et al. Effect of collaborative care vs usual care on depressive symptoms in older adults with subthreshold depression: The CASPER Randomized clinical trial. JAMA. 2017;317:728-737.**

**Summary:** The primary results of a clinical trial showed Collaborative Care for older adults with subthreshold depressive symptoms was associated with lower severity depressive symptoms at 4 months, and significantly decreased risk of onset of major depressive disorder at 12 months, compared to usual care.

#### **Scientific Abstract:**

**Importance:** There is little evidence to guide management of depressive symptoms in older people.

**Objective:** To evaluate whether a collaborative care intervention can reduce depressive symptoms and prevent more severe depression in older people.

**Design, setting, and participants:** Randomized clinical trial conducted from May 24, 2011, to November 14, 2014, in 32 primary care centers in the United Kingdom among 705 participants aged 65 years or older with Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) subthreshold depression; participants were followed up for 12 months.

**Interventions:** Collaborative care (n=344) was coordinated by a case manager who assessed functional impairments relating to mood symptoms. Participants were offered behavioral activation and completed an average of 6 weekly sessions. The control group received usual primary care (n=361).

**Main outcomes and measures:** The primary outcome was self-reported depression severity at 4-month follow-up on the 9-item Patient Health Questionnaire (PHQ-9; score range, 0-27). Included among 10 prespecified secondary outcomes were the PHQ-9 score at 12-month follow-up and the proportion meeting criteria for depressive disorder (PHQ-9 score  $\geq 10$ ) at 4- and 12-month follow-up.

**Results:** The 705 participants were 58% female with a mean age of 77 (SD, 7.1) years. Four-month retention was 83%, with higher loss to follow-up in collaborative care (82/344 [24%]) vs usual care (37/361 [10%]). Collaborative care resulted in lower PHQ-9 scores vs usual care at 4-month follow-up (mean score with collaborative care, 5.36 vs with usual care, 6.67; mean difference, -1.31; 95% CI, -1.95 to -0.67;  $P < .001$ ). Treatment differences remained at 12 months (mean PHQ-9 score with collaborative care, 5.93 vs with usual care, 7.25; mean difference, -1.33; 95% CI, -2.10 to -0.55). The proportions of participants meeting criteria for depression at 4-month follow-up were 17.2% (45/262) vs 23.5% (76/324), respectively (difference, -6.3% [95% CI, -12.8% to 0.2%]; relative risk, 0.83 [95% CI, 0.61-1.27];  $P = .25$ ) and at 12-month follow-up were 15.7% (37/235) vs 27.8% (79/284) (difference, -12.1% [95% CI, -19.1% to -5.1%]; relative risk, 0.65 [95% CI, 0.46-0.91];  $P = .01$ ).

**Conclusions and relevance:** Among older adults with subthreshold depression, collaborative care compared with usual care resulted in a statistically significant difference in depressive symptoms at 4-month follow-up, of uncertain clinical importance. Although differences persisted through 12 months, findings are limited by attrition, and further research is needed to assess longer-term efficacy.

**17. Fortney JC, Pyne JM, Kimbrell TA, et al. Telemedicine-based collaborative care for posttraumatic stress disorder: a randomized controlled trial. JAMA Psychiatry. 2015;72:58-67.**

**Summary:** The Telemedicine Outreach for PTSD (TOP) study compared remote collaborative care to usual care in 11 VA primary care clinics in individuals with PTSD. Offsite nurse care managers worked as part of a PTSD Care team (including a psychologist, pharmacist, and psychiatric consultant) co-located at VA Medical Centers. Care managers met face-to face with the collaborative care team for case review, and contacted patients by phone, and average of 14 contacts per patient, and used a web-based decision support system. Every 2 week phone contacts with patients included care managers assessing patient symptoms, problem-solving, coordinating care, and scheduling psychotherapy with the off-site psychologist. Patients receiving collaborative care experienced significantly greater reductions in PTSD symptoms at 6 and 12 months.

**Scientific Abstract:**

**Importance:** Posttraumatic stress disorder (PTSD) is prevalent, persistent, and disabling. Although psychotherapy and pharmacotherapy have proven efficacious in randomized clinical trials, geographic barriers impede rural veterans from engaging in these evidence-based treatments.

**Objective:** To test a telemedicine-based collaborative care model designed to improve engagement in evidence-based treatment of PTSD.

**Design, setting, and participants:** The Telemedicine Outreach for PTSD (TOP) study used a pragmatic randomized effectiveness trial design with intention-to-treat analyses. Outpatients were recruited from 11 Department of Veterans Affairs (VA) community-based outpatient clinics serving predominantly rural veterans. Inclusion required meeting diagnostic criteria for current PTSD according to the Clinician-Administered PTSD Scale. Exclusion criteria included receiving PTSD treatment at a VA medical center or a current diagnosis of schizophrenia, bipolar disorder, or substance dependence. Two hundred sixty-five veterans were enrolled from November 23, 2009, through September 28, 2011, randomized to usual care (UC) or the TOP intervention, and followed up for 12 months.

**Interventions:** Off-site PTSD care teams located at VA medical centers supported on-site community-based outpatient clinic providers. Off-site PTSD care teams included telephone nurse care managers, telephone pharmacists, telepsychologists, and telepsychiatrists. Nurses conducted care management activities. Pharmacists reviewed medication histories. Psychologists delivered cognitive processing therapy via interactive video. Psychiatrists supervised the team and conducted interactive video psychiatric consultations.

**Main outcomes and measures:** The primary outcome was PTSD severity as measured by the Posttraumatic Diagnostic Scale. Process-of-care outcomes included medication prescribing and regimen adherence and initiation of and adherence to cognitive processing therapy.

**Results:** During the 12-month follow-up period, 73 of the 133 patients randomized to TOP (54.9%) received cognitive processing therapy compared with 16 of 132 randomized to UC (12.1%) (odds ratio, 18.08 [95% CI, 7.96-41.06];  $P < .001$ ). Patients in the TOP arm had significantly larger decreases in Posttraumatic Diagnostic Scale scores (from 35.0 to 29.1) compared with those in the UC arm (from 33.5 to 32.1) at 6 months ( $\beta = -3.81$ ;  $P = .002$ ). Patients in the TOP arm also had significantly larger decreases in Posttraumatic Diagnostic Scale scores (from 35.0 to 30.1) compared with those in the UC arm (from 33.5 to 31.7) at 12 months ( $\beta = -2.49$ ;  $P = .04$ ). There were no significant group differences in the number of PTSD medications prescribed and adherence to medication regimens were not significant. Attendance at 8 or more sessions of cognitive processing therapy significantly predicted improvement in Posttraumatic Diagnostic Scale scores ( $\beta = -3.86$  [95% CI, -7.19 to -0.54];  $P = .02$ ) and fully mediated the intervention effect at 12 months.

**Conclusions and relevance:** Telemedicine-based collaborative care can successfully engage rural veterans in evidence-based psychotherapy to improve PTSD outcomes.

**18. Richardson LP, Ludman E, McCauley E, et al. Collaborative care for adolescents with depression in primary care: a randomized clinical trial. JAMA. 2014;312:809-816.**

**Summary:** The authors report primary results of a randomized trial of Collaborative Care for adolescents (ages 13-17) with depression in primary care, and found treatment with Collaborative Care doubled the effectiveness of depression treatment.

**Scientific Abstract:**

**Importance:** Up to 20% of adolescents experience an episode of major depression by age 18 years yet few receive evidence-based treatments for their depression.

**Objective:** To determine whether a collaborative care intervention for adolescents with depression improves depressive outcomes compared with usual care.

**Design:** Randomized trial with blinded outcome assessment conducted between April 2010 and April 2013.

**Setting:** Nine primary care clinics in the Group Health system in Washington State.

**Participants:** Adolescents (aged 13-17 years) who screened positive for depression (Patient Health Questionnaire 9-item [PHQ-9] score  $\geq 10$ ) on 2 occasions or who screened positive and met criteria for major depression, spoke English, and had telephone access were recruited. Exclusions included alcohol/drug misuse, suicidal plan or recent attempt, bipolar disorder, developmental delay, and seeing a psychiatrist.

**Interventions:** Twelve-month collaborative care intervention including an initial in-person engagement session and regular follow-up by master's-level clinicians. Usual care control youth received depression screening results and could access mental health services through Group Health.

**Main outcomes and measures:** The primary outcome was change in depressive symptoms on a modified version of the Child Depression Rating Scale-Revised (CDRS-R; score range, 14-94) from baseline to 12 months. Secondary outcomes included change in Columbia Impairment Scale score (CIS), depression response ( $\geq 50\%$  decrease on the CDRS-R), and remission (PHQ-9 score  $< 5$ ).

**Results:** Intervention youth ( $n = 50$ ), compared with those randomized to receive usual care ( $n = 51$ ), had greater decreases in CDRS-R scores such that by 12 months intervention youth had a mean score of 27.5 (95% CI, 23.8-31.1) compared with 34.6 (95% CI, 30.6-38.6) in control youth (overall intervention effect:  $F_{2,747.3} = 7.24$ ,  $P < .001$ ). Both intervention and control youth experienced improvement on the CIS with no significant differences between groups. At 12 months, intervention youth were more likely than control youth to achieve depression response (67.6% vs 38.6%, OR = 3.3, 95% CI, 1.4-8.2;  $P = .009$ ) and remission (50.4% vs 20.7%, OR = 3.9, 95% CI, 1.5-10.6;  $P = .007$ ).

**Conclusions and relevance:** Among adolescents with depression seen in primary care, a collaborative care intervention resulted in greater improvement in depressive symptoms at 12 months than usual care. These findings suggest that mental health services for adolescents with depression can be integrated into primary care.

### 19. Katon W, Lin EHB, Von Korff M, et al. Collaborative care for patients with depression and chronic illnesses. *N Engl J Med.* 2010;27:2611-2620.

**Summary:** The authors report primary results of a randomized trial comparing multi-condition Collaborative Care to usual care for patients with depression and diabetes and/or cardiovascular disease. Treatment with Collaborative Care was associated with significantly greater improvements in depression, and diabetes and cardiovascular disease measures, along with better quality of life and satisfaction with care.

#### **Scientific Abstract:**

**Background:** Patients with depression and poorly controlled diabetes, coronary heart disease, or both have an increased risk of adverse outcomes and high health care costs. We conducted a study to determine whether coordinated care management of multiple conditions improves disease control in these patients.

**Methods:** We conducted a single-blind, randomized, controlled trial in 14 primary care clinics in an integrated health care system in Washington State, involving 214 participants with poorly controlled diabetes, coronary heart disease, or both and coexisting depression. Patients were randomly assigned to the usual-care group or to the intervention group, in which a medically supervised nurse, working with each patient's primary care physician, provided guideline-based, collaborative care management, with the goal of controlling risk factors associated with multiple diseases. The primary outcome was based on simultaneous modeling of glycated hemoglobin, low-density

lipoprotein (LDL) cholesterol, and systolic blood-pressure levels and Symptom Checklist-20 (SCL-20) depression outcomes at 12 months; this modeling allowed estimation of a single overall treatment effect.

**Results:** As compared with controls, patients in the intervention group had greater overall 12-month improvement across glycated hemoglobin levels (difference, 0.58%), LDL cholesterol levels (difference, 6.9 mg per deciliter [0.2 mmol per liter]), systolic blood pressure (difference, 5.1 mm Hg), and SCL-20 depression scores (difference, 0.40 points) ( $P<0.001$ ). Patients in the intervention group also were more likely to have one or more adjustments of insulin ( $P=0.006$ ), antihypertensive medications ( $P<0.001$ ), and antidepressant medications ( $P<0.001$ ), and they had better quality of life ( $P<0.001$ ) and greater satisfaction with care for diabetes, coronary heart disease, or both ( $P<0.001$ ) and with care for depression ( $P<0.001$ ).

**Conclusions:** As compared with usual care, an intervention involving nurses who provided guideline-based, patient-centered management of depression and chronic disease significantly improved control of medical disease and depression.

