

## IMPACT Annotated Bibliography

(As of 6/26/2008)

### IMPACT Trial Results

The IMPACT clinical trial involved 1,801 older adults with major depression and / or dysthymia who were recruited from 18 participating primary care clinics affiliated with eight health care organizations in five states to participate in this study of depression treatment in primary care. Subjects were randomly assigned to either a collaborative-care program for late-life depression (IMPACT) for 12 months or to usual care. All participants were followed by independent assessments over a 24 month period. -- Unützer J, et al. **Improving primary care for depression in late life: the design of a multi-center randomized trial.** *Medical Care.* 2001; 39:785-799.

The IMPACT program was more than twice as effective as usual care for depression in a wide range of primary care settings. At 12 months, 45% of IMPACT patients had a 50% or greater reduction in symptoms of depression as compared to 19% of patients in the usual care group. -- Unützer J, et al. **Collaborative-care Management of Late-life depression in the Primary Care Setting: a Randomized Controlled Trial.** *Journal of the American Medical Association (JAMA).* 2002; 288:2836-2845.

IMPACT participants reported greater improvements in physical functioning over 12 months than depressed older adults assigned to the usual care control group. -- Callahan CM, et al. **Treatment of Depression Improves Physical Functioning in Older Adults.** *Journal of the American Geriatric Society.* March 2005; 53(3):367-373.

The IMPACT program resulted in greater improvement of depression than usual care in older adults from ethnic minority groups (mostly African American and Latino elders) as well as in elderly white patients. -- Areán PA, et al. **Improving Depression Care for Older, Minority Patients in Primary Care: A Randomized Trial.** *Medical Care.* 2005 April; 43(4):381-390.

Depression is a risk factor for poor health outcomes for patients with arthritis. IMPACT participants with osteoarthritis had decreased pain, less functional impairment, and better quality of life than those in usual care. -- Lin EHB, et al. **Effect of improving depression care on pain and function among older adults with arthritis.** *Journal of the American Medical Association (JAMA).* 2003; 290(18):2428-2803.

At 12 months, older adults with depression and diabetes who received IMPACT depression care had lower depression severity scores and greater improvement in overall functioning than those in usual care. -- Williams J Jr., et al. **The effectiveness of depression care management on diabetes-related outcomes in older patients.** *Ann Intern Med.* 2004 Jun 15; 140(12):1015-24.

Even 12 months after the conclusion of the IMPACT intervention, older adults who had access to the IMPACT program did significantly better than those in usual care in measures of: continuation of antidepressant treatment, depressive symptoms, remission of depression, physical functioning, overall quality of life, satisfaction with care, and self-efficacy. -- Hunkeler E, et al: **Long Term Outcomes from the IMPACT Randomized Trial for Depressed Older Primary Care Patients.** *British Medical Journal.* 2006; 332(7536): 259-263.

IMPACT collaborative-care was more effective than usual care for depressed older patients with comorbid panic disorder and PTSD. -- Hegel M, 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 Jan-Feb; 13(1): 48-58.

IMPACT collaborative care was more effective than usual care in patients with and without cognitive impairment at the study baseline. -- Steffens D, et al: **Cognitive impairment and depression outcomes in the IMPACT study.** *The American Journal of Geriatric Psychiatry.* May 2006; 14: 401-409.

Depression in older adults often occurs along with multiple chronic medical illnesses but such comorbid illnesses did not affect patients' response to the IMPACT program. Compared to usual care, the IMPACT treatment model was equally effective among depressed elderly patients with and without accompanying medical illnesses. -- Harpole L, et al. **Improving Depression in Older Adults with Comorbid Illness.** *General Hospital Psychiatry.* 2005 Jan-Feb; 27(1):4-12.

Increased health care costs during the initial year of the IMPACT trial were largely offset by 'savings' in general health care costs during the second year of the study. Over two years, the IMPACT model produced substantial improvements in mental and physical health without significantly increasing total health care costs. Overall, the cost-effectiveness of IMPACT care compares favorably to that of many commonly used medical interventions. -- Katon WJ, et al. **Cost-effectiveness of Improving Primary Care Treatment of Late-life Depression.** *Archives of General Psychiatry.* 2005; 62:1313-1320.

Depressed older IMPACT participants with diabetes who were assigned to the IMPACT intervention had lower total health care costs over two years than those assigned to care as usual. -- Katon WJ, et al: **Cost effectiveness and Net Benefit of Enhanced Treatment of Depression for Older Adults with Diabetes and Depression.** Katon WJ et al, *Diabetes Care.* 2006; 29(2):265-270.

Primary care providers who participated in the IMPACT trial reported that the program substantially improved both their satisfaction with caring for late-life depression in primary care and their patient's clinical outcomes. -- Levine S, et al. **Physician Satisfaction With a Collaborative Disease Management Program for Late-life Depression in Primary Care.** *General Hospital Psychiatry.* 2005; 27:383-391.

A number of studies, including IMPACT, have demonstrated that psychotherapy is a valuable treatment alternative for depression in older adult primary care patients. -- Areán PA, et al. **Treating depression in older medical patients with psychotherapy.** *Journal of Clinical Geropsychology.* 2001; 7(2):93-104.

Data from 1,602 IMPACT participants indicate that a greater number of depressed older adults prefer counseling to medication. Treatment preference is predicted by previous treatment experience, gender and diagnosis of major depression. The IMPACT care model significantly improved access to patients' preferred treatment, particularly counseling. -- Gum A, et al. **Depression Treatment Preferences in Older Primary Care Patients.** *The Gerontologist.* 2006; 46(1):14-22.

At Kaiser Permanente of Southern California, investigators extended the IMPACT care model to all adult primary care patients with depression and compared results from 300 participants in this program with findings from the usual care and intervention participants in the IMPACT trial. Even after the conclusion of the original study, depressed primary care patients who participate in IMPACT care have substantially better depression outcomes than usual care participants in the IMPACT trial. Depressed primary care patients who participate in the IMPACT program also have lower total health care costs than those in usual care. -- Grypma L, et al. **Taking an evidence-based model of depression care from research to practice: making lemonade out of depression.** *General Hospital Psychiatry;* 2006; 28:101-107.

Residual depression symptoms are associated with increased risk of depression recurrence in the usual care participants but not the intervention participants in the IMPACT trial. -- Katon W, et al. **Depressive Symptom Deterioration in a Large Primary Care-Based Elderly Cohort** *American Journal of Geriatric Psychiatry,* Mar 2006; 14:246-254.

Because older adults rarely see mental health specialists, primary care may be the most promising setting for interventions to reduce suicide risk in older adults. In this collaborative care program for late life depression, intervention subjects had significantly lower rates of suicidal ideation than those in usual care, suggesting that better treatment of depression in older adult primary care patients may be one of the most promising strategies to reducing risk of suicide late in life. Unützer J, et al. **Reducing Suicidal Ideation in Depressed Older Primary Care Patients.** *Journal of American Geriatrics Society.* 2006 Oct; 54(10):1550-6.

When healthcare costs were examined over a four year period, IMPACT patients had lower average costs for all their medical care – about \$3,300 less than patients receiving usual care, even when the cost of

IMPACT care is included. This suggests that an initial investment in better depression care not only improves health, it can actually reduce total health care costs over 4 years. Unützer J, et al. **Long-term Cost Effects of Collaborative Care for Late-life Depression.** *American Journal of Managed Care.* 2008 Feb; 14(2):95-100.

### Other IMPACT Study Findings

Patients with elevated TSH do not differ from others in the severity of their depression symptoms. Physicians should exercise caution against accepting borderline TSH results as the primary cause of patient's depressive disorder. -- Fraser SA, et al. **Low yield of thyroid-stimulating hormone testing in elderly patients with depression.** *Gen Hosp Psychiatry.* 2004 Jul-Aug; 26(4):302-9.

There is overwhelming evidence that depression care management works well for patients and is a cost effective treatment. However, inconsistent third-party reimbursement for depression care management is a significant economic barrier to utilization and sustainability in primary care settings. Seven funding mechanisms, mostly under-utilized and not widely publicized, are described. While substantial obstacles remain in the way of fully implementing these depression care management funding mechanisms, several recent policy advancements provide some optimism for the potential adoption of financial mechanisms to support and disseminate these evidence-based practices. Bachman J, et al. **Funding Mechanisms for depression care management: opportunities and challenges.** *General Hospital Psychiatry.* 2006; 28: 278-288.

This article summarizes findings from the IMPACT randomized trial published to date and highlights the consulting psychiatrist's important role in this collaborative care model for the treatment of late-life depression in primary care settings. Vannoy S, et al. **Making an IMPACT on late-life depression.** *Current Psychiatry.* 2006; 5(9):85-92.

This paper examines gender differences in recruitment, depression presentation, and depression treatment history among patients enrolled in the IMPACT trial. Compared with older women, older men were significantly less likely to be referred to IMPACT, to endorse core depressive symptoms, and to have received prior depression treatment. Qualitative themes identified as important contributors to gender disparities included 1) how men experience and express their depression, 2) traditional masculine values, and 3) the stigma of chronic mental illness. Hinton L, et al. **Gender Disparities in the Treatment of Late-Life Depression: Qualitative and Quantitative Findings From the IMPACT Trial.** *American Journal of Geriatric Psychiatry.* 2007; 14:10.

This article describes patient perception of and satisfaction with care provided by psychiatric clinical nurse specialists (PCNS). A majority of patients preferred the primary care physician's office for mental health care, perceived PCNS care as excellent, were highly satisfied with the relationship with the PCNS, would seek future treatment with the PCNS, and reported improved clinical and functional outcomes. PCNS services are well received by patients in the primary care setting. Saur C, et al. **Satisfaction and Outcomes of Depressed Older Adults with Psychiatric Clinical Nurse Specialists in Primary Care.** *J Am Psychiatr Nurses Assoc.* 2007; 13(1):62-70.

In this publication, a secondary data analysis of 1,801 depressed older adults in the Improving Mood: Providing Access to Collaborative Treatment trial explores how pain limits the effectiveness of collaborative care for depression. The analysis indicates that pain may be a barrier to improvement of depression and attending to pain might produce better depression care outcomes. Thielke SM, et al. **Pain Limits the Effectiveness of Collaborative Care for Depression.** *Am J Geriatric Psych* 2007; 15(8):699-707.

From the extensive work addressing the mental and physical difficulties otherwise healthy caregivers may have, it seems possible that a caregiving burden could be a major issue in the mental and physical health of elderly patients suffering from depression. This publication describes self-reported caregiver burden in the large cohort of depressed elderly patients from the IMPACT (Improving Mood, Promoting Access to Collaborative Treatment for Late-Life Depression) trial and how that caregiving burden affects depression treatment outcomes. Thompson A, et al: **One extra month of depression: results of caregiving data from the IMPACT trial.** *Int J Geriatr Psychiatry.* 2008; 23(5):511-6.

This article focuses on patient income and depression treatment outcomes based on interpretations from the IMPACT trial. A comparison between lower-, middle-, and higher-income patient response to collaborative care versus usual care suggests that lower-income older adults can experience benefits from collaborative management of depression in primary care similar to middle- and higher-income older adults. Findings further showed that sustained intervention of up to one year may be required for marked improvements in emotional and physical health across income levels. Areán P, et al. **Service use and outcomes among elderly persons with low incomes being treated for depression.** *Psychiatric Services*. 2007 Aug; 58(8):1057-64.

Thirty-three percent of patients in a low-income, predominantly Spanish speaking Latino community clinic population had symptoms of major depression. When IMPACT was combined with diabetes care management for these patients, PHQ-9 scores declined by an average of 7.5 points from 14.8 to 7.3 ( $p > 0.001$ ). This pilot intervention suggests integrative care models, such as the IMPACT-Project Dulce model explored here, can be effective with diverse patient populations. -- Gilmer, TP, et al. **Improving Treatment of Depression Among Latinos with Diabetes Using Project Dulce and IMPACT.** *Diabetes Care* (in press).

Overall, patients with persistent insomnia were 1.8 to 3.5 times more likely to remain depressed, compared with patients with no insomnia. These findings suggest that, in addition to being a risk factor for a depressive episode, persistent insomnia may serve to perpetuate the illness in some elderly patients and especially in those receiving standard care for depression in primary care settings. Patients with persistent insomnia who received IMPACT depression care were more likely to have a response to depression treatment than their counterparts receiving usual care, suggesting that IMPACT care may help mitigate the negative effects of persistent insomnia on response to depression treatment -- Pigeon WR, Hegel M, Unützer J, Fan MY, Sateia MJ, Lyness JM, Phillips C, Perlis ML. **Is insomnia a perpetuating factor for late-life depression in the IMPACT cohort?** *SLEEP* 2008; 31(4):481-488.

## Background

Although many older adult patients do not seek or fail to receive treatment for depression, they are likely to be seen in primary care for treatment of other medical conditions. Efforts that focus on improvement of care systems and facilitate active patient participation in treatment offer the best opportunities to improve outcomes for depressed older adults. -- Callahan CM. **Quality improvement research on late life depression in primary care.** *Medical Care*. 2001; Aug; 39(8):772-84.

Significant improvements are needed in the care of depressed older adults seen in primary care. Only 29% of depressed older adults participating in the IMPACT trial reported potentially effective treatment for depression in the past 3 months. The majority of patients expressed a preference for counseling or psychotherapy over antidepressant medications but only 8% had received such treatment in the past three months. Particular care should be taken to improve access to depression care for older men, African-Americans, Latinos, and those patients who prefer treatments other than medication. -- Unützer J, et al. **Depression treatment in a sample of 1,801 depressed older adults in primary care.** *Journal of the American Geriatric Society (JAGS)*. 2003; 51:505-514.

The President's New Freedom Commission of Mental Health recommends integrated, collaborative models of care such as IMPACT to help bridge gaps in care at the interface of mental health care and general medicine. -- Unützer J, et al. **Transforming mental health care at the interface with general medicine: report for the President's New Freedom Commission for Mental Health.** *Psychiatric Services*. 2006; 57(1): 37-47.

Depression is associated with significant increases in health care costs in older primary care patients, even when figures are adjusted for chronic medical illness. -- Katon WJ, et al. **Increased medical costs of a population-based sample of depressed elderly patients.** *Arch Gen Psychiatry*. 2003 Sep; 60(9):897-903.

Depression severity has a greater impact on older adults' functioning and quality of life than many common medical disorders. -- Noël PH, et al. **Depression and comorbid illness in elderly primary**

**care patients: impact on multiple domains of health status and well-being.** *Ann Fam Med.* 2004 Nov-Dec; 2(6):555-62.

The majority of depressed older adults seen in primary care also have a history of chronic pain and functional impairment from pain. Nearly half of patients experiencing functional impairment from pain do not report using analgesics to treat their pain. There is significant room for improvement in the quality of pain management for depressed older adults. -- Unützer, J et al. **Pharmacotherapy of pain in depressed older adults.** *J Am Geriatr Soc.* 2004 Nov; 52(11):1916-22.

### **The IMPACT Treatment Program**

The clinical components of the IMPACT program are summarized in two treatment manuals, an educational brochure for patients and significant others, and an educational videotape that are available from the IMPACT Coordinating Center.

-- Unützer J, et al. **Project IMPACT Intervention Manual: Improving care for depression in late life.** *UCLA NPI Center for Health Services Research.* 1999.

-- Oishi S, et al. **Making an Impact on Late Life Depression: Working with your Health Care Team.** *UCLA NPI Center for Health Services Research.* 1999.

-- Harpole L, et al. **Making an IMPACT: Improving care for late life depression.** (video) *Duke University Media Group, Durham, NC.* 1999.

-- Hegel M, et al. **Problem-Solving Treatment for Primary Care: A Treatment Manual for Project IMPACT.** Dartmouth University. 2003.

The IMPACT treatment model is also described in several peer reviewed publications:

The IMPACT clinical trial involved 1,801 older adults with major depression and / or dysthymia who were recruited from 18 participating primary care clinics affiliated with eight health care organizations in five states to participate in this study of depression treatment in primary care. Subjects were randomly assigned to either a collaborative-care program for late-life depression (IMPACT) for 12 months or to usual care. The IMPACT intervention involves care management for depression with proactive outcomes tracking, patient education, behavioral activation and pleasant events scheduling, support of antidepressant medications prescribed by patients' primary care providers and / or a course of Problem Solving Treatment in Primary Care (PST-PC). -- Unützer, et al. **Improving primary care for depression in late life: the design of a multi-center randomized trial.** *Medical Care.* 2001; 39:785-799.

Depression clinical specialists in the IMPACT treatment model can be trained to deliver high quality collaborative-care for depression. Information from these depression clinical specialists can be used to understand the key interventional elements of IMPACT and the factors which contribute to successful intervention of this model.

-- Hegel M, et al. **Role of allied behavioral health professionals in a collaborative stepped care treatment model for depression in primary care: project IMPACT.** *Families, Systems, & Health.* 2002; 20:265-277.

-- Oishi S, et al. **The Impact investigators: Impacting late life depression: integrating a depression intervention into primary care.** *Psychiatric Quarterly.* 2003; 74:75-89.

-- Harpole L, et al. **Implementing a disease management system for depression in primary care: a random work sampling study.** *Gen Hosp Psychiatry.* 2003; 25:238-245.

Registered nurses trained as depression clinical specialists are ideally suited to provide depression treatment in a collaborative-care model such as IMPACT in primary care settings. The IMPACT model can be tailored to the specific treatment needs of individuals. -- Saur CD, et al. **Treating Depression in**

**Primary Care: An Innovative Role for Mental Health Nurses.** *J Am Psychiatr Nurses Assoc.* 2002; 8: 159-167.

This case study details the use of Problem-Solving Treatment in conjunction with antidepressant medication to treat a complicated course of depression in a 60-year old woman. -- Haverkamp R, et al. **Problem-solving Treatment for Complicated depression in late life: a case study in primary care.** *Perspectives in Psychiatric Care* 2004. Apr-Jun; 40(2):45-52.

### **IMPACT Research Methods**

A web-based clinical information system developed for the IMPACT trial effectively supported implementation of the IMPACT care program across diverse study sites / health care organizations. -- Unützer J, et al. **A web-based data management system to improve care for depression in a multi-center clinical trial.** *Psychiatric Services.* 2002; 53:671-678.

The IMPACT trial used a brief (6-item) screening measure to identify subjects with cognitive impairment. This screener was found to be comparable to the mini-mental state examination and can be administered either in person or by telephone. -- Callahan CM, et al. **Six-item screener to identify cognitive impairment among potential subjects for clinical research.** *Medical Care.* 2002; 40(9):771-781.

The PHQ-9 is a valid and reliable measure of depression treatment outcomes in depressed older adults. -- Löwe B, et al. **Monitoring Depression Treatment Outcomes with the Patient Health Questionnaire-9.** *Medical Care.* 2004 Dec; 42(12):1194-1201.

In an outpatient setting, a basic count of medications may be the most efficient measure of medical comorbidity for predicting utilization and costs of health care over the ensuing year. Diagnostic measures have been shown to have greater predictive validity for 1-year mortality. Current comorbidity measures showed poor to moderate predictive validity for health-care costs or patient mortality over one year. -- Perkins AJ, et al. **Common comorbidity scales were similar in their ability to predict health care costs and mortality.** *J Clin Epidemiol.* 2004 Oct; 57(10):1040-8.

Physical symptoms in older patients predict hospitalization and mortality at one year. -- Sha MC, et al. **Physical Symptoms as a Predictor of Health Care Use and Mortality among Older Adults.** *American Journal of Medicine.* 2005 March; 118(3):301-306.

Using hormone therapy is not associated with depression symptom severity. -- Goldstein, et al. **Hormone Therapy Does Not Affect Depression Severity in Older Women.** *American Journal of Geriatric Psychiatry.* 2005; 13:17.

A hot-deck multiple imputation strategy was superior to alternate methods of handling missing data in the IMPACT trial, a longitudinal randomized control trial. -- Tang L, et al. **Comparing Imputation Methods in IMPACT.** *Statistics in Medicine.* 2005; 35:13-24.