Psychiatric Case Review and Treatment Intensification in Collaborative Care Management for Depression in Primary Care

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Objective: This study examined whether psychiatric case review was associated with depression medication modification in a large implementation program of collaborative care for depression in safety-net primary care clinics.

Methods: Registry data were examined from an implementation of the collaborative care model in Washington State. A total of 14,960 adults from 178 primary care clinics who initiated care between January 1, 2008, and September 30, 2014, and who had a baseline Patient Health Questionnaire-9 (PHQ-9) score of 10 or higher were included. Rates of psychiatric case reviews and receipt of new depression medications were extracted from the registry for all patients and for a subset of patients who did not improve by eight weeks of treatment (did not achieve a PHQ-9 score of less than 10 or a reduction in PHQ-9 score of 50% or more, compared with baseline).

Results: One-half of patients received a new depression medication. Psychiatric case review in any given month was associated with a doubling of the probability of receiving a new medication in the following month. Among patients who did not improve by eight weeks of treatment, a psychiatric case review during weeks 8–12 was associated with a higher rate of receipt of new medications during weeks 8–16 or weeks 8–20.

Conclusions: In a collaborative care program, psychiatric case review was associated with higher rates of subsequent receipt of a new depression medication. This finding supports the importance of psychiatric case review in reducing clinical inertia in collaborative care treatment of depression.

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Of the 7.6% of American adults who have depression (1), only 9% receive adequate treatment (2). Among patients who receive treatment for depression, more than one-half receive treatment in primary care settings (3). In treatment of depression, as in treatment of many chronic conditions (4–8), clinical inertia is a major contributor to inadequate management (9,10). Clinical inertia is defined as a failure to initiate or intensify therapy despite a clear indication and recognition of the need to do so (11). Clinical inertia can be identified in contexts where there are recognized clinical goals or targets, a recommended therapy that can be measured, and a specified time window for appropriate initiation and intensification of treatment (12).

One mechanism to potentially address clinical inertia in treatment of depression in primary care may be through collaborative care, an evidence-based integrated care model for the treatment of depression and other behavioral health disorders in primary care. In the collaborative care model (CCM), treatment is closely monitored through regular measurement and observation by care managers (13). There is a substantial evidence base for collaborative care, including more than 80 randomized controlled trials, suggesting that collaborative care is twice as effective as usual primary care treatment of patients with depression (14). For example, in the Improving Mood Promoting Access to Collaborative Care Treatment (IMPACT) trial, the largest trial of CCM, collaborative care was associated with higher rates of antidepressant use and psychotherapy, compared with treatment as usual (15). In addition, in a multisite trial of CCM for depression and poorly controlled diabetes (16), CCM led to a sixfold increase in antidepressant initiation and adjustment, compared with treatment as usual (17). These initiations and adjustments occurred earlier in treatment among patients receiving CCM, compared with patients receiving usual primary care management, suggesting a reduction in clinical inertia.

Reasons for reduced clinical inertia in collaborative care depression treatment might include closer monitoring of patients, increased primary care provider confidence in prescribing due to the use of standardized treatment algorithms, or the use of psychiatric case review for patients who are not improving with treatment. We have shown that among patients receiving collaborative care who have not responded to treatment by eight weeks, psychiatric case review in the subsequent month strongly predicted improvement within six

months (18), suggesting that psychiatric case review may help overcome inertia and lead to changes in management that could explain improvement in depression outcomes in CCM.

Despite the evidence, it is not clear whether the antidepressant medication treatment intensification observed in clinical trials of CCM interventions is feasible in real-world practice settings. Furthermore, consulting psychiatrists in CCM models make recommendations for modifications in treatment plans, both for behavioral treatment (different psychotherapeutic techniques or modalities) and for pharmacotherapy. Regarding pharmacotherapy, they may recommend starting a new medication, escalating the dose of a current medication, switching medications, augmenting a medication, or stopping an inappropriate medication. There are multiple barriers to the implementation of these recommendations, each of which can decrease the likelihood of a change in treatment. In order to study how psychiatric case review affects the course of medication management in CCM for depression, we examined data from a large, statewide CCM program implemented in almost 200 safety-net primary care clinics, using new medications as an indicator for changes in treatment. We hypothesized that psychiatric case review in CCM would be associated with a greater likelihood of subsequent change in depression medications.

METHODS

Participants and Setting

Our data are from the Washington State Mental Health Integration Program (MHIP), a publicly funded implementation of CCM in a network of 178 community health clinics that are diverse in geographic location, size, and patient populations served. Established in 2008, the program serves patients with mental health and substance abuse conditions who receive primary care in participating clinics. Clinics use a Web-based registry (Mental Health Integrated Tracking System [MHITS]) to systematically follow care management activities and clinical outcomes. The Patient Health Questionnaire (PHQ-9) (19) was used to track depressive symptoms and assist in population management. The current analyses included patients who initiated care with MHIP between January 1, 2008, and September 30, 2014, were age 18 years or older at the time of initial assessment, had clinically significant depression at the time of enrollment (PHQ-9 score of 10 or higher), and had at least one follow-up contact with the care manager in the first six months of treatment. For patients with more than one episode of depression treatment during this time frame, only the initial episode was included. The Institutional Review Boards at the Weill Cornell Medical College and University of Washington approved this study, with a waiver of informed consent for individual patients.

Demographic and Clinical Characteristics

Demographic information (age and gender), clinical characteristics (comorbid behavioral health diagnoses), and data on severity of depressive symptoms (based on the PHQ-9 score) were obtained from MHITS. Behavioral health diagnoses (anxiety, posttraumatic stress disorder [PTSD], substance use disorder, psychotic disorder, and bipolar disorder) were documented in MHITS by the care managers and were not confirmed by diagnostic testing.

Psychiatric Case Review

In the CCM model, psychiatric case review occurs through weekly meetings with the care manager. There were no documented cases where the psychiatric consultant saw patients in person. We derived dichotomous indicators of whether a given case or patient received at least one psychiatric consult or review based on documentation in MHITS. Analysis was conducted every four weeks for the first six months since initial assessment (or until the patient's exit from the program, defined by the date of the patient's last contact with the care manager).

New Depression Medication

Current medications were recorded at initial assessment and follow-up contacts with the care manager. A comprehensive list of medications to treat depression was generated and included all medications approved by the U.S. Food and Drug Administration for treatment of depression or augmentation of depression treatment, as well as mood stabilizers and antipsychotics. [The list of medications is available in the online supplement to this article.] Given that we included all patients with a PHQ-9 score of 10 or higher regardless of psychiatric diagnoses, mood stabilizers and antipsychotics were included, because they may have been prescribed to target depressive symptoms among patients with bipolar disorder, psychotic disorder, or PTSD.

We operationalized our outcome of interest as having a new depression medication. This indicator encompassed several forms of medication management, including initiation of depression medication therapy, switching to a new medication, and augmenting current therapy with an additional medication. Unfortunately, dose adjustments of a current depression medication could not be evaluated because of limitations of the data set. We developed an analytical algorithm to generate monthly indicators of whether a patient had a new antidepressant in a given month based on current and past medications documented in MHITS.

Statistical Analysis

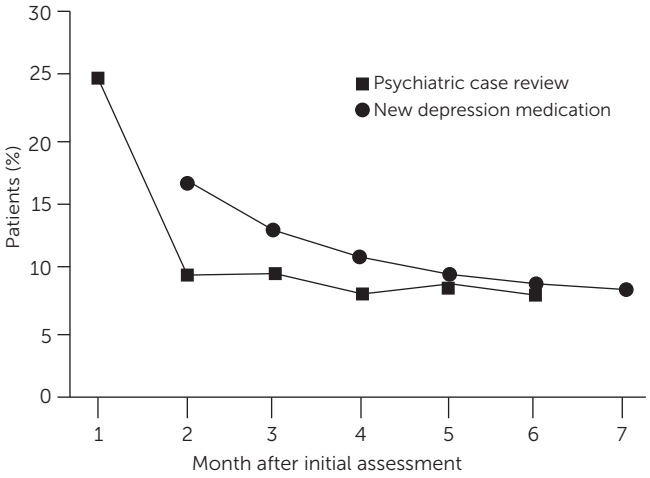
We first conducted descriptive analyses to examine the rates of having at least one psychiatric case review over months 1–6 and of having a new depression medication over months 2–7. We started data collection on new depression medications in month 2 because we wanted to capture new medications as a result of treatment adjustment. We then estimated a patient-month–level linear probability model to test the hypothesis that psychiatric case review in the current month increases the probability that the patient starts a new depression medication in the following month. The

TABLE 1. Characteristics of 14,960 patients who initiated care in a collaborative care model for treatment of depression

Characteristic	N	%
Gender		
Male	6,815	45.6
Female	7,742	51.8
Missing	403	2.7
Age (years)		
18–29	3,127	20.9
30–39	3,268	21.8
40–49	4,381	29.3
50–59	3,413	22.8
≥60	771	5.2
Patient Health Questionnaire–9 score (baseline)[a]		
10–14	3,840	25.7
15–19	4,838	32.3
≥20	6,282	42.0
Documented comorbid behavioral health condition (baseline)		
Anxiety disorder	10,522	70.3
Bipolar disorder	2,771	18.5
Psychotic disorder	635	4.2
PTSD	4,524	30.2
Substance use disorder	3,266	21.8
Used depression medication at baseline	8,781	58.7
Used any new depression medication from 0 to 24 weeks	7,448	49.8

[a] Possible scores range from 0 to 27, with higher scores indicating more severe depressive symptoms.

FIGURE 1. Rate of psychiatric case review and receipt of new antidepressant medications in the months after assessment among patients in a collaborative care model for treatment of depression[a]



[a] Results are from a linear probability analysis that controlled for patients' gender and age, Patient Health Questionnaire-9 score, and comorbid behavioral health conditions, as well as months since initial assessment, months since the clinic started the collaborative care model, and dichotomous clinic indicators.

model controlled for patients' gender and age, PHQ-9 scores, and comorbid behavioral health conditions at initial assessment, as well as for months since initial assessment, months since the clinic started MHIP implementation (as a proxy for clinic experience with CCM), and dichotomous indicators of clinics (such as rural versus urban) to capture all time invariant, between-clinic differences contributing to the outcome. Robust standard errors were derived to take into account clustering of months for the same patient.

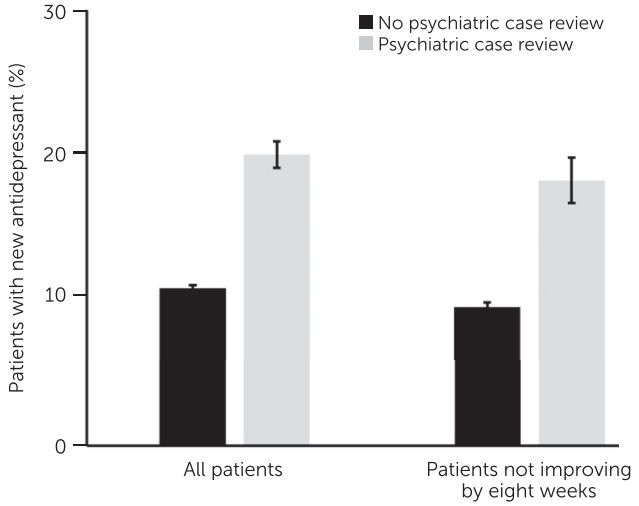
We conducted analyses at the patient level and analyzed data for a subset of patients who did not achieve clinically significant improvement in depression by eight weeks of treatment. Clinically significant improvement in depression was defined as having any follow-up PHQ-9 score of less than 10 or achieving a reduction of 50% or more in the PHQ-9 score from baseline. This subgroup of patients had a clear clinical indication for treatment intensification, and the harm of clinical inertia was especially salient for these patients. We evaluated whether psychiatric case review during weeks 8–12 predicted a new depression medication in weeks 8–16 or 8–20. Restricting psychiatric case review to weeks 8–12 was based on the CCM protocol that recommends psychiatric case review for patients who do not respond to initial treatment. A previous study found psychiatric case review during this time period was associated with higher rates of depression improvement (18). The observation windows for new depression medications (weeks 8–16 and weeks 8–20) were selected to accommodate the lag between psychiatric recommendation to start a new medication and actual initiation of that medication by the patient. We estimated a linear probability model for each analysis (psychiatric case review in weeks 8–12 predicting new depression medication in weeks 8–16 and weeks 8–20), controlling for the same set of baseline patient characteristics and clinic fixed effects described earlier.

RESULTS

The analyses included data for 14,960 adults in the Washington State MHIP program who had a baseline PHQ-9 score of 10 or higher. Table 1 summarizes their demographic and clinical characteristics. Severe depressive symptoms, as indicated by a PHQ-9 score of 20 or higher, were present among 42% of patients. The majority of patients also had comorbid anxiety (70.3%), and a substantial number of patients had comorbid PTSD (30.2%) or substance use disorder (21.8%). The majority were on a depression medication at initial assessment (58.7%). Over the course of 24 weeks of treatment (or until the last contact with care manager), 49.8% of patients received a new depression medication.

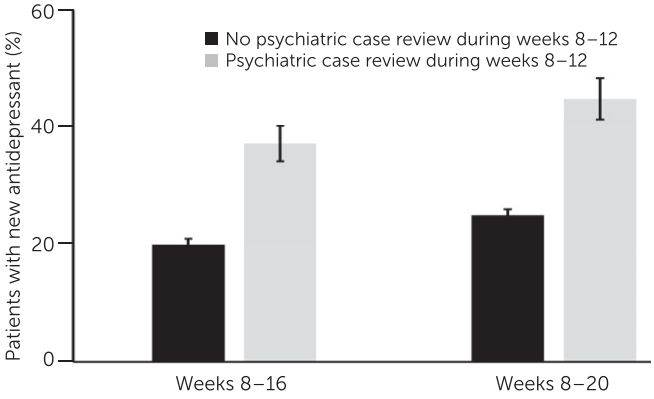
Figure 1 shows the rates of psychiatric case review and receipt of new depression medications over the course of 24 weeks of treatment. The highest monthly rate of psychiatric case review was 25%, which occurred during the first month of treatment. Rates in subsequent months dropped to around 10%. Receipt of new depression medications had a similar pattern, with the highest percentage of new medications seen in the second month of treatment (16.9%) and a subsequent drop in new medications in the following months. Results of the adjusted analysis indicated

FIGURE 2. Average monthly receipt of new antidepressant medications among all patients in a collaborative care model for treatment of depression and among patients who did not improve by eight weeks of treatment, by receipt of a psychiatric case review in the previous month[a]



[a] Results are from a linear probability analysis that controlled for patients' gender and age, Patient Health Questionnaire-9 score, and comorbid behavioral health conditions, as well as months since initial assessment, months since the clinic started the collaborative care model, and dichotomous clinic indicators.

FIGURE 3. Receipt of new antidepressant medications during weeks 8–16 and weeks 8–20 among patients in a collaborative care model for treatment of depression who did not achieve clinically significant improvement in depression by eight weeks of treatment, by receipt of a psychiatric case review during weeks 8–12[a]



[a] Results are from a linear probability analysis that controlled for patients' gender and age, Patient Health Questionnaire-9 score, and comorbid behavioral health conditions, as well as months since initial assessment, months since the clinic started the collaborative care model, and dichotomous clinic indicators.

that psychiatric case review in any given month was associated with nearly a doubling of the probability of receiving a new depression medication in the following month, from 10.9% (95% confidence interval [CI]=10.7%−11.2%) to 20.1% (CI=19.2%−21.1%) (Figure 2).

Among patients who had not achieved significant improvement in depression by eight weeks of treatment (66.1%, N=9,892), a psychiatric case review in any month was associated with a significantly higher rate of receipt of new depression medications in the subsequent month (18.3% [CI=16.7%−19.9%], compared with 9.5% [CI=9.3%−10.0%] with no psychiatric case review) (Figure 2). Among patients who did not improve by eight weeks, 9.1% (N=900) received a psychiatric case review during weeks 8–12. Based on the adjusted analysis, patients who received at least one psychiatric case review during weeks 8–12 had a significantly higher rate of receipt of new depression medications during weeks 8–16 (37% [CI=34%−40%], compared with 20% [95% CI=20%−21%] for patients who did not have a psychiatric case review) or during weeks 8–20 (45% [CI=42%−49%], compared with 25% [CI=25%−26%] for patients who did not have a psychiatric case review) (Figure 3).

DISCUSSION

In this analysis of data from a statewide program of collaborative care in safety- net primary care clinics, patients' receipt of a psychiatric case review in any month was associated with twice the probability of receiving a new depression medication in the subsequent month. Furthermore, among patients who did not achieve clinically significant improvement by eight weeks of treatment, psychiatric case review during weeks 8–12 was associated with higher rates of initiation of new depression medications in the following weeks, even though only 9.1% of these patients received a psychiatric case review during this critical treatment period. In our prior work, we showed that psychiatric case review for patients who do not achieve improvement in depression by week 8 strongly predicted improvement within six months of treatment (18). Our current study specifically examined one important mechanism by which psychiatric case review could have led to improved patient outcome: through improved antidepressant medication management. Our findings indicate that timely psychiatric case review may lead to increased rates of receipt of new medications to treat depression, and that this reduction of clinical inertia may be an important mechanism in collaborative care treatment of depression.

Combined with the results of our prior study, our current findings suggest that improving rates of psychiatric case review in CCM may be one important strategy to improve outcomes. One system-level approach to improving rates of psychiatric case review could be the use of pay-for-performance initiatives, which significantly increased rates of psychiatric case reviews in CCM for depression (20). Such initiatives, which tie payment to meeting certain quality standards (such as a target rate of psychiatric case review among patients who did not improve), were also associated with improved depression outcomes (20). Although these programs may require investments in collecting key quality parameters at a practice level (21), they can be relatively easily incorporated into the CCM for depression, because

the model already focuses on tracking care processes and patients' clinical outcomes (20).

Our study had several limitations. First, the identification of depression medication through documentation by care managers may under-report medication use, compared with pharmacy claims or electronic health record data. This underreporting may, in part, explain the low rate of receipt of new medication to target depression (10% to 18% per month). Furthermore, data limitation precluded evaluation of dose adjustments to medications already prescribed, which is another important form of treatment intensification. Also, treatment intensification through addition of various psychotherapies, adjustments in the type of psychotherapy provided or in the intensity of a given therapy, or referrals to higher levels of care or alternative indicated treatment centers (such as substance abuse treatment centers) were not evaluated. These limitations, however, would lead to an underestimation of the impact of psychiatric case review on treatment intensification. An additional limitation is that, given we relied on care manager updates of medication lists to identify new medications, there is the possibility that the act of case review itself could affect these updates. This effect could falsely increase the observed association between psychiatric case review and subsequent new depression medications. Although a false increase is a possibility, we feel the likelihood of this occurrence is low and does not account for the entire degree of association we observed.

In addition, all patients who had a PHQ-9 score of 10 or higher were included in the study sample, regardless of their primary psychiatric diagnosis. Many patients who were included had diagnoses other than major depressive disorder, and a significant percentage had bipolar disorder, a comorbid psychotic disorder, or a comorbid substance use disorder. We included patients with substance use disorders in these analyses to better reflect clinical practice, in which patients are enrolled in CCM treatment regardless of diagnosis. Medication recommendations from psychiatrists in these cases may include medications to treat depression, as well as other classes of medications, such as antipsychotics, mood stabilizers, and promoters of alcohol abstinence. Although we included many of these medication classes in our analysis, data on some classes, such as medications to promote abstinence in substance use disorders, may not have been captured. Therefore, the rates of medication changes resulting from psychiatric case review that we observed among these complex patients with comorbidity may underestimate the actual number of treatment changes.

Finally, CCM is a complex, team-based intervention, and there are several steps between psychiatric recommendation for a medication change and the documentation of the change by a care manager at a clinic visit: the care manager must relay the recommendation to the primary care provider, the primary care provider must send the prescription to the pharmacy, the patient must pick up the prescription and begin taking it, the care manager must confirm that the patient has started to take the medication, and the care manager must then document this change in the registry. The current study supports the psychiatric case review as a critical component to reduce clinical inertia and promote prompt treatment intensification in this complex intervention. Further work is needed to understand the optimal clinical workflow and protocols for data reporting in order to enhance the efficiency and effectiveness of the model in clinical settings.

CONCLUSIONS

Using data from a large sample in a real-world implementation of CCM for depression, our study provides strong evidence that psychiatric case review is associated with changes in antidepressant treatment. Our findings support our hypothesis that psychiatric case review is one of the aspects contributing to treatment intensification in CCM for depression, thereby reducing clinical inertia. Overall low rates of documented psychiatric case review suggest that efforts to increase rates of case review may further improve treatment intensification. Future studies should also examine other aspects of treatment intensification, such as changes in behavioral treatments, changes in medication dosing, or referrals to higher levels of care.

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REFERENCES

1. Pratt LA, Brody DJ: Depression in the U.S. Household Population, 2009–2012. Hyattsville, MD, National Center for Health Statistics, 2014. https://www.cdc.gov/nchs/data/databriefs/db172.htm
2. Pence BW, O'Donnell JK, Gaynes BN: The depression treatment cascade in primary care: a public health perspective. Current Psychiatry Reports 14:328–335, 2012
3. Wang PS, Lane M, Olfson M, et al: Twelve-month use of mental health services in the United States: results from the National Comorbidity Survey Replication. Archives of General Psychiatry 62:629–640, 2005
4. Krym VF, Crawford B, MacDonald RD: Compliance with guidelines for emergency management of asthma in adults: experience at a tertiary care teaching hospital. Canadian Journal of Emergency Medical Care 6:321–326, 2004
5. O'Connor PJ, Sperl-Hillen JM, Johnson PE, et al: Clinical inertia and outpatient medical errors; in Advances in Patient Safety: From Research to Implementation (Volume 2: Concepts and Methodology). Edited by Henriksen K, Battles JB, Marks ES, et al. Rockville,

MD, Agency for Healthcare Research and Quality (US), 2005. http://www.ncbi.nlm.nih.gov/books/NBK20513/
6. Oh S-W, Lee HJ, Chin HJ, et al: Adherence to clinical practice guidelines and outcomes in diabetic patients. International Journal for Quality in Health Care. 23:413–419, 2011
7. Pittman DG, Fenton C, Chen W, et al: Relation of statin nonadherence and treatment intensification. American Journal of Cardiology 110: 1459–1463, 2012
8. Roumie CL, Elasy TA, Wallston KA, et al: Clinical inertia: a common barrier to changing provider prescribing behavior. Joint Commission Journal on Quality and Patient Safety 33:277–285, 2007
9. Henke RM, Zaslavsky AM, McGuire TG, et al: Clinical inertia in depression treatment. Medical Care 47:959–967, 2009
10. Hepner KA, Rowe M, Rost K, et al: The effect of adherence to practice guidelines on depression outcomes. Annals of Internal Medicine 147:320–329, 2007
11. Phillips LS, Branch WT, Cook CB, et al: Clinical inertia. Annals of Internal Medicine 135:825–834, 2001
12. Aujoulat I, Jacquemin P, Rietzschel E, et al: Factors associated with clinical inertia: an integrative review. Advances in Medical Education and Practice 5:141–147, 2014
13. Unützer J, Katon W, Williams JW Jr, et al: Improving primary care for depression in late life: the design of a multicenter randomized trial. Medical Care 39:785–799, 2001
14. Archer J, Bower P, Gilbody S, et al: Collaborative care for depression and anxiety problems. Cochrane Database of Systematic Reviews 10:CD006525, 2012
15. Unützer J, Katon W, Callahan CM, et al: Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. JAMA 288:2836–2845, 2002
16. Katon WJ, Lin EHB, Von Korff M, et al: Collaborative care for patients with depression and chronic illnesses. New England Journal of Medicine 363:2611–2620, 2010
17. Lin EHB, Von Korff M, Ciechanowski P, et al: Treatment adjustment and medication adherence for complex patients with diabetes, heart disease, and depression: a randomized controlled trial. Annals of Family Medicine 10:6–14, 2012
18. Bao Y, Druss BG, Jung H-Y, et al: Unpacking collaborative care for depression: examining two essential tasks for implementation. Psychiatric Services 67:418–424, 2016
19. Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. Journal of General Internal Medicine 16:606–613, 2001
20. Unützer J, Chan Y-F, Hafer E, et al: Quality improvement with pay-for-performance incentives in integrated behavioral health care. American Journal of Public Health 102:e41–e45, 2012
21. Bremer RW, Scholle SH, Keyser D, et al: Pay for performance in behavioral health. Psychiatric Services 59:1419–1429, 2008