IMPACT Trial Results

Updated 3/6/2014

In one of the largest treatment trials for depression to date, a team of researchers led by Dr. Jürgen Unützer studied the effectiveness of the IMPACT model in 1,801 depressed, older adults from 18 diverse primary care clinics associated with eight health care organizations across the United States. These articles summarize the primary results from the randomized trial.

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.

2.	Lin EH, Katon W, Von Korff M, Tang L, Williams JW, Jr., Kroenke K, et al. **Effect of improving depression care on pain and functional outcomes among older adults with arthritis: a randomized controlled trial.** *JAMA.* 2003;290(18):2428-9.

CONTEXT: Depression and arthritis are disabling and common health problems in late life. Depression is also a risk factor for poor health outcomes among arthritis patients. OBJECTIVE: To determine whether enhancing care for depression improves pain and functional outcomes in older adults with depression and arthritis. DESIGN, SETTING, AND PARTICIPANTS: Preplanned subgroup analyses of Improving Mood-Promoting Access to Collaborative Treatment (IMPACT), a randomized controlled trial of 1801 depressed older adults (> or =60 years), which was performed at 18 primary care clinics from 8 health care organizations in 5 states across the United States from July 1999 to August 2001. A total of 1001 (56%) reported coexisting arthritis at baseline. INTERVENTION: Antidepressant medications and/or 6 to 8 sessions of psychotherapy (Problem-Solving Treatment in Primary Care). MAIN OUTCOME MEASURES: Depression, pain intensity (scale of 0 to 10), interference with daily activities due to arthritis (scale of 0 to 10), general health status, and overall quality-of-life outcomes assessed at baseline, 3, 6, and 12 months. RESULTS: In addition to reduction in depressive symptoms, the intervention group compared with the usual care group at 12 months had lower mean (SE) scores for pain intensity (5.62 [0.16] vs 6.15 [0.16]; between-group difference, -0.53; 95% confidence interval [CI], -0.92 to -0.14; P =.009), interference with daily activities due to arthritis (4.40 [0.18] vs 4.99 [0.17]; between-group difference, -0.59; 95% CI, -1.00 to -0.19; P =.004), and interference with daily activities due to pain (2.92 [0.07] vs 3.17 [0.07]; between-group difference, -0.26; 95% CI, -0.41 to -0.10; P =.002). Overall health and quality of life were also enhanced among intervention patients relative to control patients at 12 months. CONCLUSIONS: In a large and diverse population of older adults with arthritis (mostly osteoarthritis) and comorbid depression, benefits of improved depression care extended beyond reduced depressive symptoms and included decreased pain as well as improved functional status and quality of life.

3.	Williams JW, Jr., Katon W, Lin EH, Noel PH, Worchel J, Cornell J, et al. **The effectiveness of depression care management on diabetes-related outcomes in older patients.** *Ann Intern Med.* 2004;140(12):1015-24.

BACKGROUND: Depression frequently occurs in combination with diabetes mellitus, adversely affecting the course of illness. OBJECTIVE: To determine whether enhancing care for depression improves affective and diabetic outcomes in older adults with diabetes and depression. DESIGN: Preplanned subgroup analysis of the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) randomized, controlled trial. SETTING: 18 primary care clinics from 8 health care organizations in 5 states. PATIENTS: 1801 patients 60 years of age or older with depression; 417 had coexisting diabetes mellitus. INTERVENTION: A care manager offered education, problem-solving treatment, or support for antidepressant management by the patient's primary care physician; diabetes care was not specifically enhanced. MEASUREMENTS: Assessments at baseline and at 3, 6, and 12 months for depression, functional impairment, and diabetes self-care behaviors. Hemoglobin A(1c) levels were obtained for 293 patients at baseline and at 6 and 12

months. RESULTS: At 12 months, diabetic patients who were assigned to intervention had less severe depression (range, 0 to 4 on a checklist of 20 depression items; between-group difference, -0.43 [95% CI, -0.57 to -0.29]; P < 0.001) and greater improvement in overall functioning (range, 0 [none] to 10 [unable to perform activities]; between-group difference, -0.89 [CI, -1.46 to -0.32]) than did participants who received usual care. In the intervention group, weekly exercise days increased (between-group difference, 0.50 day [CI, 0.12 to 0.89 day]; P = 0.001); other self-care behaviors were not affected. At baseline, mean (+/-SD) hemoglobin A1c levels were 7.28% +/- 1.43%; follow-up values were unaffected by the intervention (P > 0.2). LIMITATIONS: Because patients had good glycemic control at baseline, power to detect small but clinically important improvements in glycemic control was limited. CONCLUSIONS: Collaborative care improves affective and functional status in older patients with depression and diabetes; however, among patients with good glycemic control, such care minimally affects diabetes-specific outcomes.

4.   Arean PA, Ayalon L, Hunkeler E, Lin EH, Tang L, Harpole L, et al. **Improving depression care for older, minority patients in primary care**. *Med Care.* 2005;43(4):381-90.

OBJECTIVE: Few older minorities receive adequate treatment of depression in primary care. This study examines whether a collaborative care model for depression in primary care is as effective in older minorities as it is in nonminority elderly patients in improving depression treatment and outcomes. STUDY DESIGN: A multisite randomized clinical trial of 1801 older adults comparing collaborative care for depression with treatment as usual in primary care. Twelve percent of the sample were black (n = 222), 8% were Latino (n = 138), and 3% (n = 53) were from other minority groups. We compared the 3 largest ethnic groups (non-Latino white, black, and Latino) on depression severity, quality of life, and mental health service use at baseline, 3, 6, and 12 months after randomization to collaborative care or usual care. PRINCIPAL FINDINGS: Compared with care as usual, collaborative care significantly improved rates and outcomes of depression care in older adults from ethnic minority groups and in older whites. At 12 months, intervention patients from ethnic minorities (blacks and Latinos) had significantly greater rates of depression care for both antidepressant medication and psychotherapy, lower depression severity, and less health-related functional impairment than usual care participants (64%, 95% confidence interval [CI] 55-72 versus 45%, CI 36-55, P = 0.003 for antidepressant medication; 37%, CI 28-47 versus 13%, CI 6-19, P = 0.002 for psychotherapy; mean = 0.9, CI 0.8-1.1 versus mean = 1.4, CI 1.3-1.5, P < 0.001 for depression severity, range 0-4; mean = 3.7, CI 3.2-4.1, versus mean = 4.7, CI 4.3-5.1, P < 0.0001 for functional impairment, range 0-10). CONCLUSIONS: Collaborative Care is significantly more effective than usual care for depressed older adults, regardless of their ethnicity. Intervention effects in ethnic minority participants were similar to those observed in whites.

5.   Callahan CM, Kroenke K, Counsell SR, Hendrie HC, Perkins AJ, Katon W, et al. **Treatment of depression improves physical functioning in older adults**. *J Am Geriatr Soc.* 2005;53(3):367-73.

OBJECTIVES: To determine the effect of collaborative care management for depression on physical functioning in older adults. DESIGN: Multisite randomized clinical trial. SETTING: Eighteen primary care clinics from eight healthcare organizations. PARTICIPANTS: One thousand eight hundred one patients aged 60 and older with major depressive disorder. INTERVENTION: Patients were randomized to the Improving Mood: Promoting Access to Collaborative Treatment (IMPACT) intervention (n=906) or to a control group receiving usual care (n=895). Control patients had access to all health services available as part of usual care. Intervention patients had access for 12 months to a depression clinical specialist who coordinated depression care with their primary care physician. MEASUREMENTS: The 12-item short form Physical Component Summary (PCS) score (range 0-100) and instrumental activities of daily living (IADLs) (range 0-7). RESULTS: The mean patient age was 71.2, 65% were women, and 77% were white. At baseline, the mean PCS was 40.2, and the mean number of IADL dependencies was 0.7; 45% of participants rated their health as fair or poor. Intervention patients experienced significantly better physical functioning at 1 year than usual-care patients as measured using between-group differences on the PCS of 1.71 (95% confidence interval (CI)=0.96-2.46) and IADLs of -0.15 (95% CI=-0.29 to -0.01). Intervention patients were also less likely to rate their health as fair or poor (37.3% vs 52.4%, P<.001). Combining both study groups, patients whose depression improved were more likely to experience improvement in physical functioning. CONCLUSION: The IMPACT collaborative care model for late-life depression improves physical function more than usual care.

6. Harpole LH, Williams JW, Jr., Olsen MK, Stechuchak KM, Oddone E, Callahan CM, et al. **Improving depression outcomes in older adults with comorbid medical illness.** *Gen Hosp Psychiatry.* 2005;27(1):4-12.

BACKGROUND: Depression is common in older adults and often coexists with multiple chronic diseases, which may complicate its diagnosis and treatment. OBJECTIVE: To determine whether or not the presence of multiple comorbid medical illnesses affects patient response to a multidisciplinary depression treatment program. DESIGN, SETTING AND PARTICIPANTS: Preplanned analyses of Improving Mood-Promoting Access to Collaborative Treatment (IMPACT), a randomized controlled trial of 1801 depressed older adults (> or =60 years), which was performed at 18 primary care clinics from eight health care organizations in five states across the United States from July 1999 to August 2001. INTERVENTION: Intervention patients had access for up to 12 months to a depression care manager, supervised by a psychiatrist and a primary care expert, who offered education, care management and support of antidepressant management by the patient's primary care physician, or provided brief psychotherapy (Problem-Solving Treatment in Primary Care). MEASUREMENTS: Depression, quality of life (QOL; scale of 0-10) and mental health component score (MCS) of the Short-Form 12 assessed at baseline, 3, 6 and 12 months. RESULTS: Patients suffered from an average of 3.8 chronic medical conditions. Although patients with more chronic medical conditions had higher depression severity at baseline, the number of chronic diseases did not affect the likelihood of response to the IMPACT intervention when compared to care as usual. Intervention patients experienced significantly lower depression during all follow-up time points as compared with patients in usual care independent of other

comorbid illnesses (P<.001). Intervention patients were also more likely to experience substantial response (at least a 50% reduction in depressive symptoms) regardless of the number of comorbidities, to experience improved MCS-12 scores at 3 and 12 months, and to experience improved QOL. CONCLUSIONS: The presence of multiple comorbid medical illnesses did not affect patient response to a multidisciplinary depression treatment program. The IMPACT collaborative care model was equally effective for depressed older adults with or without comorbid medical illnesses.

7. Hegel MT, Unützer J, Tang L, Arean PA, Katon W, Noel PH, et al. **Impact of comorbid panic and posttraumatic stress disorder on outcomes of collaborative care for late-life depression in primary care**. *Am J Geriatr Psychiatry.* 2005;13(1):48-58.

OBJECTIVE: Comorbid anxiety disorders may result in worse depression treatment outcomes. The authors evaluated the effect of comorbid panic disorder and posttraumatic stress disorder (PTSD) on response to a collaborative-care intervention for late-life depression in primary care. METHODS: A total of 1,801 older adults with depression were randomized to a collaborative-care depression treatment model versus usual care and assessed at baseline, 3, 6, and 12 months, comparing differences among participants with comorbid panic disorder (N=262) and PTSD (N=191) and those without such comorbid anxiety disorders. RESULTS: At baseline, patients with comorbid anxiety reported higher levels of psychiatric and medical illness, greater functional impairment, and lower quality of life. Participants without comorbid anxiety who received collaborative care had early and lasting improvements in depression compared with those in usual care. Participants with comorbid panic disorder showed similar outcomes, whereas those with comorbid PTSD showed a more delayed response, requiring 12 months of intervention to show a significant effect. At 12 months, however, outcomes were comparable. Interactions of intervention status by comorbid PTSD or panic disorder were not statistically significant, suggesting that the collaborative-care model performed significantly better than usual care in depressed older adults both with and without comorbid anxiety. CONCLUSIONS: Collaborative care is more effective than usual care for depressed older adults with and without comorbid panic disorder and PTSD, although a sustained treatment response was slower to emerge for participants with PTSD. Intensive and prolonged follow-up may be needed for depressed older adults with comorbid PTSD.

8. Katon WJ, Schoenbaum M, Fan MY, Callahan CM, Williams J, Jr., Hunkeler E, et al. **Cost-effectiveness of improving primary care treatment of late-life depression.** *Arch Gen Psychiatry.* 2005;62(12):1313-20.

CONTEXT: Depression is a leading cause of functional impairment in elderly individuals and is associated with high medical costs, but there are large gaps in quality of treatment in primary care. OBJECTIVE: To determine the incremental cost-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 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 primary care (n = 895). Intervention patients were provided access to a depression care manager supervised by a psychiatrist and primary care physician. Depression care managers offered education, support of antidepressant medications prescribed in primary care, and problem-solving treatment in primary care (a brief psychotherapy). MAIN OUTCOME MEASURES: Total outpatient costs, depression-free days, and quality-adjusted life-years. RESULTS: Relative to usual care, intervention patients experienced 107 (95% confidence interval [CI], 86 to 128) more depression-free days over 24 months. Total outpatient costs were USD $295 (95% CI, -$525 to $1115) higher during this period. The incremental outpatient cost per depression-free day was USD $2.76 (95% CI, -$4.95 to $10.47) and incremental outpatient costs per quality-adjusted life-year ranged from USD $2519 (95% CI, -$4517 to $9554) to USD $5037 (95% CI, -$9034 to $19 108). Results of a bootstrap analysis suggested a 25% probability that the IMPACT intervention was "dominant" (ie, lower costs and greater effectiveness). CONCLUSIONS: The IMPACT intervention is a high-value investment for older adults; it is associated with high clinical benefits at a low increment in health care costs.

9. 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.

10.   Hunkeler EM, Katon W, Tang L, Williams JW, Jr., Kroenke K, Lin EH, et al. **Long term outcomes from the IMPACT randomised trial for depressed elderly patients in primary care.** *BMJ.* 2006;332(7536):259-63.

OBJECTIVE: To determine the long term effectiveness of collaborative care management for depression in late life. DESIGN: Two arm, randomised, clinical trial; intervention one year and follow-up two years. SETTING: 18 primary care clinics in eight US healthcare organisations. Patients 1801 primary care patients aged 60 and older with major depression, dysthymia, or both. INTERVENTION: Patients were randomly assigned to a 12 month collaborative care intervention (IMPACT) or usual care for depression. Teams including a depression care manager, primary care doctor, and psychiatrist offered education, behavioural activation, antidepressants, a brief, behaviour based psychotherapy (problem solving treatment), and relapse prevention geared to each patient's needs and preferences. MAIN OUTCOME MEASURES: Interviewers, blinded to treatment assignment, conducted interviews in person at baseline and by telephone at each subsequent follow up. They measured depression (SCL-20), overall functional impairment and quality of life (SF-12), physical functioning (PCS-12), depression treatment, and satisfaction with care. RESULTS: IMPACT patients fared significantly (P < 0.05) better than controls regarding continuation of antidepressant treatment, depressive symptoms, remission of depression, physical functioning, quality of life, self efficacy, and satisfaction with care at 18 and 24 months. One year after IMPACT resources were withdrawn, a significant difference in SCL-20 scores (0.23, P < 0.0001) favouring IMPACT patients remained. CONCLUSIONS: Tailored collaborative care actively engages older adults in treatment for depression and delivers substantial and persistent long term benefits. Benefits include less depression, better physical functioning, and an enhanced quality of life. The IMPACT model may show the way to less depression and healthier lives for older adults.

11.   Katon W, Unutzer J, Fan MY, Williams JW, Jr., Schoenbaum M, Lin EH, et al. **Cost-effectiveness and net benefit of enhanced treatment of depression for older adults with diabetes and depression.** *Diabetes Care.* 2006;29(2):265-70.

OBJECTIVE: To determine the incremental cost-effectiveness and net benefit of a depression collaborative care program compared with usual care for patients with diabetes and depression. RESEARCH DESIGN AND METHODS: This article describes a preplanned subgroup analysis of patients with diabetes from the Improving Mood-Promoting Access to Collaborative (IMPACT) randomized controlled trial. The setting for the study included 18 primary care clinics from eight health care organizations in five states. A total of 418 of 1,801 patients randomized to the IMPACT intervention (n = 204) versus usual care (n = 214) had coexisting diabetes. A depression care manager offered education, behavioral activation, and a choice of problem-solving treatment or support of antidepressant management by the

primary care physician. The main outcomes were incremental cost-effectiveness and net benefit of the program compared with usual care. RESULTS: Relative to usual care, intervention patients experienced 115 (95% CI 72-159) more depression-free days over 24 months. Total outpatient costs were 25 dollars (95% CI -1,638 to 1,689) higher during this same period. The incremental cost per depression-free day was 25 cents (-14 dollars to 15 dollars) and the incremental cost per quality-adjusted life year ranged from 198 dollars (144-316) to 397 dollars (287-641). An incremental net benefit of 1,129 dollars (692-1,572) was found. CONCLUSIONS: The IMPACT intervention is a high-value investment for older adults with diabetes; it is associated with high clinical benefits at no greater cost than usual care.

12. Steffens DC, Snowden M, Fan MY, Hendrie H, Katon WJ, Unutzer J, et al. **Cognitive impairment and depression outcomes in the IMPACT study.** *Am J Geriatr Psychiatry.* 2006;14(5):401-9.

INTRODUCTION: It is unclear whether cognitive impairment affects acute and long-term treatment response in geriatric depression. In addition, little is known about the long-term outcome of depression among older individuals who experience cognitive decline during a course of treatment for depression. The authors examined both of these issues using data from the IMPACT trial. METHODS: The sample consisted of 1,684 participants in the IMPACT study who had baseline and two-year follow-up data. Subjects were randomized to one year of active intervention with a depression care manager or usual care. After one year, all subjects had usual care for another year. Data were collected for two years. The authors used the Six-Item Cognitive Screener to examine acute and long-term effects on depression outcome of baseline cognitive impairment and of cognitive decline. Depression measures included the HSCL-20 and an estimation of depression-free days. Outcomes were determined using both linear regression and repeated-measures analyses. RESULTS: Depressed subjects in the active intervention group had better depression outcomes at one year regardless of baseline cognitive impairment. Cognitively impaired subjects within each treatment group had similar outcomes to subjects without cognitive impairment. Subjects who experienced decline in cognitive score over two years had worse 24-month depression outcomes compared with subjects whose cognitive score did not change. CONCLUSIONS: Cognitively impaired depressed patients can experience significant improvement in depression with appropriate acute and continuation-phase management. Older depressed adults experiencing ongoing cognitive decline may be at higher risk for poor depression outcomes and may require more careful clinical monitoring and management of both cognitive and affective symptoms.

13. 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.

14. Unützer J, Tang L, Oishi S, Katon W, Williams JW, Jr., Hunkeler E, et al. **Reducing suicidal ideation in depressed older primary care patients**. *J Am Geriatr Soc.* 2006;54(10):1550-6.

OBJECTIVES: To determine the effect of a primary care-based collaborative care program for depression on suicidal ideation in older adults. DESIGN: Randomized, controlled trial. SETTING: Eighteen diverse primary care clinics. PARTICIPANTS: One thousand eight hundred one adults aged 60 and older with major depression or dysthymia. INTERVENTION: Participants randomized to collaborative care had access to a depression care manager who supported antidepressant medication management prescribed by their primary care physician and offered a course of Problem Solving Treatment in Primary Care for 12 months. Participants in the control arm received care as usual. MEASUREMENTS: Participants had independent assessments of depression and suicidal ideation at baseline and 3, 6, 12, 18, and 24 months. Depression was assessed using the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (SCID). Suicidal ideation was determined using the SCID and the Hopkins Symptoms Checklist. RESULTS: At baseline, 139 (15.3%) intervention subjects and 119 (13.3%) controls reported thoughts of suicide. Intervention subjects had significantly lower rates of suicidal ideation than controls at 6 months (7.5% vs 12.1%) and 12 months (9.8% vs 15.5%) and even after intervention resources were no longer available at 18 months (8.0% vs 13.3%) and 24 months (10.1% vs 13.9%). There were no completed suicides in either group. Information on suicide attempts or hospitalization for suicidal ideation was not available. CONCLUSION: Primary care-based collaborative care programs for depression represent one strategy to reduce suicidal ideation and potentially the risk of suicide in older primary care patients.

15. Unützer J, Katon WJ, Fan MY, Schoenbaum MC, Lin EH, Della Penna RD, et al. **Long-term cost effects of collaborative care for late-life depression**. *Am J Manag Care.* 2008;14(2):95-100.

OBJECTIVE: To determine the long-term effects on total healthcare costs of the Improving Mood: Promoting Access to Collaborative Treatment (IMPACT) program for late-life depression compared with usual care. STUDY DESIGN: Randomized

controlled trial with enrollment from July 1999 through August 2001. The IMPACT trial, conducted in primary care practices in 8 delivery organizations across the United States, enrolled 1801 depressed primary care patients 60 years or older. Data are from the 2 IMPACT sites for which 4-year cost data were available. Trial enrollment across these 2 health maintenance organizations was 551 patients. METHODS: Participants were randomly assigned to the IMPACT intervention (n = 279) or to usual primary care (n = 272). Intervention patients had access to a depression care manager who provided education, behavioral activation, support of antidepressant medication management prescribed by their regular primary care provider, and problem-solving treatment in primary care for up to 12 months. Care managers were supervised by a psychiatrist and a primary care provider. The main outcome measures were healthcare costs during 4 years. RESULTS: IMPACT participants had lower mean total healthcare costs ($29 422; 95% confidence interval, $26 479-$32 365) than usual care patients ($32 785; 95% confidence interval, $27 648-$37 921) during 4 years. Results of a bootstrap analysis suggested an 87% probability that the IMPACT program was associated with lower healthcare costs than usual care. CONCLUSION: Compared with usual primary care, the IMPACT program is associated with a high probability of lower total healthcare costs during a 4-year period.

16. 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.

17. 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.

18.　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.

19.　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 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

20.   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.

21.   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.

22.   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.