

## Meadows Mental Health Policy Institute

### Increasing the Cost-Effectiveness of Depression Treatment with Collaborative Care

#### Depression: Prevalence and Costs

In the United States, one in five adults (20%) will experience a clinically significant form of depression in their lifetime.<sup>1</sup> About 7.5% of the U.S. workforce has depression in any year.<sup>2</sup> The impact of an employee's depression extends beyond the suffering of the individual to affect family, friends, coworkers, and eventually, the bottom line.

*Bill has been working on the assembly line at a manufacturing plant since he was 23 years old. After twenty years on the job, he was thinking about taking an early retirement deal so he could travel. Suddenly, without warning, Bill had a heart attack. Recovery was hard, making Bill feel weak and vulnerable. He had less and less motivation to exercise, follow his diet, or keep track of all his doctor's appointments and medications. Whenever Bill would think about going back to work, his heart would race. Convinced he was having another heart attack, Bill ended up in the emergency room over and over again.*

**Medical Outcomes and Costs:** Untreated depression can increase the chances that someone will experience another medical condition. In addition, individuals with depression *and* a medical condition experience greater distress, increased functional impairment, and are less able to follow medical regimens. As a result, depression can increase medical costs and negatively affect treatment outcomes. For example:

- Men and women diagnosed with clinical depression are more than twice as likely to develop coronary artery disease or suffer a heart attack.<sup>3</sup> In addition, those who have experienced a heart attack are three times as likely to have a cardiac-related death if they also have a co-occurring depressive disorder.<sup>4,5</sup>
- Depression occurs in 25% of people with diabetes.<sup>6</sup> Patients with symptoms of depression are less likely to adhere to dietary restrictions or medical regimens, and more likely to use the emergency room or inpatient settings for medical care.<sup>7</sup>

**Business Costs.** Besides increasing healthcare expenses, research shows that untreated depression is a significant contributor to workplace disability costs, reduced work performance and "presenteeism" (the practice of going to work when sick, which includes mental illnesses), absenteeism, safety issues, employee turnover, and legal costs. Depression costs U.S. employers approximately \$187.8 billion a year.<sup>8,9</sup> This total includes annual costs of \$134 billion in health care (health and mental health combined), \$20.9 billion in absenteeism, and \$32.9 billion in lost productivity.

- In a three-month period, individuals with depression missed an average of 4.8 workdays and had 11.5 days of reduced productivity.<sup>10</sup>
- While 17 to 20% of all workers experiences short-term disability over a year's time, workers with depression had more than double that rate (up to 48%).<sup>11</sup>
- Job turnover rates ranged from 25% to 50% among workers experiencing certain levels of depression. The cost to the employer (in recruitment, training, and other organizational efforts) was estimated to be three-quarters to one-and-a-half times the employee's annual salary.<sup>12</sup>
- There has been a 56% rise in depression-based workplace discrimination claims filed with the Equal Employment Opportunity Commission (EEOC) between 2003 and 2013.<sup>13</sup>

### Depression Treatment Is Cost-Effective

Effective depression treatment can improve medical outcomes, reduce medical costs, and decrease associated business costs. When people with depression receive effective treatment, they have an average of 17 fewer annual disability leave days compared to those with depression who do not receive treatment.<sup>14</sup> One study showed that individuals who received treatment for depression had 23% less absenteeism and only one third as many missed days of work,<sup>15</sup> which led to an economic benefit of \$1,982 associated with improved productivity at work and \$619 per person due to reduced absenteeism<sup>16</sup>.

### Barriers to Effective Depression Treatment

Although more than 80% of people with depression can be treated successfully with medication, psychotherapy, or a combination of both, **less than 22% receive adequate care.**<sup>17</sup> Nearly 74% of Americans who seek help for symptoms of depression go to a primary care physician (PCP) rather than a mental health professional. Unfortunately, a diagnosis of depression is missed 50% of the time in a primary care setting. Even when depression is diagnosed and addressed by a PCP, half of patients prematurely stop taking prescribed medications and many do not follow through with a specialty referral.

### Removing Barriers to Effective Depression Treatment: The Collaborative Care Model

Implementing specific interventions, collectively referred to as “collaborative care,” that promote the detection of depression, “in-place” treatment (no referral needed), and treatment adherence can significantly improve outcomes by increasing the number of individuals who access and successfully complete treatment for depression.<sup>18</sup> The table below illustrates how collaborative care interventions promote effective treatment for depression.

Traditional Depression Treatment	Collaborative Care Intervention
50% PCP depression detection	Automated depression screening increases detection
50% treatment drop-out rate	Proactive patient monitoring, prioritization of care, and follow-up by care managers
50% medication adherence	Side effect education and monitoring, tailored dosage adjustments, progress measurement and follow-up
Separate/isolated provision of mental health and medical treatment that may result in inadvisable medication interactions, poor adherence to treatment regimens, and redundant health care costs	Professional collaboration, consultation and treatment plan coordination; implementation of adherence strategies for medical care; identification and treatment of co-occurring mental health / substance use disorder conditions; information sharing via electronic records

### Collaborative Care Yields a Good Return-on-Investment

Research on the cost-effectiveness of collaborative care interventions compared to that of treatment for depression on its own is relatively new, but the results are positive. Several studies evaluating the cost-effectiveness of collaborative care interventions relative to routine care in primary care settings demonstrated healthcare savings over time.<sup>19</sup> A good estimate of the investment in enhanced treatment is \$1,000 over two years per person treated for depression.<sup>20</sup> However, **healthcare savings** over four years have been estimated to be approximately \$3,300 per person; **productivity and absenteeism savings** in the first two years have been estimated to be approximately another \$2,500 per person treated.<sup>21</sup>

<sup>1</sup> Kessler, R.C., et al. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593-603. For major depression alone, the chance of having the diagnosis at some point in one's life is one in six.

<sup>2</sup> Kessler, R.C., Merikangas, R. & Wang, P. (2008, April). The prevalence and correlates of workplace depression in the National Comorbidity Survey Replication. *Journal of Occupational and Environmental Medicine*, 50(4): 381–390.

<sup>3</sup> American Psychological Association (n.d.). *Mind/body health: Heart disease*. Retrieved November 11, 2015, from <http://www.apa.org/helpcenter/heart-disease.aspx>.

<sup>4</sup> Sherrer, J.F., Garfield, L.D., Chisciel, T., et al. (2011). Increased risk of myocardial infarction in depressed patients with type 2 diabetes. *Diabetes Care*, 34(8):1729-34.

<sup>5</sup> In general, major depression and depressive symptoms are positively correlated with cardiac problems; increasing severity of depression is associated with earlier manifestation and greater severity of cardiac events. After a myocardial infarction event (heart attack), individuals with depression have twice the risk of another

cardiac event within two years of the first event. This association can be explained both biologically and behaviorally. Individuals with depression have more biomarkers that are correlated with heart problems. According to a science advisory group sponsored by the American Heart Association, these include reduced heart rate variability, evidence of hypothalamic-pituitary-adrenal dysfunction, plasma platelet problems, impaired vascular function, and a variety of other circulatory system problems. Behavioral links between depression and heart disease include diet and exercise, tobacco use, stress, isolation, and medication adherence. See a more detailed description of these findings in: Lichtman, J.H., et al. (2008). Depression and coronary heart disease: Recommendations for screening, referral, and treatment: A science advisory from the American Heart Association prevention committee of the council on cardiovascular nursing, council on clinical cardiology, council on epidemiology and prevention, and interdisciplinary council on quality of care and outcomes research: Endorsed by the American Psychiatric Association. *Circulation*, 118(17), 1768-1775.

<sup>6</sup> Williams, M.M., Clouse, R.E., & Lustman, P. (2006). Treating depression to prevent diabetes and its complications: Understanding depression as a medical risk factor. *Clinical Diabetes*, 24(2), 79-86.

<sup>7</sup> Ciechanowski, P.S., Katon, W.J., & Russo, J.E. (2000). Impact of depressive symptoms on adherence, function, and costs. *JAMA Internal Medicine*, 160(21). Retrieved from <http://archinte.jamanetwork.com/article.aspx?articleid=485556>.

<sup>8</sup> Mrazek, D.A., Hornberger, J.C., Altar, C.A., & Degtiar, I. (2014). A review of the clinical, economic and societal burden of treatment-resistant depression 1996-2013. *Psychiatric Services*, 65(8).

<sup>9</sup> Mrazek et al's cost analysis included four employer/private payer claims databases and one Medicare claims database. Estimates were based on a 12-month prevalence of depression in 16,000,000 adults. The percentage of people with treatment resistant depression was 12% (conservatively); the average direct health care costs for people with treatment resistant depression were \$13,196 annually; the average direct health care costs for people with treatment responsive depression was \$7,715; and the average productivity-related costs were \$6,924 and \$2,876, respectively.

<sup>10</sup> Valenstein, M., Vijan, S., Zeber, J.E., Boehm, K., & Buttar, A. (2001). The cost-utility of screening for depression in primary care. *Annals of Internal Medicine*, 134, 345-360.

<sup>11</sup> Goldberg, R.J., & Steury, S. (2001). Depression in the workplace: Costs and barriers to treatment. *Psychiatric Services*, 52(12), 1639-1643. See also: Depression Center, University of Michigan Health Center. (n.d.). *Depression and lost productivity*. Retrieved November 23, 2015, from <http://www.depressioncenter.org/work/information-for-employers/lost-productivity/>.

<sup>12</sup> Cocker, F., Nicholson, J.M., Graves, N., et al. (2014, September). Depression in working adults: Comparing the costs and health outcomes of working when ill. *PLoS ONE*, 9(9): e105430. Doi: 10.1371/journal.pone0105430.

<sup>13</sup> Dunning, M. (2014, December). Depression in the workplace remains problematic, costs employers billions. *Business Insurance*. <http://www.businessinsurance.com/article/20141207/NEWS03/312079961>.

<sup>14</sup> Donohue, J. M., & Pincus, H. A. (2007). Reducing the societal burden of depression: A review of economic costs, quality of care and effects of treatment. *Pharmacoeconomics*, 25(1), 7-24.

<sup>15</sup> Ibid. (See also: Langlieb, A. M., & Kahn, J. P. (2005). How much does quality mental health care profit employers? *Journal of Occupational and Environmental Medicine*, 47(11), 1099-1109.)

<sup>16</sup> Ibid.

<sup>17</sup> Kessler, R., et al. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Study Replication (NCS-R). *Journal of the American Medical Association*, 289(23), 3095-3105.

<sup>18</sup> The Collaborative Care Model has been described by the AIMS Center at the University of Washington: <http://uwaims.org>.

<sup>19</sup> Grochtdrels, T., Brettschneider, C., Weggener, A., et al. (2015). Cost-effectiveness of collaborative care for the treatment of depressive disorders in primary care: A systematic review. *PLoS ONE* 10(5): e0123078. doi:10.1371/journal.pone.0123078.

<sup>20</sup> Institute for Clinical Systems Improvement. (n.d.). *The value of providing collaborative care models for treating employees with depression*. Pietruszewski, P. (2010). A new direction in depression treatment in Minnesota: DIAMOND program, Institute for Clinical Systems Improvement, Bloomington, Minnesota. *Psychiatric Services*, 61(10), 1042-1044.

The DIAMOND (Depression Improvement Across Minnesota, Offering a New Direction) Project changes how care for the patient with depression is delivered and paid for in primary care. Its scope is "to assist primary care in

developing systems that support effective assessment, diagnosis and ongoing management of new or existing diagnosis of major depression in adults age 18 and over, and to assist individuals to achieve remission of symptoms, reduce relapse and return to previous level of functioning.”

<sup>21</sup> Ibid.