To Screen or Not to Screen: Is That the Question? Improving the Outcomes of Depression in Primary Care

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Abstract
• Objective: To review the utility of screening in improving depression outcomes.
• Methods: Qualitative review of the literature.
• Results: Depression is highly prevalent in the community and in primary care settings and imposes a burden of illness greater than most chronic medical disorders. Standardized screening for depression in primary care has been recommended by a number of practice guidelines, yet there is minimal evidence for an impact of screening on patient outcome. Education of patients and providers has shown equally marginal impact. Improved outcomes for depression in primary care seem to hinge on more systematic depression management systems, involving more integration of specialized mental health services and primary care and more assertive outreach to follow depressed patients. Such interventions have been shown to have good cost-effectiveness.
• Conclusion: Efforts to improve outcomes of depression in primary care should move from emphasis on screening and education to the development of depression management systems that involve collaborative care by primary care providers and mental health professionals and active outreach to monitor compliance and response.

In recent years the management of depression in primary care settings has received increased attention. The prevalence of major depression in such settings has been estimated at 4.8% to 8.6%, and that of dysthymia (chronic lower-grade depression) at 2.1 to 3.7% [1]. Only 57.7% of patients with major depression receive any treatment [2], and of those who receive treatment, more do so through their primary care physicians (PCPs) than through mental health specialists [3]. In addition, depression has been associated with increased medical comorbidity, higher utilization of medical services, and reduced productivity and quality of life [4].

Despite the prevalence of depression and the magnitude of its associated burdens, the disorder frequently goes undetected. As many as 50% of depressed patients may go undiagnosed in primary care settings [5]. For this reason there has been much interest in using screening tools to improve identification of depressed patients. The appeal of screening—also termed “case-finding”—derives from its potential as a quick, simple, and inexpensive tool for use in busy primary care clinics. The expectation has been that by augmenting detection rates, screening will lead to increased numbers of patients receiving treatment and thus to overall improved outcomes for these patients [6–8].

In this paper, we will review case-finding instruments for depression, current recommendations for their use in primary care settings, and whether screening increases rates of detection and treatment of depression by PCPs. We will also examine which interventions improve outcomes for depressed patients and gaps in the current research on how to optimize primary care management of depression.

Screening Tools
A variety of case-finding tools for depression have been studied for use in primary care settings, including the Beck Depression Inventory (BDI); the Center for Epidemiologic Studies Depression Scale (CES-D); the Zung Self-Assessment Depression Scale (Zung SDS); the Geriatric Depression Scale (GDS), which is designed for use in older adults; and the Primary Care Evaluation of Mental Disorders (PRIME-MD), which assesses for both depression and other types of mental illness.

Further details about the components of these instruments and the data supporting their use can be found elsewhere [9–13]. Most of these instruments consist of several simple questions to be answered by the patient and can be administered and scored in 5 minutes or less. There is no compelling data indicating that 1 screen is preferable to another for the purpose of identifying depressed patients in primary care settings.

These instruments have good sensitivity (estimated at
80%–90%) and fair specificity (70%–85%) [1]. However, what may be more important to clinicians is the positive predictive value of a screen (the proportion of patients with a positive screen who are actually depressed) [14]. Even under optimal conditions—sensitivity of 90%, specificity of 85%, and prevalence of 8.6%—the positive predictive value would be only 36%. When sensitivity, specificity, and prevalence are all at the low ends of the listed ranges, the positive predictive value plummets to 12%.

**Current Recommendations**

In its 2002 guidelines [15], the U.S. Preventive Services Task Force reversed its 1996 conclusion [16] and recommended routine depression screening of adults in general medical practices. This was a grade B recommendation, signifying that the Task Force found fair evidence that screening improves outcomes and that the benefits of screening outweigh the harms. No specific advice was given with respect to frequency of screening or the specific instruments to be used.

In response to the weakness of the evidence for improved outcomes unless screening is combined with “something more,” the Task Force limited their recommendations to “clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up,” without defining such systems.

In 2004 the Canadian Task Force on Preventive Health Care updated its guidelines on screening, based largely on the same pool of evidence reviewed by the USPSTF, concluding in a grade B recommendation that there was evidence to recommend screening for depression in primary care settings [17]. Like its American counterpart, the Canadian Task Force qualified its conclusions by recommending that screening should be “linked to effective follow-up and treatment,” i.e., “integrated with both feedback to the clinician regarding depression status, as well as a system for managing treatment (antidepressant medications and psychotherapeutic interventions).”

Also in 2004, the United Kingdom’s National Institute of Clinical Excellence (NICE) issued practice guidelines on the management of depression in primary and secondary care [18]. These guidelines advised that in primary care settings routine screening should be performed on “high-risk” groups—those with prior history of depression or comorbid physical or mental illness. The NICE guidelines included new literature published after the U.S. Task Force had issued its report. NICE designated its recommendation as a grade C recommendation, indicating that “directly applicable clinical studies of good quality are absent or not readily available.”

In summary, all 3 organizations have advocated screening for depression in primary care settings, although in view of the equivocal evidence of improved outcomes, they have recommended that screening be limited to high-risk patient populations (NICE), which would increase the positive predictive value, or to practices with systems in place to manage depression (U.S. and Canadian Task Forces), which would increase the likelihood of improved outcome.

**Screening and Detection Rates**

In a systematic review underlying the 2002 U.S. Task Force report, Pignone et al [19] identified 14 randomized trials in primary care settings in which screening was compared with routine care in primary care settings. Seven of the 8 trials that included quantitative data on the effect of screening on rates of diagnosis of depression showed statistically significant effect, with the use of screening instruments associated with an increase in the detection of depression by a factor of 2 to 3.

Six of the 14 trials in the Pignone et al [19] review combined screening with other interventions, combinations that could be considered examples of “depression management programs.” In contrast, a 2005 Cochrane systematic review by Gilbody et al [20] excluded studies in which “screening was embedded within a complex package of patient care and clinician support.” They argued that additional interventions attached to screening—such as use of case managers, clinician education, and collaborative care—affects the rate of diagnosis of depression, and that inclusion of studies investigating such interventions confounds the analysis of screening alone. The authors identified 12 randomized trials of screening in primary care settings that met these inclusion criteria, 9 of which included data on the effect of screening on physician recognition of depression. They found only a borderline positive impact on the rate of detection (relative risk, 1.38 [95% confidence interval, 1.04–1.83]).

**Screening and Treatment Rates**

Although Pignone et al found relatively strong evidence that routine screening led to increased identification of depression, the evidence was mixed with regards to the effect of screening on physicians’ actual treatment of depressed patients. Nine of the 14 trials included in the review provided data on the effects of screening on rates of treatment. Of those, 4 found statistically significant increases in treatment rates. All 4 of these trials involved depression management programs that combined screening with other interventions. None of the 4 trials that studied the effect of screening alone showed statistically significant increases in treatment rates.

Gilbody et al identified 2 markers of treatment: “prescription of antidepressants” and “any intervention for depression” (which included prescription of antidepressants, referral to mental health treaters, and stopping drugs known to cause depression). Screening produced only borderline
increases in either marker, leading the authors to conclude that treatment rates were “not clearly influenced” by screening.

Screening and Patient Outcomes

The impact of screening on overall patient outcome was ambiguous in the Pignone et al review. Ten of the studies reviewed documented the effect of screening on patient outcome, usually by calculating the percentage of patients who were still depressed at follow-up, based on readministering the case-finding instrument. Five of the 10 trials showed statistically significant improvement in patient outcome, including all 3 of the “enhanced” programs (ie, interventions that involved some additional form of depression management beyond simple screening).

Heterogeneity in the measurement of patient outcomes complicated the final analysis. Pignone et al were able to conduct a meta-analysis of 7 of the trials. Compared with those who received usual care, patients who underwent screening had a 0.87 relative risk for remaining depressed (confidence interval, 0.79–0.95).

Gilbody et al found 4 trials that presented data on the outcome of depression, but the results were presented in a manner that precluded meta-analytic pooling. Looked at individually, none of these studies showed a statistically significant effect on overall patient outcome.

Implications of the Current Data on Screening

The results of the Pignone et al and Gilbody et al studies suggest that screening alone does not lead to significant improvements in the rate of depressed patients receiving treatment or in overall symptom reduction. These findings are consistent with many studies that show that even when depression is recognized, only a small minority of patients with major depression treated in the general medical sector receive treatment consistent with national guidelines. Wang et al [2] found that only 31.7% of those who had at least 1 visit in the general medical sector for a mental health problem received guideline-concordant care compared with 45.7% of those who received at least 1 mental health specialist visit.

The National Comorbidity Survey found that only 21.8% of those treated solely in the general medical sector received even minimally adequate treatment compared with 58% of those treated solely in the mental health sector [21]. In a subsequent replication survey, patients treated in the mental health specialty sector received an average of 7.8 visits and 52% received minimally adequate treatment compared with 1.4 visits and 14.9% in the general medical sector [22]. Young et al [23] found that among patients with a probable depressive or anxiety disorder, poor-quality care occurred in 80.5% of those only seen in primary care compared with 11.4% of those who only saw a mental health provider or 10.1% of those who saw both.

Potential barriers to optimal depression management in primary care include patient factors, physician factors, and health care system factors [24]. Patient factors such as underestimation of the severity of their illness and stigma associated with psychiatric illness lead to patients’ failure to seek or continue treatment for depression. Physician factors, including insufficient knowledge of depression treatment, lack of comfort in managing psychiatric illness, and limited time to spend with depressed patients, make PCPs less likely to provide adequate treatment for depression or to ensure adequate follow-up to depressed patients. Health care system factors such as poor collaboration between PCPs and mental health providers and lack of reimbursement by managed care companies for adequate monitoring of depressed patients further explain why screening has not turned out to be the “magic bullet” many had hoped for.

Depression Management Programs

These findings suggest that some intervention in addition to or in place of screening is necessary to improve patient outcomes. Depression management programs vary in specific components and overall scope but are similar in using systematic disease management techniques to address the barriers described above. Table 1 lists several of the elements of depression management programs that have been described in the literature.

Interventions that consist primarily of education of physicians, nurses, and other clinicians appear largely ineffective in improving patient outcomes [25–32]. Examples include distribution of written guidelines, formal lectures, and interactive seminars and case conferences. The common denominator among these interventions is that they primarily target clinicians’ knowledge and attitudes about depression and do not directly address those barriers that prevent patients from receiving appropriate follow-up.

In 2000, Thompson et al [25] described an in-practice program based on clinical practice guidelines that was delivered to PCPs. The intervention was well received, and 80% of the PCPs thought that the training would change their management of depressed patients. In spite of the high expectations, at 6 months there were no significant differences between patients of physicians who received the training and those who did not.

Lin et al [26] in 2001 used interactive discussions, expert demonstrations, role play, case reviews, and other techniques over a 3-month training period. Despite the far-reaching scope of the intervention, after 1 year there were no differences between intervention and control groups.

In contrast, programs that directly target adequacy of treatment and follow-up show more promise. The 2 main interventions are collaborative care and assertive outreach. In collaborative care, PCPs work closely with mental health...
professionals in a more integrated team approach. The mental health professionals may act as on-site treaters (referral to off-site treaters has generally been less successful) [33,34] or as on-site or off-site (available by telephone) consultants or supervisors. Some integrated programs involve creation of formal multidisciplinary teams of physicians, nurses, mental health specialists, and pharmacists.

Assertive outreach consists of case management techniques to ensure that depressed patients enter and continue treatment. Interventions may include developing individualized treatment plans, maintaining regular telephone contact with patients, and scheduling appointments of greater frequency and duration. One common practice is to train nurses to be depression case managers, monitoring patients’ compliance, side effects, and response to treatment, and maintaining frequent contact with PCPs about their treatment.

Some of the more comprehensive programs use “stepped care” techniques (also sometimes referred to as “graded management”). In stepped care, more intensive (and usually more costly) treatment is reserved for those who have not responded to lower levels of care or who are at high risk of relapse.

Several studies suggest that certain patient subpopulations, especially groups who historically have had less access to mental health care, may show the greatest benefit from depression management programs. In 2002, Smith et al [35] found improved outcomes for uninsured patients but no significant effects in those with health insurance. Wells et al [36] observed improved long-term outcomes for Latino and African-American patients but not for white patients. Finally Smith et al [37] in 2000 found greater effect in rural settings compared with urban settings.

Depressed patients presenting with psychologic symptoms may show greater benefit than those presenting with physical symptoms. Keeley et al [38] reported improved patient symptoms and functioning in those with psychologic symptoms but not in those with physical symptoms. Dickinson et al [39] studied the costs of a depression management program with respect to each of these 2 subgroups. For patients who presented mostly with psychologic symptoms, the intervention improved outcomes and lowered costs over a 2-year duration, but for those whose depression was characterized by physical symptoms the program increased costs and did not improve outcome.

There are little data regarding the long-term impact of depression management programs. Katon et al [40] described improvement sustained over a 28-month period in patients with mild-to-moderate depression, though not in patients with high-severity illness, without an increase in ambulatory costs. Wells et al [36] found that at 5 years 37% of intervention patients still had probable depression compared with 43.6% of patients who received usual care.

Table 1. Components of Depression Management Programs

<table>
<thead>
<tr>
<th>Educational interventions</th>
<th>Collaborative care/involvement of mental health specialists</th>
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<tbody>
<tr>
<td>Distribution of written materials on depression management</td>
<td>Facilitated primary care physician (PCP) access to psychiatrists for consultation and supervision</td>
</tr>
<tr>
<td>(eg, practice guidelines, treatment algorithms)</td>
<td>Facilitated patient access to psychiatrists and therapists</td>
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<tr>
<td>One-time educational programs</td>
<td>Referral of patients to specialized therapies (eg, cognitive behavioral therapy, interpersonal therapy)</td>
</tr>
<tr>
<td>Longitudinal educational programs (eg, monthly case conferences, ongoing informal teaching)</td>
<td>Referral to community mental health teams</td>
</tr>
<tr>
<td>Academic detailing (on-site visits to primary care offices by mental health specialists)</td>
<td>Creation of multidisciplinary teams</td>
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</table>

Assertive outreach

| Distribution of informational material to patients |
| Regular telephone contact with patients |
| Counseling to improve medication adherence |
| Counseling on problem solving and use of adaptive coping strategies |
| Referral of patients to support groups |
| Training of nurses to serve as specialized depression managers that closely coordinate care with PCPs |
| Development of individual relapse prevention plans |
| Increased frequency and intensity of scheduled visits |
| Use of pharmacy records to monitor adherence to medication regimen and verify appropriate dosing |
| Use of reminder systems to ensure patient follow-up |
| Creation of chronic care clinics in which visits are extended and patients meet with multiple treaters |

Other techniques

| Training of administrative staff to administer screening tests to patients |
| Computerized reporting of positive screening results |
| Computerized feedback of treatment recommendations based on pharmacy records |
| Stepped care/graded management strategies |

A related question is whether the program can be stopped once the primary care team has become more experienced and comfortable with managing depression. The few studies that have attempted to address this question directly have found that the benefit of these programs lasted only as long as the interventions continued and dissipated when the enhanced care components were removed [27,41].
Reviews of Depression Management Programs

As research on the varieties of depression management programs has grown, a handful of systematic reviews of these interventions have been published. A 2003 review by Gilbody et al [42] included 36 trials of various interventions, 21 of which showed positive results in their primary outcomes. Consistent with the trends noted above, the authors noted that simpler education strategies were least effective, while complex programs had more positive results.

A meta-analysis published by Neumeyer-Gromen et al [43] in 2004 examined the results of 10 trials of comprehensive depression management interventions. The final analysis showed that compared with usual care, the relative risk of continued depression for patients participating in these programs was 0.75. In addition, these programs led to improved patient adherence to treatment regimens as well as improved patient and provider satisfaction.

A 2003 systematic review by Badamgarav et al [44] described a meta-analysis of 24 disease management programs for depression. The programs were found to have produced statistically significant improvements in symptoms of depression, patients’ satisfaction with treatment, adequacy of prescribed treatment, and patients’ adherence to treatment regimen. Improvements in physical functioning and

Table 2. Cost-Effectiveness of Various Depression Management Programs

<table>
<thead>
<tr>
<th>Study</th>
<th>Program Elements</th>
<th>Effectiveness</th>
<th>Incremental Cost-Effectiveness Ratio</th>
<th>Incremental Cost-Utility Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative care: psychiatric consultation model Katon 1995 [46,54,55]</td>
<td>Patient education</td>
<td>NNT 3.3</td>
<td>$1592 per patient successfully treated (defined as &gt; 50% improvement in symptom score) $30.82 per depression-free day</td>
<td>$37,589 per QALY</td>
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<tr>
<td></td>
<td>Provider education</td>
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<tr>
<td></td>
<td>Monitoring of adherence by psychiatrist’s review of filled prescriptions</td>
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<td></td>
<td>Pharmacotherapy by PCP and on-site psychiatrist with increased frequency of visits and ongoing feedback and interaction</td>
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<tr>
<td>Collaborative care: brief therapy model Katon 1996 [46,55,56]</td>
<td>Patient education</td>
<td>NNT 3.6</td>
<td>$940 per patient successfully treated (defined as &gt; 50% improvement in symptom score) $19.70 per depression-free day</td>
<td>$24,026 per QALY</td>
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<tr>
<td></td>
<td>Provider education</td>
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<tr>
<td></td>
<td>CBT, counseling to support adherence, and monitoring of symptoms and adherence by PhD</td>
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<tr>
<td></td>
<td>Pharmacotherapy by PCP</td>
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<tr>
<td></td>
<td>Expert system (psychiatrist supervision and feedback with optional referral of nonresponders)</td>
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<tr>
<td>Schulberg 1996 [57,58]</td>
<td>Provider education</td>
<td>NNT 3.0 (NT) 3.3 (IPT)</td>
<td>$2230 (NT) and $2827 (IPT) per patient successfully treated (defined as achieving asymptomatic state) $13.14 (NT) and $17.56 (IPT) per depression-free day</td>
<td>$11,695–$15,202 (NT) and $15,358–$19,965 (IPT) per QALY</td>
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<td></td>
<td>Frequent visits (weekly or biweekly) Nortriptyline pharmacotherapy (NT) from PCP or interpersonal psychotherapy (IPT) from psychiatrist or psychologist</td>
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<tr>
<td>Partners in care Wells 2000 [47,59]</td>
<td>Patient education</td>
<td>NNT 10.4</td>
<td>$4365 (QI-meds) and $5052 (QI-therapy) per patient successfully treated $16.76 (QI-meds) and $10.39 (QI-therapy) per depression-free day</td>
<td>$36,467 (QI-meds) and $21,478 (QI-therapy) per QALY</td>
</tr>
<tr>
<td></td>
<td>Provider education</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Case management (QI-meds arm) CBT (QI-therapy arm) Psychiatrist supervision</td>
<td></td>
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<tr>
<td>Quality Enhancement by Strategic Teaming (QuEST) Rost et al 2001 [50,51,60,61]</td>
<td>Patient education</td>
<td>NNT 3.0</td>
<td>$985–$1685 per patient successfully treated $5.47–$9.36 per depression-free day</td>
<td>$9592–$14,306 per QALY</td>
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<tr>
<td></td>
<td>Provider education</td>
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<tr>
<td></td>
<td>Case management</td>
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<tr>
<td></td>
<td>Pharmacotherapy</td>
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<td></td>
<td>Optional referral for psychotherapy</td>
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Note: The range of utilities for depression is 0.2 to 0.4; when no data are given by the authors, a middle value of 0.3 was used in these calculations. Where details of costs were given, the numbers that most closely represented direct treatment costs for mental health were selected (ie, inpatient mental health, cost offsets, and time and transportation costs were not included). Where data separated types of depression, the data for major depression were used. The longest follow-up period for which data was available were used. Where ranges are given, they represent a range of assumptions. QALY = quality-adjusted life year.
health status were observed, but they were not statistically significant in the pooled estimate. No offsets were observed in health care costs: the programs led to increases in health care utilization (measured by number of outpatient visits), hospitalization rates, and costs, although only the result for health care utilization was statistically significant.

Finally, Gensichen et al [45] published a recent review that specifically focused on case management to improve treatment of depression in primary care settings. Their meta-analysis found that patients who received case management services had better medication adherence and were more likely to achieve remission. The authors also studied the effects of “standard” versus “complex” case management (the latter characterized by greater number of elements used, higher levels of integration, more highly skilled case managers, and use of patient education or self-management). In contrast to the Gilbody review cited above, no significant difference was found between standard and complex interventions.

Cost-Effectiveness and Cost-Utility

Another important issue is cost and cost-effectiveness of depression management programs. Substantial costs are involved in implementing programs that involve use of case management, psychiatric consultation, and frequent interaction with patients. A number of studies have explored this issue [46–51].

One widely used measure of cost-effectiveness is incremental cost per depression-free day. Days are weighted in

<table>
<thead>
<tr>
<th>Study</th>
<th>Program Elements</th>
<th>Effectiveness</th>
<th>Incremental Cost-Effectiveness Ratio</th>
<th>Incremental Cost-Utility Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special populations</td>
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<tr>
<td>High utilizers</td>
<td>Patient education Provider education Telephone-based case management Pharmacotherapy with frequent visits Psychiatrist reviews cases and consults as needed</td>
<td>NNT 4.9</td>
<td>$4941 per patient successfully treated $21.13 per depression-free day</td>
<td>$22,000 per QALY</td>
</tr>
<tr>
<td>Persistent depression</td>
<td>Patient education Consultation by psychiatrist Optional referral for therapy Monitor adherence by prescription refills</td>
<td>NNT 7.7</td>
<td>$2746 per patient successfully treated $21.44 per depression-free day</td>
<td>$19,564–$39,128 per QALY</td>
</tr>
<tr>
<td>Patients at high risk of relapse</td>
<td>Patient education 2 visits and telephone follow-up with psychologist, RN, or MSW depression specialist Symptom monitoring and prescription adherence monitoring</td>
<td>NNH 250 (ie, there was actually a small but higher rate of relapse in the experimental group)</td>
<td>$24 per depression-free day</td>
<td>$29,200 per QALY</td>
</tr>
<tr>
<td>Geriatric IMPACT</td>
<td>Patient education Case management Pharmacotherapy and/or problem-solving therapy Supervision and consultation by psychiatrist</td>
<td>NNT 9.2</td>
<td>$8473 per successfully treated patient $8.61 per depression-free day</td>
<td>$2519–$5037 in incremental outpatient costs per QALY</td>
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<tr>
<td>Limited intervention</td>
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<tr>
<td>Telephone monitoring</td>
<td>Feedback (from computerized records of prescriptions and visits with algorithm based recommendations) or care management (monitoring by telephone, feedback of both computerized and assessment data, more sophisticated algorithm)</td>
<td>NNT 6.3</td>
<td>$519 per successfully treated patient $6.59 per depression-free day</td>
<td>$8015 per QALY</td>
</tr>
<tr>
<td>Telephone monitoring</td>
<td>Nurse telehealth (ten 6-minute calls over 4 months) for monitoring, encouragement</td>
<td>NNT 5.3</td>
<td>$1616 per successfully treated patient $24.96 per depression-free day</td>
<td>$30,367 per QALY</td>
</tr>
</tbody>
</table>
proportion to how “symptom-free” they are (e.g., a day on which the Hamilton Rating is 7 or less is depression-free, a day with a score of 22 or more is a fully depressed day, and a day with a Hamilton score of 14.5 is 0.5 depression-free). The incremental cost (compared with usual care) of an intervention over a period of time divided by the incremental change in the net depression-free days over that period yields a figure for incremental cost per depression-free day. The incremental cost per depression-free day varied from $2.76 to $51.84 [48,49].

Another important measure is cost-utility, usually measured as cost per quality-adjusted life year (QALY), the incremental cost required to generate a year of perfect health. It is generally accepted that an intervention that has a cost of less than $50,000 per QALY has good cost-utility [52]. Among the studies mentioned above, the cost per QALY ranged from $2519 to $49,500. This is comparable to the cost-utility of many widely used interventions, including smoking cessation, treatment of hypertension in men, and use of cholesterol-reducing medication for patients at risk for heart disease [49,50]. Routine screening for depression in primary care settings shows less cost-utility than depression management systems: Valenstein et al [52] found that although 1-time screening had reasonable cost-utility ($32,053 per QALY), the cost-utility of annual or periodic screening was more than $50,000 per QALY.

Two studies analyzed cost-effectiveness of programs over a 24-month period. In these trials, intervention costs decreased in the second year while benefits continued, making the programs more cost-effective over time. Explaining this finding, the studies’ authors noted that costs for disease management programs are often front-loaded in the first year while benefits increase over a longer period of time [47,48].

Many investigators hypothesized that because depression is associated with greater medical comorbidity and health care utilization, the costs of depression management programs would be offset by decreases in non-mental health care expenses. Thus far, the results of short-term cost-effectiveness studies have not borne this out. All of the interventions increased total health care costs by several hundreds of dollars per patient per year. However, the two 24-month studies noted above observed cost-offsetting effects in the second year of the interventions, raising the possibility that depression management programs may provide greater cost offsets over longer durations of use [47,48].

Rost et al [53] studied the effect of a depression management intervention on employee absenteeism and productivity. The authors found that the over a 2-year period the program reduced absenteeism by 28.4% and increased productivity by 8.2% in consistently employed persons with depression. Schoenbaum et al [47] found that patients in a depression management group had 19.5 more employed days over a 2-year period compared with those receiving usual care.

Table 2 lists measures of cost-effectiveness and cost-utility of several well-known studies of depression management programs. This table also lists the number needed to treat (NNT) or number needed to harm (NNH), which represents the number of depressed patients who would have to be treated with the intervention to achieve one more outcome of interest (successful treatment of depression for NNT or adverse effect for NNH) than usual care.

Discussion

The current literature strongly suggests that screening for depression in primary care and educating primary care providers do not result in improved outcomes for depressed patients or even in improved rates of diagnosis and treatment of depression. Improved outcomes seem to require a depression management system. The depression management programs that have been studied have varied widely in their targets, components, and scope. Despite the heterogeneity of these interventions, our review suggests that collaborative care by primary care providers and mental health professionals and assertive outreach to follow patient response and compliance are 2 key components.

The overall costs and cost-effectiveness of enhanced depression management and each of its components must be better understood. The current literature suggests that although depression management programs increase total health care costs, overall they have good cost-effectiveness comparable with other widely accepted interventions in primary care. Because most studied interventions have combined elements of screening, patient and provider education, case management, and expert consultation or referral, it is difficult to tease out the costs and benefits of each component by itself. Further research comparing individual elements will help clarify which components are essential to depression management programs and which may be eliminated to reduce costs.

Cost-effectiveness may improve if high-benefit populations, such as minorities, uninsured, or rural populations, can be identified or if stepped care protocols can direct the most costly and intensive interventions only to specified high-risk populations. Cost-effectiveness may also improve over time, given the high initial costs of instituting a depression management system. Further work is needed to determine whether there are cost offsets in other medical costs or whether there are improved outcomes for comorbid medical illnesses such as diabetes if depression is adequately treated.

It will also be important to test whether these interventions improve work-related outcomes such as employee productivity and absentee rates. The current data on this issue are promising, though limited.
In conclusion, the usefulness of screening patients for depression in primary care settings appears quite limited. The recent research investigating comprehensive management programs to improve care of depressed patients is promising; however, further studies are needed before they can be implemented on a wide scale. Rather than focusing on developing screening or educational programs of minimal utility, it appears more prudent for PCPs and health care systems to invest resources in designing more effective depression management systems.

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