Psychiatr Q (2016) 87:1–23
DOI 10.1007/s11126-015-9375-1

ORIGINAL PAPER

The New York State Collaborative Care Initiative: 2012–2014

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Abstract We report on a partnership between the NYS Department of Health and Office of Mental Health that delivered the full integration of depression care into primary medical care. Called the NYS Collaborative Care Initiative (NYS-CCI), nineteen NYS academic medical centers participated. Based on principles of chronic illness care, Collaborative Care detects and manages depression in primary care using a highly prescriptive protocol (University of Washington AIMS Center website: http://uwaims.org/). Fidelity was ensured by measuring screening rates, diagnosis, enrollment, and improvement among those in treatment for 16 weeks. There was significant, progressive performance improvement in sites that served over 1 million patients over the course of the two and a half year grant. Clinics also reported satisfaction with the CC model. Based on the experience gained, we recommend a number of critical actions necessary for the successful implementation and scaling-up of CC throughout any state undertaking this endeavor.

Keywords Mental health · Primary care · Integration of services · Collaborative Care · Depression · Measurement based care · Graduate medical education

Introduction

Behavioral health disorders, such as depression, are among the most prevalent health conditions in New York State and throughout the country, disabling many and impairing successful control of or recovery from co-existing medical disorders, including diabetes, asthma, cardiovascular and lung diseases, cancer, and neurological illnesses. Although safe and effective treatments for depression exist, the great majority of people in need are not

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being detected or receiving adequate care due to: how they are managed (not managed, in effect) in primary care; access problems to specialty mental health care: a shortage of mental health specialists; and stigma [1].

As health care systems undergo transformation, care is becoming more consumer-centered and measures are being put in place to drive down overall costs [2]. In this health care environment, there is increasing recognition of the vital role of "integrated care" programs, and commitment to providing them (Appendix 6). Integrated care aims to provide both medical and mental health care in one setting, most often within primary care. Accessibility to depression treatment in primary care is convenient for consumers, can help to reduce the stigma associated with the treatment for mental disorders, builds upon existing doctor–patient relationships, improves care and outcomes for patients who have both depression and co-occurring medical disorders, and over time can reduce costs. Evidence also shows that patient satisfaction with integrated care systems is high [3, 4].

Collaborative Care (CC), as we use the term here, refers to an evidence-based model for delivering quality depression care in a primary care setting. Developed at the University of Washington and based on principles of chronic illness management, CC focuses on detecting depression in primary care using a specific validated screening test, then medical diagnosis of the disorder, followed by tracking those with the illness through a registry, with the use of a measurement-based depression care path that identifies needed changes in treatment if a patient does not improve; in addition, there is training of clinical and administrative staff in the practice, and educating and activating patients.[1] Collaborative Care has now been tested in more than 70 randomized controlled trials in the USA and in other countries, in a variety of treatment settings, in both urban and rural environments and with diverse patient groups (Appendix 1) [1].

Evidence suggests that collaborative care for depression not only improves consumer outcomes for depression but also for common co-occurring general medical conditions such as diabetes, hypertension and hyperlipidemia [5]. It has been shown to lead to better patient and provider satisfaction. In addition, CC has demonstrated cost savings in long-term studies when compared to conventional care [6].

Despite its robust evidence base, large scale implementation of CC has been very limited. This is largely because CC requires practice changes on multiple levels—it is tantamount to a new way of practicing medicine. However, with this amount of evidence of its effectiveness, with improved patient and provider satisfaction, and with the need to reduce unnecessary spending, its adoption has been increasing and needs to scale-up further.

The New York State Collaborative Care Initiative (NYS-CCI)

New York State has committed its medical policy and practice goals in integrating behavioral (mental) health care into primary care. In what may be the largest state government behavioral health effort, through the New York State (NYS) Hospital Medical Home Program, the NYS Department of Health (DOH) and Office of Mental Health (OMH) have partnered to implement CC for depression across the state [7]. The NYS Collaborative Care Initiative (CCI) for depression has been part of a 2.5 year, Federal Hospital-Medical Home (HMH), Graduate Medical Education (GME) grant-funded project designed to advance primary care practices, including the integration of mental health,

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throughout New York State. The NYS-CCI is specifically the integration of depression care into ambulatory, primary care resident training sites, using selected Academic Medical Centers (AMCs). This project began in July of 2012 and ended in December 2014 when the grant terminated.

As the largest state sponsored implementation of integration of behavioral health in primary care to date, questions as to whether CCI implementation is feasible, successful, scalable and sustainable in NYS (and across the country) are critical clinical and policy questions that call for answers. We report on our experience and lessons learned here.

What are the Essential Elements of CC?

CC in a primary care setting has explicit requirements for what constitutes a clinical team and the essential elements of care that must be provided (Appendix 3). CC is delivered by a depression care team. This team approach includes: (1) training primary care providers in screening for and treating common mental health conditions, in this case depression; (2) employing in the primary care setting care managers who engage, educate, and provide basic counseling and medication support for patients diagnosed with depression and entered into the registry and treated; and, (3) psychiatrists who provide caseload consultation as well as consult on those patients who may need changes in treatment or more intensive, specialty services to care managers and primary care physicians, principally by telephone or video.

The CC approach also requires a very particular set of tools: a standardized screen for depression [the Patient Health Questionnaire-9 (PHQ-9)] [8] (Appendix 7) to detect and track the progress of depressed patients using a registry (similar to diabetes and asthma registries) (see footnote 1). The monitoring and tracking allows primary care doctors and care managers to adjust and/or intensify treatment if clinical improvements are not achieved as expected, much as tracking a person's hypertension would lead to changes in treatment. Referrals to specialty mental health care are typically also reduced as effective care is delivered in the primary care setting, thereby sparing specialty mental health resources for those with the most significant mental health conditions.

The NYS CCI Project: Implementation

OMH contracted with the AIMS center at the University of Washington to provide the technical assistance needed by participating clinics to implement CC through the HMH project. The AIMS center subcontracted with the Institute for Family Health (IFH) to provide training and technical assistance in NYS. A core team developed the training program specific for the New York state sites. In all, 19 academic hospital centers across NYS chose to implement CC at one or more of their primary care clinics (32 clinics serving 1 million patients).

The technical assistance was designed to be delivered in two tracks: "Innovator" and "PCMH grantee" sites. Six medical centers were chosen as innovator sites and received intensive training and technical assistance, including in-person workshops, webinars, and regular ongoing consultation. The other sites, the PCMH grantees, received webinars and information packages on implementation. This distinction fell away over time as many sites engaged their own technical assistance in addition to what this project provided.

All sites began seeing patients by the requirements of the grant by July 2013. They reported quarterly on the project deliverables (specified in Appendix 2). The project deliverables were established to help ensure fidelity to the core aspects of the CC model and thus its likely success (Appendix 4).

The NYS CCI Project: Results

Nineteen Academic Medical Centers implemented CC in 32 of their primary care clinics. Over time, all clinics worked to improve their implementation of CC based on continuous information feedback and technical assistance; data collected during the project (by DOH) indicate almost all practices succeeded in delivering CC.

In general, with the exception of screening yield among those screened, which was relatively stable around 10–13 %, all other measures, including rates of screening, depression diagnosis given positive screens, enrollment in depression care given positive depression diagnosis, and improvement among those in treatment for 16+ weeks showed improvement over the course of the grant (Fig. 1).

At the beginning of the implementation, many clinics reported they had some form of depression screening protocol in place; however, in fact, on average across clinic less than half (46 %) of patients served were screened for depression at the beginning of the grant. Over the 2 years of the project, participating clinics steadily increased their screening rate, with an end of grant average screening rate across clinics of 85 %, with many clinics near 100 %. Of the 32 clinics, 23 (72 %) met or exceeded the original goal of screening 85 % of all patients screened at least annually. Training and new practice protocols were put into place to ensure that depression screening became standard practice, much like measuring blood pressure or HgA1c (Table 1).

The number of patients with a positive screen who were then diagnosed with depression also increased over the course of the grant, indicating that fewer patients with this illness

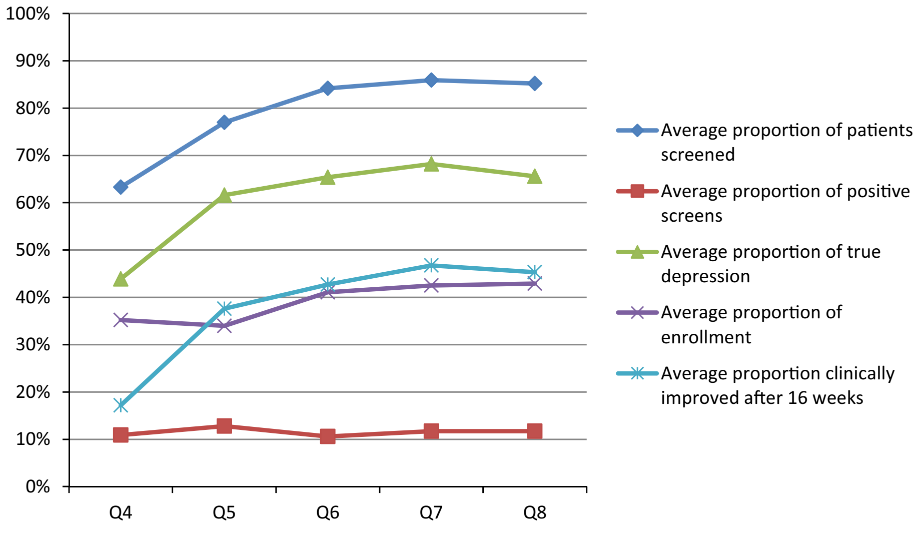


Fig. 1 Average rate at all sites, by quarter of the grant. Outcomes across all sites (n = 32)

Table 1 Average proportions for all sites, by quarter of the grant

	Q4 (%)	Q5 (%)	Q6 (%)	Q7 (%)	Q8 (%)
Average proportion of patients screened	63.3	77.0	84.2	85.9	85.2
Average proportion of positive screens	10.9	12.8	10.6	11.7	11.7
Average proportion of true depression	43.9	61.6	65.4	68.2	65.6
Average proportion of enrollment	35.2	34.0	41.1	42.5	42.9
Average proportion clinically improved after 16 weeks	17.2	37.6	42.7	46.7	45.3

Note that the first three quarters were for implementation and preliminary results only, and are thus not included here

were falling through the cracks. We saw evidence of better follow-up on positive screens and, with training, PCPs becoming more comfortable making a diagnosis of depression and treating the condition in their practices. The rate of diagnosis of depression among those with a positive screen increased from an initial rate of 44 to 66 % by the end of the grant, on average across clinics.

In terms of enrollment, the number of those diagnosed with depression who were subsequently enrolled in CC has increased from a low of 32 to 43 %. This has in part been due to increased staffing (especially of care managers), the use of Electronic Health Record fields or spreadsheets to enroll patients in CC, and the enthusiasm that comes from experiencing success in implementing an effective treatment that patients like. During the final quarter of the project, nearly 6000 patients were enrolled in CC, a threefold increase from the previous year, suggesting that as clinics become familiar with the model they can improve their patient engagement and retention in care.

Finally, CC was effective in reducing the burden of depression among a large proportion of those retained in treatment. At the end of the grant (Q7–Q8), 45–46 % of patients in treatment for at least 16 weeks showed improvement of their PHQ-9 scores to less than 10 up from only 17 % at the end of the first year (Q4); this is indicative of significant clinical improvement as scores <10 are generally not consistent with a diagnosis of clinical depression.

Provider and Consumer Experience

The participating clinics reported increased satisfaction with their implementation and the use of this model. Primary Care providers (PCPs) remarked that it is a pragmatic approach, appreciate the psychosocial support for their patients, and wish to see it sustained in their clinics. Anecdotal feedback from consumers was also very positive (Appendix 5).

One patient, who had a PHQ-9 that went from 16 (moderate depression) to 6 over the course of 5 weeks, was a 55 year old man with many chronic medical conditions who had recently moved to NYC and had little support. His treatment included sessions of problem solving therapy, which helped him organize his scheduling and time. His attention to his medical illnesses also improved as he became an active participant in his own self-care.

Another success story is that of a 58 year old patient who originally had a PHQ-9 score of 19 (moderate to severe). She had a history of recurrent major depressive disorder. Through her participation in a program of self-care as well as receiving better medication dosing and care manager support she was able to reduce her PHQ-9 score to 9, as well as cut her smoking down to half within a few weeks. She reported new found optimism for her future.

Across the sites, both clinicians and patients commonly reported enthusiasm about delivering CC.

Because the fully realized adoption of CC was at most 1½ years, less in most sites, we did not attempt to determine if medical costs were reduced in the population receiving CC. Ongoing work, supported by a Medicaid supplemental payment, will attempt to do so.

Lessons Learned and Barriers to Sustainability

Overall, there was considerable performance improvement by primary care practices, over 2 years, in the implementation of CC. With the right training and support, CC is both feasible and effective. In fact, we anticipate the results to date to increase over time, as long term studies of the CC model show that gains accrue—especially in years 3 and 4, both in terms of cost effectiveness and reduced medical morbidity among patients with co-existing depression.

However, there have been challenges to the large sale implementation of CC in NYS. Trying to change the attitudes of physicians and creating a radical shift in the way medicine is practiced often initially prompts many clinicians (and administrators) to resist. Primary care physicians have traditionally been reluctant to treat depression in primary care, and psychiatrists have been reluctant to manage care through a caseload model of consultation (without face to face evaluation). Integration, thus to date, has not been a standard of primary care practice. Because Collaborative Care is a fundamental departure from usual care, it requires practitioners to orient to the model and learn *new* roles—an often underappreciated aspect of implementing Collaborative Care.

Another challenge was that there have been other demands on practices related to other aspects of health care transformation, leaving many providers overwhelmed by new practice demands, the introduction of additional regulatory and payment requirements, and almost constant change. However, as clinics adapted to the model (with ongoing technical assistance) we received positive feedback that as primary care physicians and practices felt supported they became able to detect and treat depression in patients whom they had known to be ill for years but had never screened or diagnosed.

A second and substantial challenge involved the way the project was funded. Funding was provided centrally to the AMCs, not to the actual primary care practices; some, as a result, encountered barriers to receiving the money they needed from their central offices to implement the model properly. Many AMCs were initially reluctant to hire the additional staff required for such a model, concerned about the end of the funding period and how they would pay for such staff or bill for the new care methods required whose expenditures had been covered by the grant. Many sites reported hiring freezes or significant delays in obtaining approval to hire additional staff with no clear, future funding stream to support staff time.

A third challenge was that practices seemed reluctant to fully invest in the training and quality improvement of a model that itself came with a variety of regulatory and licensing burdens. Along with insecure funding, regulatory barriers added to the reluctance of practices to fully commit to implementation of a model whose sustainability remained uncertain.

Another challenge worth noting is the difficulty in obtaining standardized performance reporting. Even well operationalized metrics may not be reported in the same fashion across providers without built in quality checks. Given the large number of practice transformation projects typically underway in primary care practices today, provider capacity to respond to multiple third party quality improvement data requests is limited.

Recommendations

The following are recommendations to sustain CC based on the experience of the CCI in NYS.

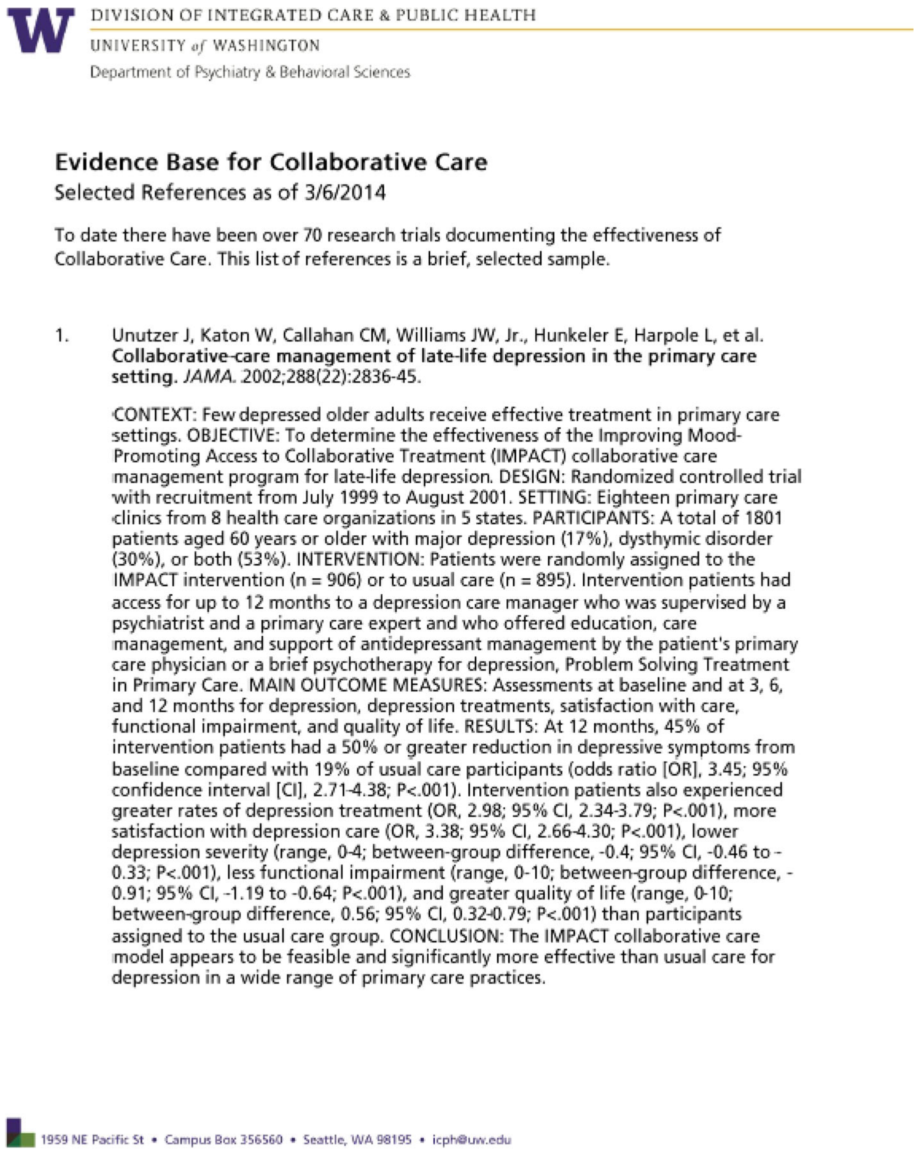
1. There must be a clear and credible path to state level payment mechanism(s) beyond grant funding.
2. Clinics must be able to implement CC without undue regulatory and licensing burdens; for example, meeting both the requirements of the departments of health and mental health.
3. There needs to be continued support for training and supervision in integrated care and attention to recruiting and retaining the staff needed to deliver CC, including the hiring and supervision of care managers and the presence of psychiatrists needed for consultation in collaborative care.

This is a remarkable time in health and mental health transformation—perhaps the greatest changes we have seen in the country since the 1960s. We are seeing an historic push toward truly integrated care. We believe the NYS-CCI project offers experience, knowledge, and hope to propel health care systems forward in delivering integrated mental health care. What we have achieved can be scaled-up further in NYS, and throughout this country.

Human and Animal Rights and Informed Consent This article does not contain any studies with human participants or animals performed by any of the authors.

Conflict of interest All authors declare they have no conflict of interest.

Appendix 1: Research Bibliography



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Evidence Base for Collaborative Care

Selected References as of 3/6/2014

To date there have been over 70 research trials documenting the effectiveness of Collaborative Care. This list of references is a brief, selected sample.

1. Unutzer 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.

   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.

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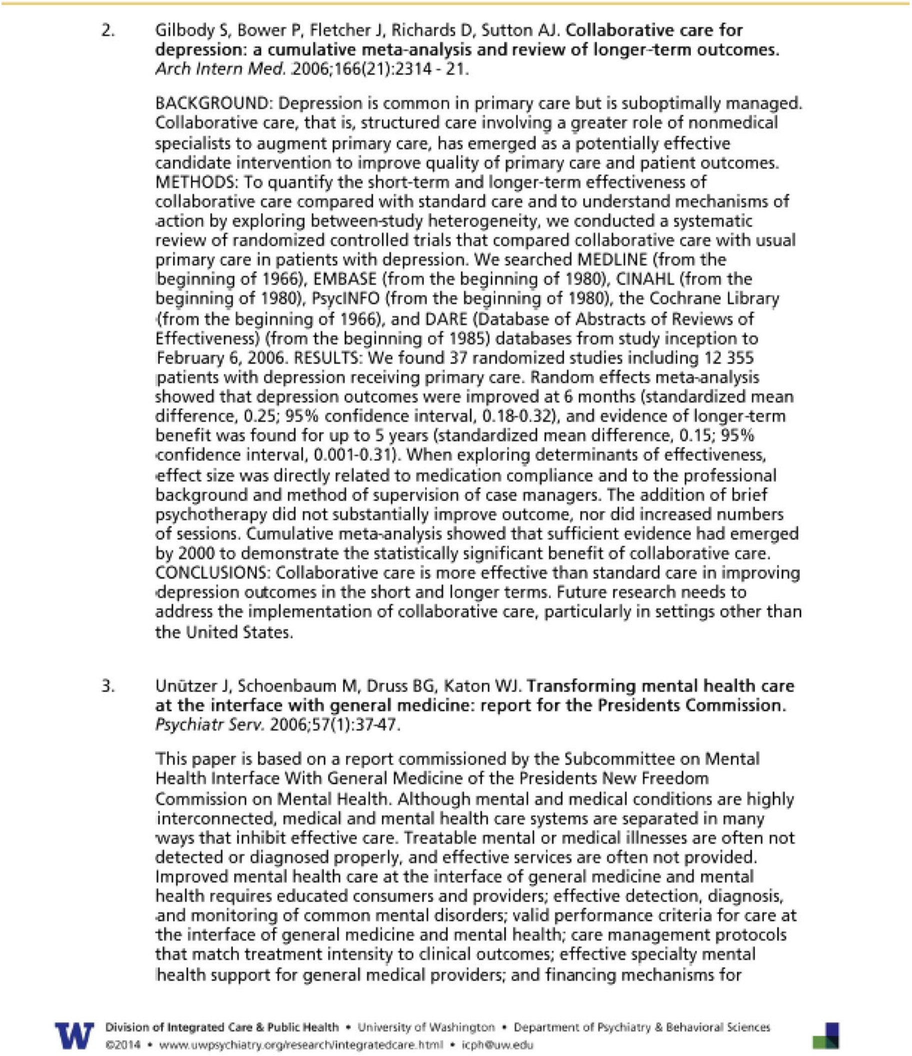
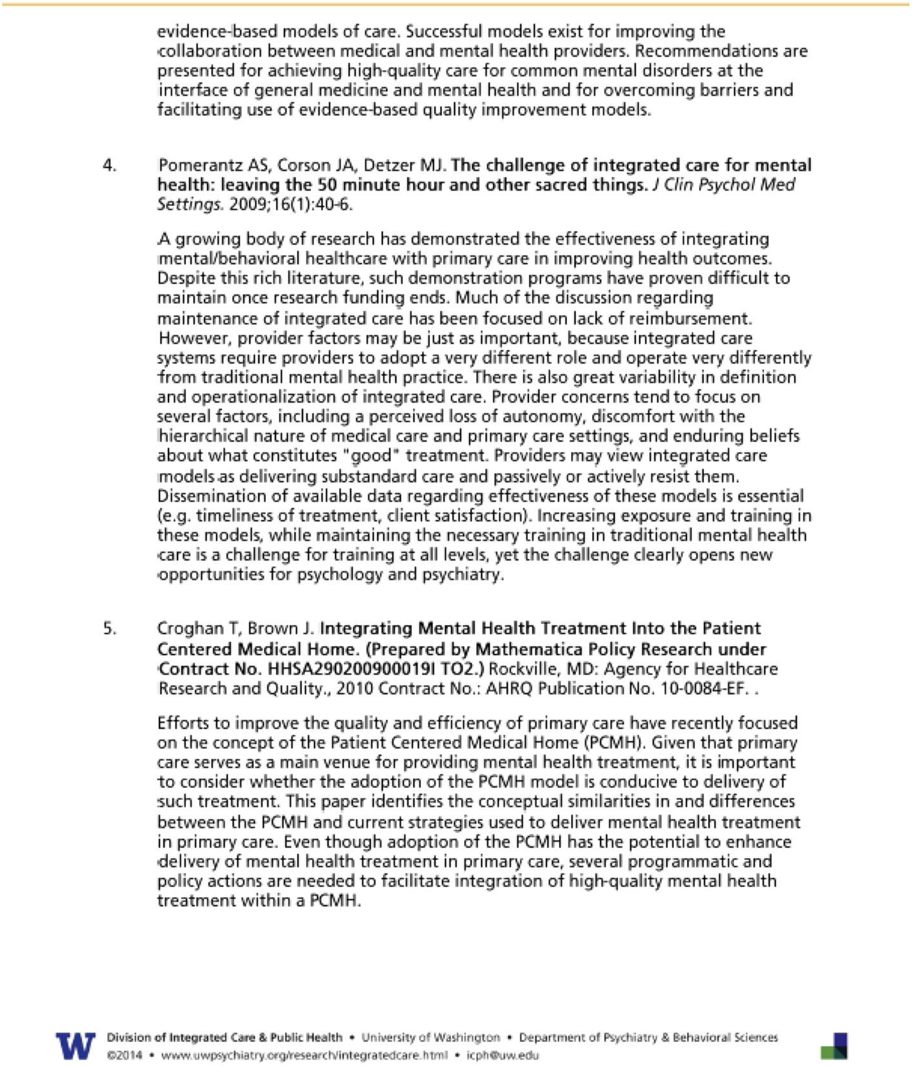


2. Gilbody S, Bower P, Fletcher J, Richards D, Sutton AJ. **Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes.** *Arch Intern Med.* 2006;166(21):2314 - 21.

   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. 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.

   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



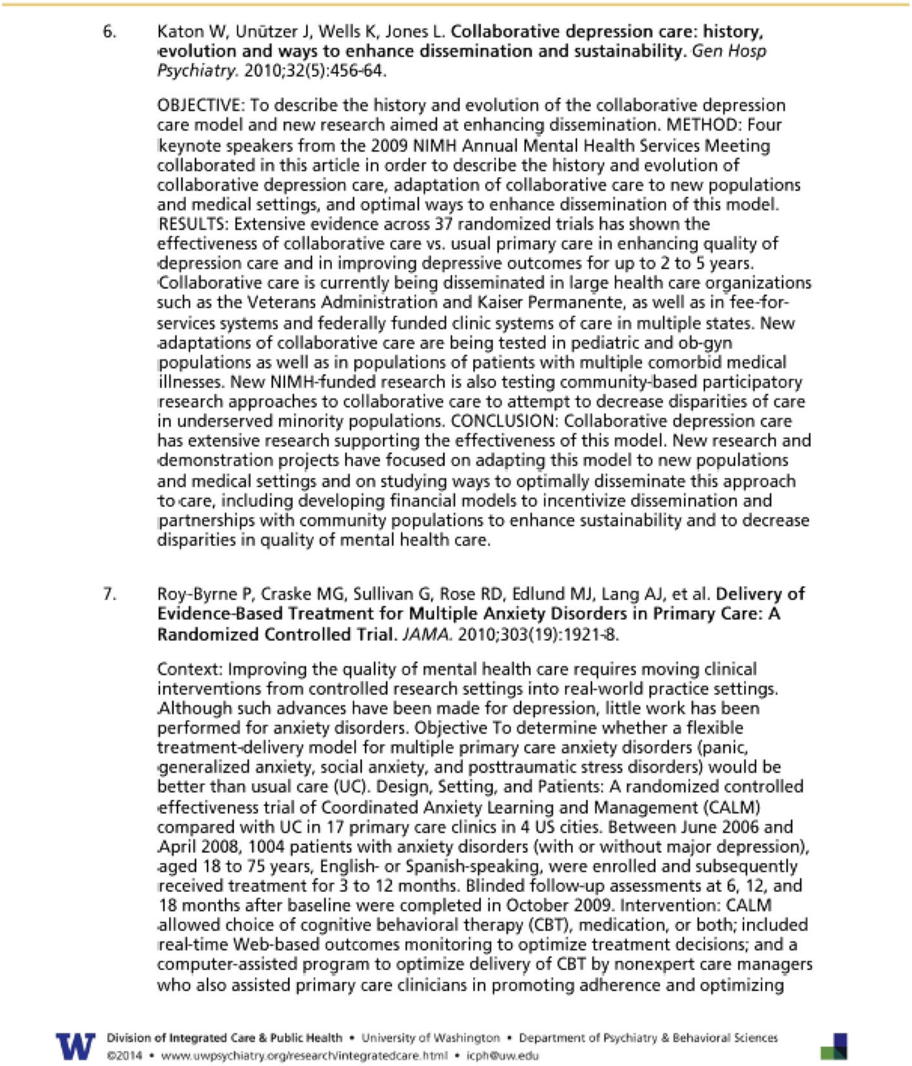
evidence-based models of care. Successful models exist for improving the collaboration between medical and mental health providers. Recommendations are presented for achieving high-quality care for common mental disorders at the interface of general medicine and mental health and for overcoming barriers and facilitating use of evidence-based quality improvement models.

4. 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.

   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.

5. 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. .

   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.



6. 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.

   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.

7. 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.

   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

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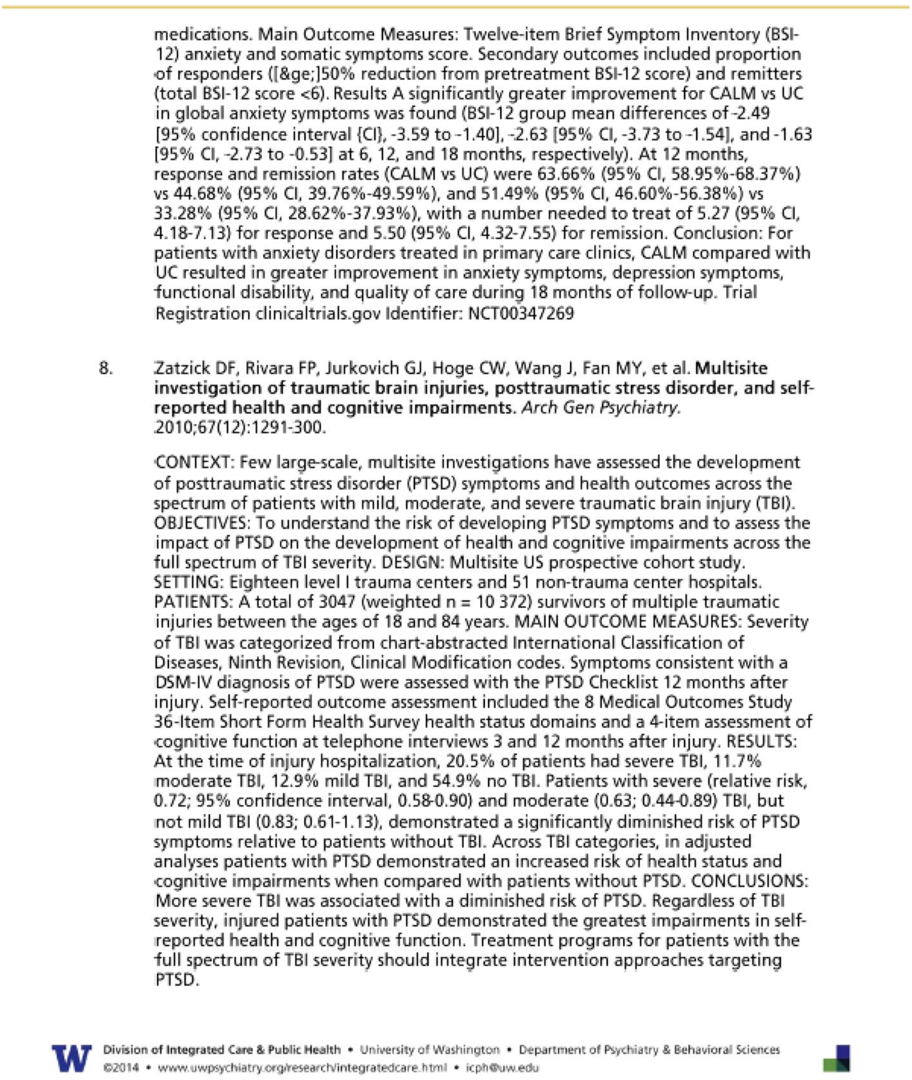

medications. Main Outcome Measures: Twelve-item Brief Symptom Inventory (BSI-12) anxiety and somatic symptoms score. Secondary outcomes included proportion of responders ([≥]50% reduction from pretreatment BSI-12 score) and remitters (total BSI-12 score <6). Results A significantly greater improvement 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. Trial Registration clinicaltrials.gov Identifier: NCT00347269

8. Zatzick DF, Rivara FP, Jurkovich GJ, Hoge CW, Wang J, Fan MY, et al. **Multisite investigation of traumatic brain injuries, posttraumatic stress disorder, and self-reported health and cognitive impairments.** *Arch Gen Psychiatry.* 2010;67(12):1291-300.

CONTEXT: Few large-scale, multisite investigations have assessed the development of posttraumatic stress disorder (PTSD) symptoms and health outcomes across the spectrum of patients with mild, moderate, and severe traumatic brain injury (TBI). OBJECTIVES: To understand the risk of developing PTSD symptoms and to assess the impact of PTSD on the development of health and cognitive impairments across the full spectrum of TBI severity. DESIGN: Multisite US prospective cohort study. SETTING: Eighteen level I trauma centers and 51 non-trauma center hospitals. PATIENTS: A total of 3047 (weighted n = 10 372) survivors of multiple traumatic injuries between the ages of 18 and 84 years. MAIN OUTCOME MEASURES: Severity of TBI was categorized from chart-abstracted International Classification of Diseases, Ninth Revision, Clinical Modification codes. Symptoms consistent with a DSM-IV diagnosis of PTSD were assessed with the PTSD Checklist 12 months after injury. Self-reported outcome assessment included the 8 Medical Outcomes Study 36-Item Short Form Health Survey health status domains and a 4-item assessment of cognitive function at telephone interviews 3 and 12 months after injury. RESULTS: At the time of injury hospitalization, 20.5% of patients had severe TBI, 11.7% moderate TBI, 12.9% mild TBI, and 54.9% no TBI. Patients with severe (relative risk, 0.72; 95% confidence interval, 0.58-0.90) and moderate (0.63; 0.44-0.89) TBI, but not mild TBI (0.83; 0.61-1.13), demonstrated a significantly diminished risk of PTSD symptoms relative to patients without TBI. Across TBI categories, in adjusted analyses patients with PTSD demonstrated an increased risk of health status and cognitive impairments when compared with patients without PTSD. CONCLUSIONS: More severe TBI was associated with a diminished risk of PTSD. Regardless of TBI severity, injured patients with PTSD demonstrated the greatest impairments in self-reported health and cognitive function. Treatment programs for patients with the full spectrum of TBI severity should integrate intervention approaches targeting PTSD.

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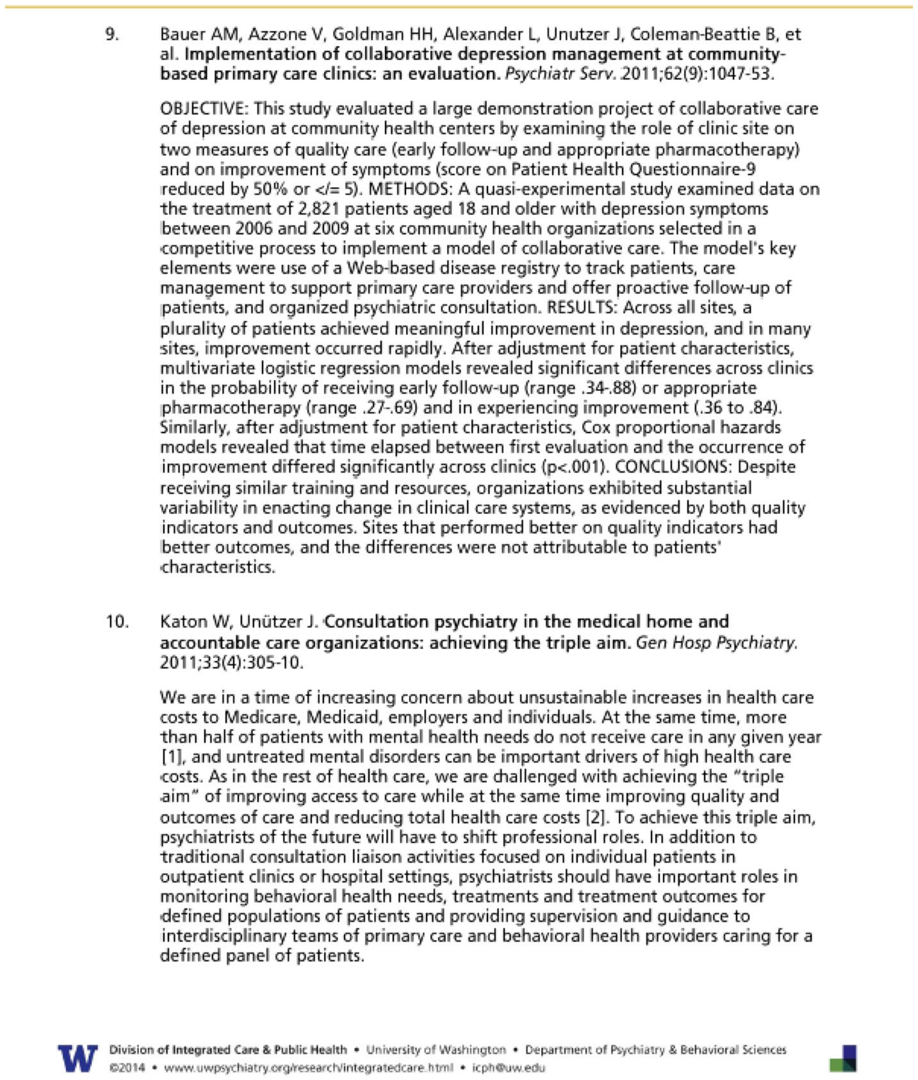

9. Bauer AM, Azzone V, Goldman HH, Alexander L, Unutzer J, Coleman-Beattie B, et al. **Implementation of collaborative depression management at community-based primary care clinics: an evaluation.** *Psychiatr Serv.* 2011;62(9):1047-53.

OBJECTIVE: This study evaluated a large demonstration project of collaborative care of depression at community health centers by examining the role of clinic site on two measures of quality care (early follow-up and appropriate pharmacotherapy) and on improvement of symptoms (score on Patient Health Questionnaire-9 reduced by 50% or </= 5). METHODS: A quasi-experimental study examined data on the treatment of 2,821 patients aged 18 and older with depression symptoms between 2006 and 2009 at six community health organizations selected in a competitive process to implement a model of collaborative care. The model's key elements were use of a Web-based disease registry to track patients, care management to support primary care providers and offer proactive follow-up of patients, and organized psychiatric consultation. RESULTS: Across all sites, a plurality of patients achieved meaningful improvement in depression, and in many sites, improvement occurred rapidly. After adjustment for patient characteristics, multivariate logistic regression models revealed significant differences across clinics in the probability of receiving early follow-up (range .34-.88) or appropriate pharmacotherapy (range .27-.69) and in experiencing improvement (.36 to .84). Similarly, after adjustment for patient characteristics, Cox proportional hazards models revealed that time elapsed between first evaluation and the occurrence of improvement differed significantly across clinics (p<.001). CONCLUSIONS: Despite receiving similar training and resources, organizations exhibited substantial variability in enacting change in clinical care systems, as evidenced by both quality indicators and outcomes. Sites that performed better on quality indicators had better outcomes, and the differences were not attributable to patients' characteristics.

10. 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.

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 [1], 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 [2]. 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.

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11. 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.

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.

Appendix 2: DOH-HMH Quarterly Reporting Metrics

See the following link for full metrics description and FAQ, http://uwaims.org/nyscci/files/MetricsSummary_FAQ.pdf.

Depression Screening: DOH-HMH

Numerator definition: Number of unique adult patients per calendar year from the outpatient site who received a PHQ-2 or a PHQ-9. This should be the number of patients with at least one screening. Patients should not be counted twice for this metric, even if they come in more than once in the year or are screened more than once in the year.

Denominator definition: All patients from the outpatient site. This should be the number of unique adult patients from the outpatient site who have had a visit within the calendar year. Patients should not be counted twice, even if they come in more than once in the year.

Enrolled Patients with Psychiatric Consult: DOH-HMH

Numerator definition: Number of unique adult patients enrolled in the Collaborative Care Initiative for which a psychiatric consultation[2] occurred this reporting period.

Denominator definition: All patients enrolled in the Collaborative Care Initiative this reporting period. This means any patient who is currently enrolled at the time of reporting.

Patients Diagnosed with Depression: DOH-HMH

Numerator definition: Number of unique adult patients screened positive from the outpatient site who were then diagnosed with depression (eliminates false positives on screen). The numerator should be the number of unique patients screened positive for depression who were also clinically diagnosed with depression during the reporting period.

Denominator definition: All patients from the outpatient site screened positive for depression. The denominator should be the number of unique patients screened positive for depression during the reporting period.

Patients Enrolled in a Physical-Behavioral Health Program: DOH-HMH

Numerator definition: Number of unique adult patients per year from the outpatient site screening positive for depression who enrolled in physical-behavioral health care coordination program (Collaborative Care Initiative). The numerator should be the cumulative number of unique patients enrolled in the program for the year.

Denominator definition: All patients from the outpatient site screened positive for depression per year. The denominator should be the cumulative number of unique patients who screened positive for depression during the year.

Patients should not be counted twice for this metric, even if they come in more than once during the year or are screened more than once during the year.

PHQ-9 Decreases Below 10 in 16 Weeks or Greater: DOH-HMH

Numerator definition: Number of unique adult patients enrolled in the Collaborative Care Initiative whose PHQ-9 went from at >10 to <10 in 16 weeks or greater.

Denominator definition: All patients enrolled in the Collaborative Care Initiative who have been in the program over 16 weeks.

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[2] A Psychiatric Consultant supports the PCP and Care Manager in treating patients with behavioral health problems. He/she typically meets with the Care Manager weekly to review the treatment plan for patients who are new or who are not improving as expected. Between 75 and 90 % of patients are typically reviewed in this way. This kind of case review counts as a psychiatric consultation for this metric. The Psychiatric Consultant may also suggest treatment modification for the PCP to consider. This counts as a psychiatric consultation for this metric. In addition, the Psychiatric Consultant can see the patient directly. This counts as a psychiatric consultation for this metric. The numerator in this metric is meant to encompass the number of patients for which any of these 3 types of psychiatric consultation occurred.

Receiving Meds/Therapy after Six Months: DOH-HMH

Numerator definition: Number of unique adult patients enrolled in the Collaborative Care Initiative still receiving medication and/or psychotherapy six (6) months after enrollment. This is the number of patients still receiving depression treatment 6 months after enrollment.

Denominator definition: All patients currently enrolled in the Collaborative Care Initiative.

Monthly Progress Report Metrics

Depression Screening: Monthly Progress Report

Numerator definition: Number of unique patients seen over the reporting month who have been screened over the last year.

Denominator definition: Number of unique patients seen over the reporting month.

Patients Enrolled in a Physical-Behavioral Health Program: Monthly Progress Report

Numerator definition: Number of unique adult patients from the outpatient site screening positive for and diagnosed with depression that enrolled in the physical-behavioral health care coordination program (Collaborative Care Initiative) this reporting month. For example, for the reporting period of April 2014, in the numerator include only the number of unique patients who screened positive for and were enrolled in the care program.

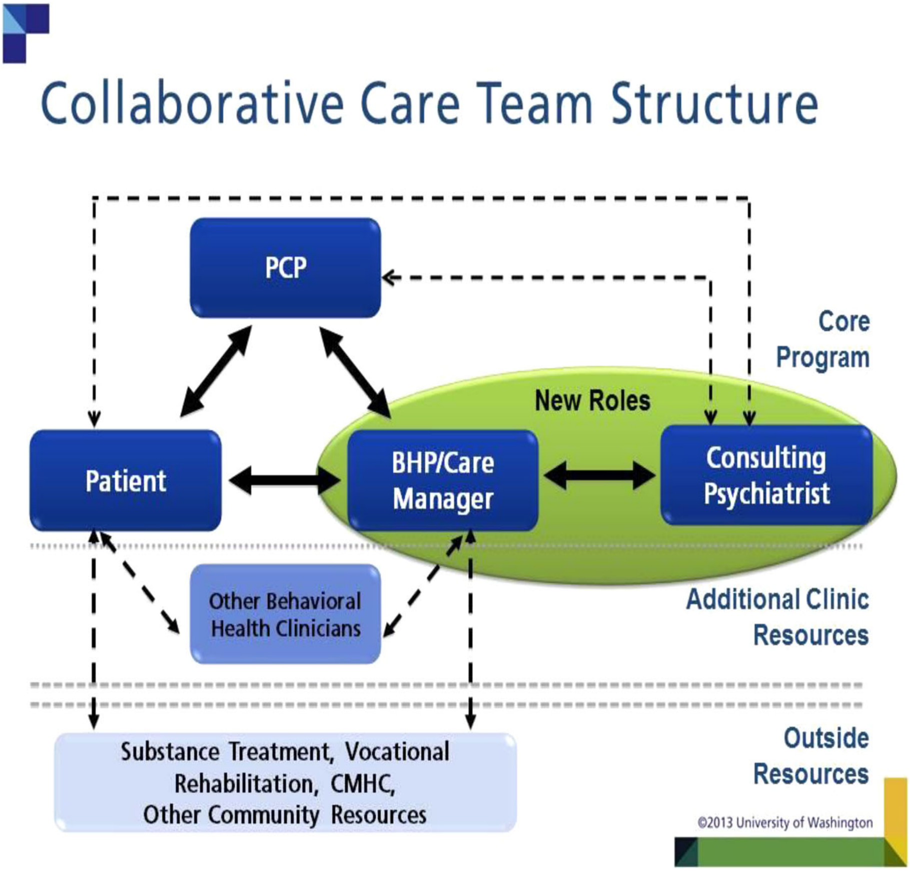
Denominator definition: All unique patients from the outpatient site screened positive for and diagnosed with depression this reporting month. For example, for the reporting period of April 2014, in the denominator include only the number of unique patients who screened positive for and were diagnosed with depression in April 2014.

Retention: Monthly Progress Report

Numerator definition: Current number of unique adult patients from the outpatient site who have been enrolled in the physical-behavioral health care coordination program (Collaborative Care Initiative) for at least 12 weeks, with administrative evidence of at least three clinical contacts during the 12 weeks, at least 1 of which was in person. This means sites will need to make sure they start tracking number and type of contacts in April to be able to report on this metric accurately.

Denominator definition: Current number of unique adult patients from the outpatient site: enrolled in the physical-behavioral health care coordination program (Collaborative Care Initiative) regardless of how long they have been enrolled or the number of clinical contacts they have had.

Appendix 3: CC Essential Elements



Collaborative Care Team Structure

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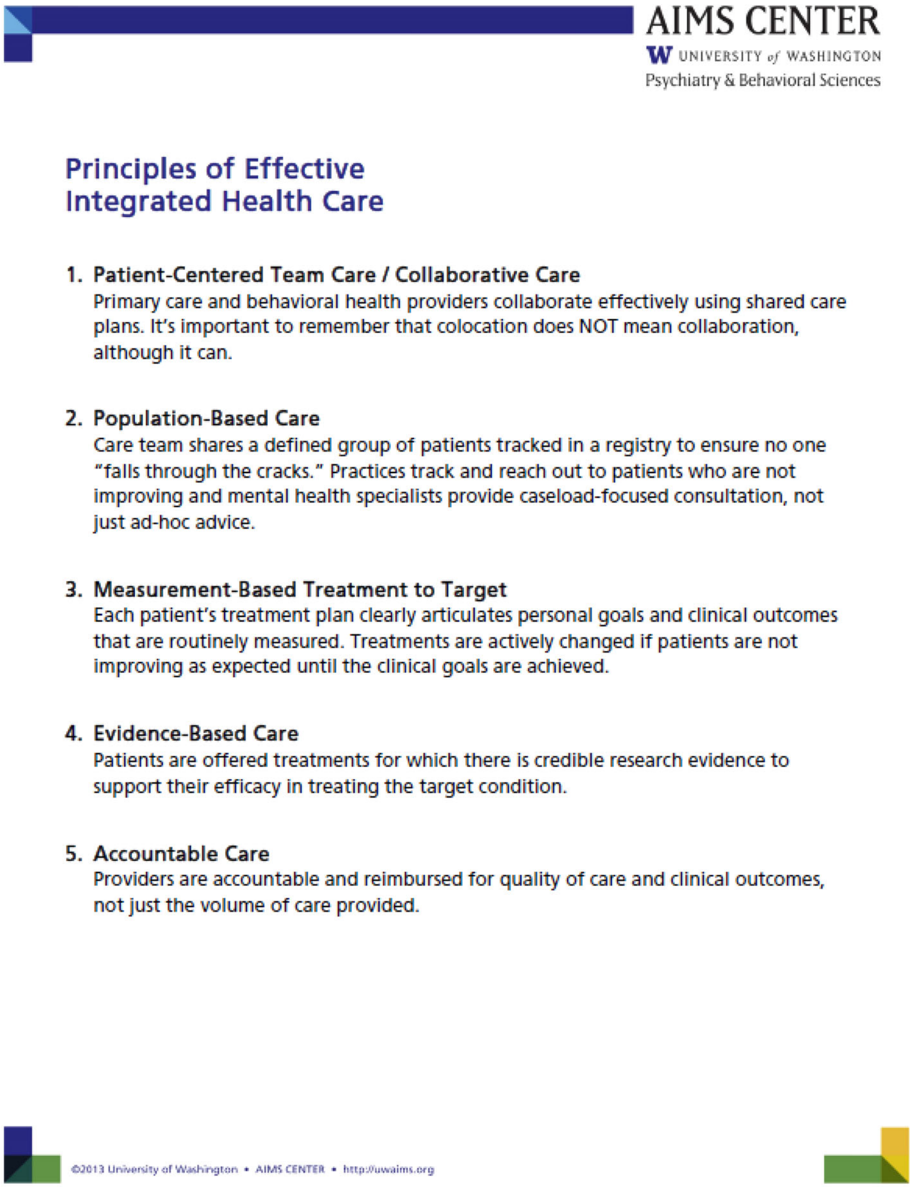
Appendix 4: Principles of Effective Integrated Care



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Principles of Effective Integrated Health Care

1. **Patient-Centered Team Care / Collaborative Care**
   Primary care and behavioral health providers collaborate effectively using shared care plans. It's important to remember that colocation does NOT mean collaboration, although it can.

2. **Population-Based Care**
   Care team shares a defined group of patients tracked in a registry to ensure no one "falls through the cracks." Practices track and reach out to patients who are not improving and mental health specialists provide caseload-focused consultation, not just ad-hoc advice.

3. **Measurement-Based Treatment to Target**
   Each patient's treatment plan clearly articulates personal goals and clinical outcomes that are routinely measured. Treatments are actively changed if patients are not improving as expected until the clinical goals are achieved.

4. **Evidence-Based Care**
   Patients are offered treatments for which there is credible research evidence to support their efficacy in treating the target condition.

5. **Accountable Care**
   Providers are accountable and reimbursed for quality of care and clinical outcomes, not just the volume of care provided.

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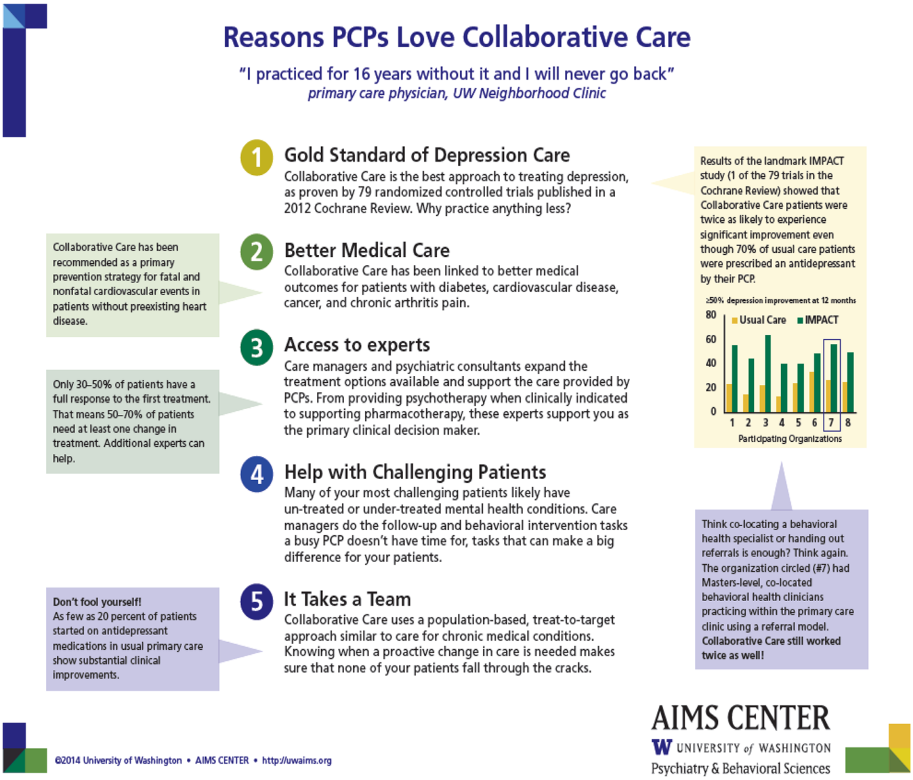
Appendix 5: PCPs and Collaborative Care



Reasons PCPs Love Collaborative Care

"I practiced for 16 years without it and I will never go back"
primary care physician, UW Neighborhood Clinic

1 Gold Standard of Depression Care

Collaborative Care is the best approach to treating depression, as proven by 79 randomized controlled trials published in a 2012 Cochrane Review. Why practice anything less?

Results of the landmark IMPACT study (1 of the 79 trials in the Cochrane Review) showed that Collaborative Care patients were twice as likely to experience significant improvement even though 70% of usual care patients were prescribed an antidepressant by their PCP.

Think co-locating a behavioral health specialist or handing out referrals is enough? Think again. The organization circled (#7) had Masters-level, co-located behavioral health clinicians practicing within the primary care clinic using a referral model. **Collaborative Care still worked twice as well!**

2 Better Medical Care

Collaborative Care has been linked to better medical outcomes for patients with diabetes, cardiovascular disease, cancer, and chronic arthritis pain.

Collaborative Care has been recommended as a primary prevention strategy for fatal and nonfatal cardiovascular events in patients without preexisting heart disease.

3 Access to experts

Care managers and psychiatric consultants expand the treatment options available and support the care provided by PCPs. From providing psychotherapy when clinically indicated to supporting pharmacotherapy, these experts support you as the primary clinical decision maker.

Only 30–50% of patients have a full response to the first treatment. That means 50–70% of patients need at least one change in treatment. Additional experts can help.

4 Help with Challenging Patients

Many of your most challenging patients likely have un-treated or under-treated mental health conditions. Care managers do the follow-up and behavioral intervention tasks a busy PCP doesn't have time for, tasks that can make a big difference for your patients.

5 It Takes a Team

Collaborative Care uses a population-based, treat-to-target approach similar to care for chronic medical conditions. Knowing when a proactive change in care is needed makes sure that none of your patients fall through the cracks.

Don't fool yourself!
As few as 20 percent of patients started on antidepressant medications in usual primary care show substantial clinical improvements.

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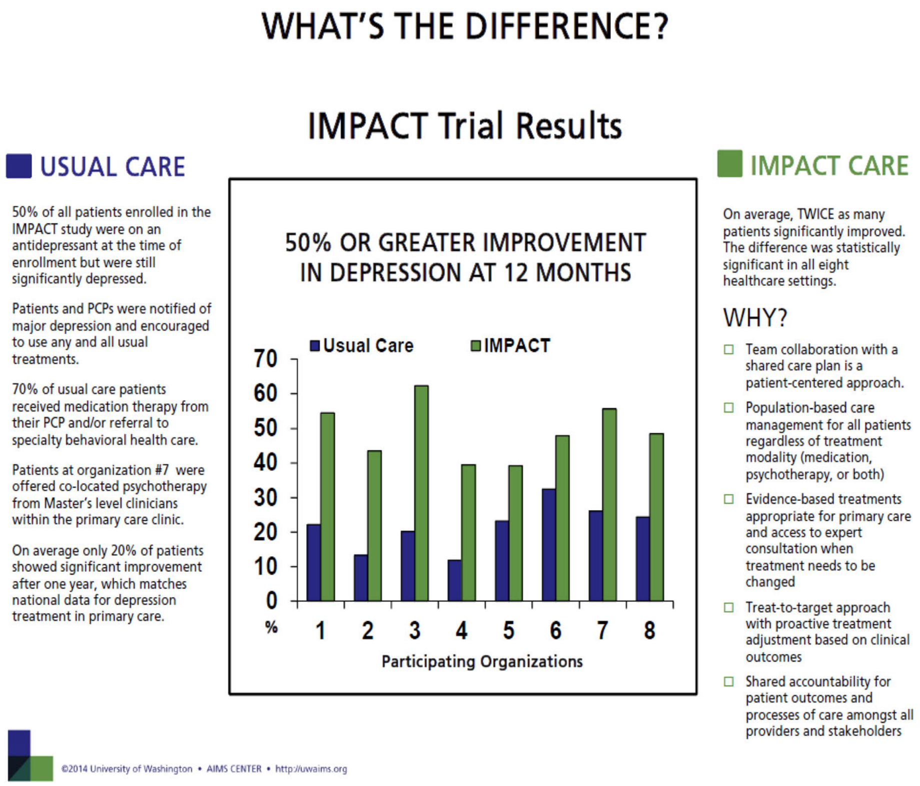
Appendix 6: Usual Care Versus Collaborative Care



WHAT'S THE DIFFERENCE?

IMPACT Trial Results

USUAL CARE

50% of all patients enrolled in the IMPACT study were on an antidepressant at the time of enrollment but were still significantly depressed.

Patients and PCPs were notified of major depression and encouraged to use any and all usual treatments.

70% of usual care patients received medication therapy from their PCP and/or referral to specialty behavioral health care.

Patients at organization #7 were offered co-located psychotherapy from Master's level clinicians within the primary care clinic.

On average only 20% of patients showed significant improvement after one year, which matches national data for depression treatment in primary care.

50% OR GREATER IMPROVEMENT IN DEPRESSION AT 12 MONTHS

IMPACT CARE

On average, TWICE as many patients significantly improved. The difference was statistically significant in all eight healthcare settings.

WHY?

- ☐ Team collaboration with a shared care plan is a patient-centered approach.
- ☐ Population-based care management for all patients regardless of treatment modality (medication, psychotherapy, or both)
- ☐ Evidence-based treatments appropriate for primary care and access to expert consultation when treatment needs to be changed
- ☐ Treat-to-target approach with proactive treatment adjustment based on clinical outcomes
- ☐ Shared accountability for patient outcomes and processes of care amongst all providers and stakeholders

Appendix 7: Patient Health Questionnaire (PHQ): 9 and Scoring

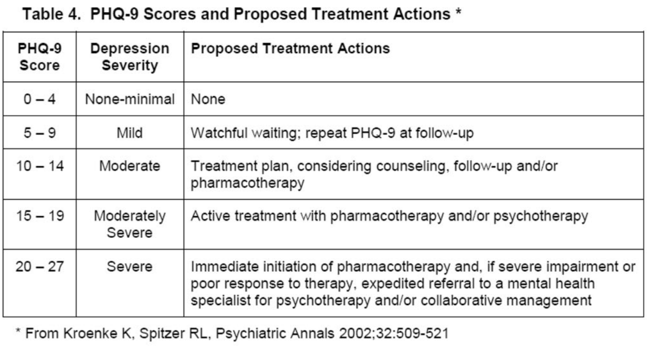
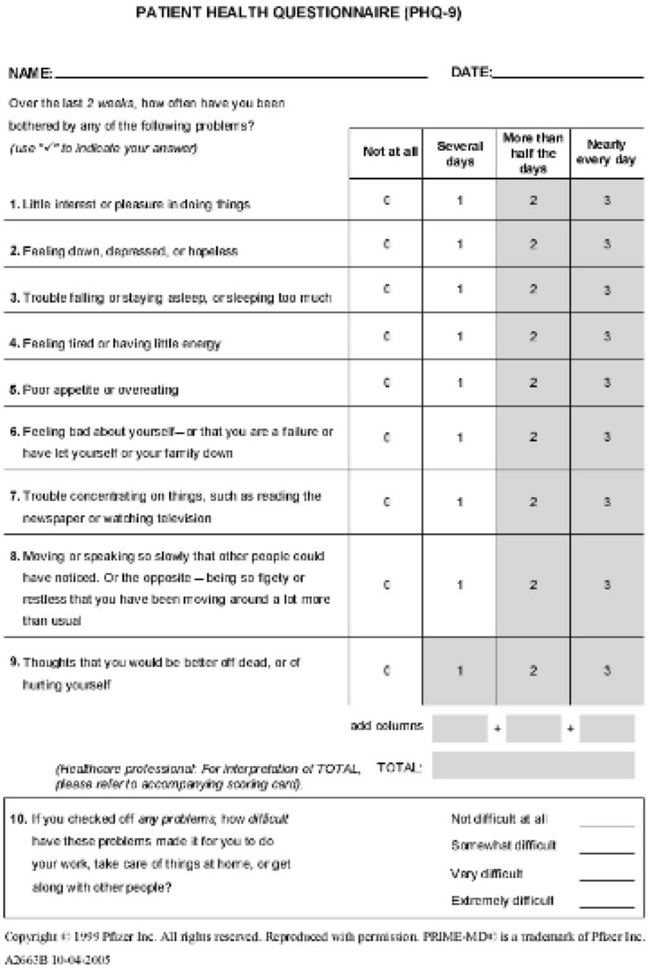


Table 4. PHQ-9 Scores and Proposed Treatment Actions *

PHQ-9 Score	Depression Severity	Proposed Treatment Actions
0 – 4	None-minimal	None
5 – 9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10 – 14	Moderate	Treatment plan, considering counseling, follow-up and/or pharmacotherapy
15 – 19	Moderately Severe	Active treatment with pharmacotherapy and/or psychotherapy
20 – 27	Severe	Immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management

* From Kroenke K, Spitzer RL, Psychiatric Annals 2002;32:509-521



PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: ____________________ DATE: __________

Over the last *2 weeks*, how often have you been bothered by any of the following problems? *(use "✓" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
add columns		+	+	

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	______
	Somewhat difficult	______
	Very difficult	______
	Extremely difficult	______

A2663B 10-04-2005

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Lloyd I. Sederer, MD is Medical Director of the New York State Office of Mental Health (OMH), the nation's largest state mental health system. He provides medical leadership for a $3.6 billion/year mental health system which annually serves over 700,000 people and includes 24 hospitals, 90 clinics, two research institutes, and community services throughout a state of ~19 million people. Dr. Sederer is an Adjunct Professor at the Columbia/Mailman School of Public Health. Previously, Dr. Sederer served as the Executive Deputy Commissioner for Mental Hygiene Services in NYC, the City's "chief psychiatrist". He also has been Medical Director and Executive Vice President of McLean Hospital in Belmont, MA, a Harvard teaching hospital, and Director of the Division of Clinical Services for the American Psychiatric Association. In 2013, Dr. Sederer was given the Irma Bland Award for Excellence in Teaching Residents by the American Psychiatric Association, which in 2009 recognized him as the Psychiatric Administrator of the Year. He also has been awarded a Scholar-in-Residence grant by the Rockefeller Foundation and an Exemplary Psychiatrist award from the National Alliance on Mental Illness (NAMI). He has published seven books for professional audiences and two books for lay audiences, as well as over 400 articles in medical journals and non-medical publications including TheAtlantic.com, The New York Times/The International Herald Tribune, The Wall Street Journal, The Washington Post.com, Commonweal Magazine, and Psychology Today. He is Medical Editor for Mental Health for the *Huffington Post* where over 200 of his posts and videos have appeared. He is now also writing a regular column on mental health for US News & World Report. In 2013, Dr. Sederer published *The Family Guide to Mental Health Care (Foreword by Glenn Close),* for families of people with mental illness. He also has co-authored, with Jay Neugeboren & Michael Friedman, *The Diagnostic Manual of Mishegas (The DMOM)*, a parody of the DSM-5. Dr. Sederer appears regularly on radio and television. His TEDx talk about mental illness and the family can be viewed at: https://www.youtube.com/watch?v=NRO0-JXuFMY. His website is www.askdrlloyd.com.

Marisa Derman, MD, MSc serves as the Director for Clinical Services for the NYS OMH field office in New York city. She previously worked on the Collaborative Care Initiative in NYS which piloted depression care programs in primary care settings. She received her MD from McGill University in Canada and a MSc in the History of Medicine from the University of Oxford.

Jay Carruthers, MD Assistant Professor in Psychiatry, Albany Medical College. Director, New York State Office of Mental Health's Bureau of Psychiatric Services. Jay Carruthers' interest in health systems began after college when he worked as a health policy analyst for the Jackson Hole Group, a prominent health care reform think tank, in the early 90s during the first Clinton Administration. He then attended medical school at SUNY Downstate College of Medicine and did his residency at the Harvard Longwood Psychiatry Residency Training Program where he was a chief resident at the Massachusetts Mental Health Center's

DBT Partial Hospital Program. He went on to become an assistant professor in psychiatry at Albany Medical Center in their outpatient resident training clinic, teaching and caring for patients. He joined the New York State Office of Mental Health in November of 2010 as director of the Bureau of Psychiatric Services and Research Institute Support. His core responsibilities have been overseeing the agency's 12 academic affiliations across the state, producing OMH Statewide Grand Rounds and other educational programming for OMH psychiatrists, lending support to research institute strategic planning, and managing special projects assigned by the Medical Director. Dr. Carruthers has been the lead on the Best Practices Clozapine Initiative aimed at increasing appropriate utilization of clozapine, the most efficacious but often underutilized antipsychotic for treatment refractory schizophrenia; and most recently the New York State Collaborative Care Initiative: a joint project with the New York State Department of Health advancing implementation of collaborative care for depression across 19 academic medical centers at 32 primary care clinics in New York. Finally, in June of 2014 Dr. Carruthers was appointed to direct the OMH Suicide Prevention Office.

Melanie Wall, PhD is professor of biostatistics at Columbia University and Director of the Division of Biostatistics in the Department of Psychiatry and the New York State Psychiatric Institute. Her biostatistical expertise includes latent variable modeling (e.g. factor analysis, item response theory, latent class models, structural equation modeling), spatial data modeling (e.g. disease mapping), and longitudinal data analysis including the class of longitudinal models commonly called growth curve mixture models. She has extensive experience working with health service policy data and epidemiological observational data related to behavioral psycho-social public and mental health. Before moving to Columbia University in 2010, she was a biostatistics professor in the School of Public Health at the University of Minnesota for 12 years. She received a Ph.D. in 1998 from the Department of Statistics at Iowa State University.