EFFECTIVENESS BULLETIN

Improving the detection and management of depression in primary care

S M Gilbody, P M Whitty, J M Grimshaw, R E Thomas

The effectiveness of screening and organisational strategies to improve the recognition and management of depression in primary care published in a recent issue of Effective Health Care is reviewed.

This article is based on a recent issue of Effective Health Care which focused on the effectiveness of screening and organisational strategies to improve the recognition and management of depression in primary care.1

BACKGROUND
Depression is the second most common cause of disability worldwide.2 In the UK, depression is one of the most common reasons for consultation in general practice.3,4 While depressive disorders are common, they may go unrecognised.5,6 It has been reported that depressive symptoms are not recognised in about half of attending patients with depressive disorders in UK general practice.7–9 Unrecognised major depression is associated with poor treatment outcomes.10 Despite the frequency of presentation and the availability of effective interventions, the diagnosis and treatment of depression in primary care and by non-specialist practitioners may not be in line with current guidelines.11–13 The “NHS Plan” recognises the importance of depression and its management in primary care,14 and there are plans to recruit 1000 new primary care mental health workers by 2004. An improved level of integration between primary and secondary care and a shifting of roles for healthcare professionals is seen to be integral in optimising the management of depression in primary care.10

This article provides an overview of the effectiveness of strategies to improve the quality of care for those suffering from depression in primary care. The section on the use of questionnaires to detect depression in non-specialist settings is based on two systematic reviews.14–17 These reviews have been published previously and have been updated to include additional randomised and some controlled clinical trials18 and a related review.19,20

The section on educational and organisational interventions to improve the management and outcome of depression in primary care settings builds upon a review of all guideline implementation strategies commissioned by the UK NHS HTA programme21 and a Cochrane review of mental health workers in primary care.22 An additional search was carried out with the support of the Cochrane Effective Practice and Organisation of Care Group (EPOC) to identify interventions not covered by the HTA review.23

USING QUESTIONNAIRES TO DETECT DEPRESSION

There are a number of brief, easy to complete, standardised measures which have robust psychometric properties.24–26 These instruments can be administered in the waiting room and their results fed back to clinicians as an aid to individual clinical decision making. The hope is that the results of these questionnaires will improve recognition rates and the eventual outcome of depression in non-specialist settings.27 However, questions have been raised regarding whether all those with raised scores on questionnaires do have significant depressive illness.28

Sixteen studies that examined the role of the routine administration of standardised depression questionnaires in non-specialist settings and the feedback of these results to clinicians were identified.28–40 The details of the design and results of these studies are given in table 1.

The identified studies used two methods of randomising patients: all patients irrespective of their score on the instrument or their likelihood of having a pre-existing psychiatric disorder (“unselected”), or only those with a probable psychiatric disorder by virtue of a score above some cut off or a positive diagnostic interview (“high risk”). The second approach involves the administration, scoring, and selective feedback of positive results by an administrative assistant. All but two studies42,43 randomised individual patients, so that clinicians received feedback for some of their patients and not for others, raising the problem of cross contamination between patient participants and dilution of effect.41–47 Three studies were non-randomised controlled clinical trials.41–43 The two clustered studies44,45 were prone to a “unit of analysis error”.46

To assess the recognition of depression, a meta-analysis of studies was performed (fig 1). Substantial heterogeneity existed between studies which was explained by the two differing randomisation approaches (“unselected” feedback versus “high risk” feedback). Unselected feedback did not improve the recognition of depression (relative risk (RR) 0.96, 95% CI 0.83 to 1.10). This effect remained when the non-randomised studies were included in the meta-analysis.43–47 High risk feedback was shown to be effective in increasing the rate of recognition of depression (RR 2.66, 95% CI 1.78 to 3.96). This intervention increased the rate of detection of depression by 27% (95% CI 14 to 40).
Table 1  Studies evaluating the use of depression questionnaires in non-specialist settings

<table>
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<tr>
<th>Reference</th>
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<th>Population, setting and sample size</th>
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<tr>
<td>Callahan et al (1994)</td>
<td>RCT, individual patients randomised</td>
<td>Elderly US primary care patients with a score above 15 on the Hamilton Depression Rating Scale (HDRS) (n=175)</td>
<td>I: Three additional appointments made over a 3 month period with the primary care physician. Clinicians provided with written patient specific materials including HDRS scores, an interpretation of their meaning, a list of all medications and a specific instruction that drugs causing depression should be reviewed; and a written instruction that the presence of depression should be examined and managed appropriately. Clinical algorithm provided (n=100) C: No written feedback and no extra visits scheduled (n=75)</td>
<td>Diagnoses of depression Discontinuation of drugs causing depression Initiation of antidepressants Psychiatric referrals Depression scores Functional status scores (Symptom Impact Profile, SIP) Follow up at 6 months</td>
<td>Increased diagnosis of depression in I group (I 32/100 v C 9/75) More frequent discontinuation of depressant drugs (I 23/100 v C 17/75) Increased rate of antidepressants in I group (I 26/100 v C 6/75, RR 3.25, 95% CI 1.47 to 7.42) No difference in rate of psychiatric referrals (I 12/100 v C 10/75, RR 0.9, 95% CI 0.42 to 1.94) No difference in HDRS scores at 6 months between groups No difference in SIP scores between groups</td>
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<tr>
<td>Dorwick et al (1995)</td>
<td>RCT, individual patients randomised</td>
<td>Consecutive GP attenders (n=116) in Liverpool, UK with depression score above 1 on the BD II</td>
<td>Beck depression Inventory (BDI) administered pre consultation and depression scores disclosed to GP (n=52) C1: BDI administered but not fed back to GP (n=64)</td>
<td>BDI scores at 6 and 12 months</td>
<td>Disclosure had no discernible effect on BDI scores at 12 months (p=0.92)</td>
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<tr>
<td>German et al (1987)</td>
<td>RCT, individual patients randomised</td>
<td>US adult &amp; elderly general medical outpatient attenders with high GHQ scores (n=488)</td>
<td>I: GHQ administered pre consultation and results fed back to clinician, together with an indication that score was high and suggested “psychiatric diagnosis” (n=165) C: GHQ administered but not fed back (n=323)</td>
<td>Detection of depression by clinicians. Presence of depression according to diagnostic interview (DIS) Treatment initiated for depression Six month follow up</td>
<td>No effect on detection rate of depression (RR 0.93, 95% CI 0.78 to 1.11) No difference in management of depression (RR 1.02, 95% CI 0.93 to 1.13)</td>
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<td>Gold (1989)</td>
<td>CCT; individual patients allocated</td>
<td>US emergency department attenders. Patients with existing or recognised psychiatric disorders excluded (n=599)</td>
<td>I: 28 item GHQ administered to 357 patients and results fed back to emergency physicians C: GHQ administered to 242 patients but not fed back</td>
<td>Psychiatric diagnosis made by clinician Psychosocial referrals made Immediate follow up post consultation</td>
<td>No overall improved recognition of psychiatric illness (40% v 40%) Increased rate of psychosocial referrals following feedback (I 23% v C 5%, RR 4.45, 95% CI 2.52 to 7.96)</td>
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<td>Hoeper et al (1984)</td>
<td>RCT, individual patients randomised</td>
<td>Adult US primary care patients (n=1452)</td>
<td>I: GHQ administered by researcher and scores fed back to clinician, with information that a score &gt;5 indicated mental illness (n=722) C: GHQ administered but not fed back to clinicians (n=722)</td>
<td>Physician diagnoses of mental illness at reference visit (info elicited as part of the study) Immediate follow up post consultation</td>
<td>No difference in rate of detection of mental disorders (I 16.0% v C 16.8%, RR 0.98 95% CI 0.78 to 1.23)</td>
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<tr>
<td>Johnstone &amp; Goldberg (1976)</td>
<td>CCT; individual patients randomised; odd/even allocation</td>
<td>Sequential attenders at a single UK general practitioner (n=1093). Those with psychiatric morbidity (n=119 with GHQ &gt;5) which had not been hitherto recognised by the GP (hidden psychiatric morbidity) followed up.</td>
<td>I: GHQ administered and clinician asked about likelihood of psychiatric morbidity. GHQ then fed back to clinician. Those with unrecognised depression and high scores at initial interview (hidden psychiatric morbidity) followed up (n=60) C: GHQ administered and clinician asked about the likelihood of psychiatric morbidity. GHQ folded and placed in the patient note envelope. Those with unrecognised depression and high scores at initial interview (hidden psychiatric morbidity) followed up (n=59)</td>
<td>For those with hidden psychiatric morbidity, the following were studied: Diagnosis and severity of depression during 12 months follow up (incl GHQ scores) Length of depressive episodes Pattern of consultation over 12 months</td>
<td>No differences in consultation rates, but more identified as ‘psychological’ for GHQ group (p=0.09) No differences in the rate of psychotropic prescriptions (p=0.7) No differences in the rate of referral to outside agencies between C and GHQ feedback (RR 1.62, 95% CI 0.72 to 3.71) Moderate improvement (5%, 95% CI –3 to 14%) in GHQ scores at 6 weeks for computerised feedback. No between group differences over longer term</td>
</tr>
<tr>
<td>Linn et al (1980)</td>
<td>RCT, individual patients randomised</td>
<td>New referrals to US medical outpatient (n=150); mean age 56</td>
<td>I1: SDS administered before consultation and results placed at front of notes, together with normative values. Physician also asked about depression after consultation (n=24) I2: SDS fed back to clinician following consultation (n=26) I3: SDS provided before consultation but clinician’s impression of depression not elicited (n=23) I4: SDS given to clinician following consultation, no impression of depression sought (n=25) I5: no screening by SDS but impression of depression sought (n=25) I6: no screening by SDS, no physician opinion sought (n=25)</td>
<td>Depression noted in charts Initiation of treatment for depression Two week follow up</td>
<td>Screening and feedback of SDS increased the frequency of notation of depression (C 8% v 12.5%; RR 3.13, 95% CI 1.24 to 8.33) Increased notation of depression occurs irrespective of the time of feedback (pre or post consultation Screen) Screening has a much smaller effect on the initiation of treatment for ‘depression’ (RR 1.75, 95% CI 0.65 to 4.90)</td>
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### Table 1 continued

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<thead>
<tr>
<th>Reference</th>
<th>Study design</th>
<th>Population, setting and sample size</th>
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| Lewis et al (1996)**31** RCT; individual patients randomised | UK general practice attenders at a single practice with GHQ-12 score >2 (n=681) | I1: GHQ administered and placed in notes with no interpretation or instruction on the presence of mental disorder (n=227)  
I2: Patient asked to complete a computerised assessment of symptomatology and the results of this assessment fed back to the clinician (n=227)  
C: No feedback given (n=227)  
NB: A random sample of 200 patients with GHQ <2 had their GHQ results also placed in the notes so that GPs would be blind to the presence of likely psychiatric disorder in I1 and I2 | Consultation rates and clinician attribution of encounters as due to psychological or physical problems  
Rates of outside mental health referrals to outside agencies  
GHQ scores at 6 weeks, 3 and 6 months | No differences in consultation rates, but more identified as ‘psychological’ for GHQ group (p=0.09)  
No differences in the rate of psychotropic prescriptions  
No differences in the rate of referral to outside agencies  
Moderate improvement (5%, 95% CI –3 to 14%) in GHQ scores at 6 weeks for computerised feedback. No between group differences over longer term | No differences in consultation rates, but more identified as ‘psychological’ for GHQ group (p=0.09)  
No differences in the rate of psychotropic prescriptions  
No differences in the rate of referral to outside agencies  
Moderate improvement (5%, 95% CI –3 to 14%) in GHQ scores at 6 weeks for computerised feedback. No between group differences over longer term |
| Magruder Habib et al (1990)**36** RCT; individual patients randomised | Male adult US veterans (mean age 60) attending a US general internal medicine OP clinic with Zung SDS score >50 (n = 100) | I: Zung SDS administered and fed back to physicians at first clinic assessment visit - placed at front of clinic notes (n=48)  
C: SDS administered but not fed back to clinicians (n=52) | Recognition of depression  
Initiation of management of depression 12 month follow up | Greater recognition of depression in intervention group (56% v 35% at 12 months, RR 2.78, 95% CI 1.19 to 6.50)  
Non-significant increase in intervention feedback group (56% v 42% at 12 months, RR 1.32, 95% CI 0.89 to 2.01) | Greater recognition of depression in intervention group (56% v 35% at 12 months, RR 2.78, 95% CI 1.19 to 6.50)  
Non-significant increase in intervention feedback group (56% v 42% at 12 months, RR 1.32, 95% CI 0.89 to 2.01) |
| Moore et al (1978)**32** RCT; individual patients randomised | General practice attenders with SDS scores >50 (n=96) | I: Zung SDS administered and score fed back (‘mildly’ or ‘severely depressed’) (n=50)  
C: SDS administered but no feedback to clinician (n=46) | Notation of depression following index visit  
Immediate follow up post consultation | Feedback increased recognition of depression for high risk patients (22% v 56%, RR 2.58, 95% CI 1.41 to 4.70) | Feedback increased recognition of depression for high risk patients (22% v 56%, RR 2.58, 95% CI 1.41 to 4.70) |
| Reifler et al (1996)**36** RCT; internal medicine firms randomised; potential unit of analysis error | Randomly selected patients attending a US urban internal medicine clinic (n=357) | I: Patients (n=185) given screening questionnaire [16 item Symptom Driven Diagnostic Interview Schedule]. Results of diagnostic codes elicited (depression; generalised anxiety disorder; panic disorder; alcohol or drug abuse; obsessive-compulsive disorder; suicidal ideation) and fed back to the clinician before the clinical encounter  
C: Questionnaire administered to patients (n=172) but results not fed back | Functional status at 3 months using Short Form 36  
Zung self rated depression and Sheehan anxiety scores at 3 months for those screened positive for depression  
Health care utilisation over 3 months  
Satisfaction with care | 65% of all patients screened positive for at least one disorder  
No statistical difference between I and C in SF36 scores  
No statistical difference between I and C in Zung depression scores  
No statistical difference between I and C in anxiety scores  
Reduction in health utilisation in I group (referrals to non-mental health specialists reduced 0.9 v 2.1 visits, p<0.005)  
No change in patient satisfaction with care | 65% of all patients screened positive for at least one disorder  
No statistical difference between I and C in SF36 scores  
No statistical difference between I and C in Zung depression scores  
No statistical difference between I and C in anxiety scores  
Reduction in health utilisation in I group (referrals to non-mental health specialists reduced 0.9 v 2.1 visits, p<0.005)  
No change in patient satisfaction with care |
| Schriger et al**36** RCT; individual patients randomised | Unselected attenders in US emergency departments (n=190) | I: Computerised PRIME-MD administered and results and recommendations pinned to front of clinical chart (n=92)  
C: PRIME-MD administered but not fed back (n=98) | Notation of depression and outside referral  
Immediate follow up post consultation | No difference in rate of recognition of depression (RR 1.60, 95% CI 0.50 to 5.14) | No difference in rate of recognition of depression (RR 1.60, 95% CI 0.50 to 5.14) |
| Weatherall et al (2000)**36** CCT (odd even allocation) of individual patients | Elderly inpatients, in New Zealand (n=100) | I: GDS administered, together with the Mini Mental State Examination. Scores written in the notes (by hand) and an interpretation of the significance of scores given (n=50)  
C: An activity of daily living questionnaire administered in place of the GDS (n=50) | Rate of prescription of antidepressants  
Follow up at discharge and 3 months | No difference in rate of antidepressant prescription (I 13.0% v C 6.3%, RR 1.4, 95% CI 0.72 to 2.09) | No difference in rate of antidepressant prescription (I 13.0% v C 6.3%, RR 1.4, 95% CI 0.72 to 2.09) |
| Williams et al (1999)**36** RCT; individual patients randomised | Sequential attenders at a US family medicine clinic (n=969) | I1: CES-D self administered, scored by researcher and results fed back to clinicians as either ‘positive’ or negative (n=323)  
I2: Single item question ‘Have you felt depressed or sad much of the time in the past year?’ asked and answer yes or no fed back to clinician (n=330)  
C: Usual care (n=316)  
NB: All clinicians were given a copy of the ‘Quick reference guide for clinicians on the management of depression’**103** | Sensitivity and specificity of the instruments  
Recognition of depression from case note review, corroborated by DSM-III-R interview schedule  
Severity of depression from DSM-III-R symptom counts  
Treatment for depression (referral, antidepressants)  
Patient and physician satisfaction with care and use of questionnaires  
Functional status from the SF36  
Immediate follow up post consultation and at 3 months | CES-D sensitivity 88%, specificity 75%  
Single item questionnaire sensitivity 85%, specificity 66%  
Interventions 1 and 2 were combined in the reported analysis making the effects difficult to interpret further  
Authors report: Increased rate of recognition of depression (I 30/77 v 10/38, RR 3.0, 95% CI 1.34, 95% CI 0.79 to 2.43)  
No difference in rate of intervention: outside referral or antidepressant prescription (exact figures not given)  
No difference in prevalence of depression at 3 months | CES-D sensitivity 88%, specificity 75%  
Single item questionnaire sensitivity 85%, specificity 66%  
Interventions 1 and 2 were combined in the reported analysis making the effects difficult to interpret further  
Authors report: Increased rate of recognition of depression (I 30/77 v 10/38, RR 3.0, 95% CI 1.34, 95% CI 0.79 to 2.43)  
No difference in rate of intervention: outside referral or antidepressant prescription (exact figures not given)  
No difference in prevalence of depression at 3 months |
Table 1 continued

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<th>How the feedback was delivered</th>
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<tr>
<td>Hooper (GHQ)</td>
<td>RCT</td>
<td>US patients with unexplained chronic illness (n=114)</td>
<td>2 years (based upon 69% follow up)</td>
<td>No difference in detection of depression (I 56/162 v C 55/162; RR 1.00)</td>
<td>Pooled-all risk feedback</td>
</tr>
<tr>
<td>German (GHQ)</td>
<td>RCT</td>
<td>US patients with unexplained chronic illness (n=114)</td>
<td>2 years (based upon 69% follow up)</td>
<td>No difference in detection of depression (I 56/162 v C 55/162; RR 1.00)</td>
<td>Pooled-all risk feedback</td>
</tr>
<tr>
<td>Schriek (PRIME-MD)</td>
<td>RCT</td>
<td>US patients with unexplained chronic illness (n=114)</td>
<td>2 years (based upon 69% follow up)</td>
<td>No difference in detection of depression (I 56/162 v C 55/162; RR 1.00)</td>
<td>Pooled-all risk feedback</td>
</tr>
<tr>
<td>Pooled-low risk feedback</td>
<td>RCT</td>
<td>US patients with unexplained chronic illness (n=114)</td>
<td>2 years (based upon 69% follow up)</td>
<td>No difference in detection of depression (I 56/162 v C 55/162; RR 1.00)</td>
<td>Pooled-all risk feedback</td>
</tr>
<tr>
<td>Pooled-high risk feedback</td>
<td>RCT</td>
<td>US patients with unexplained chronic illness (n=114)</td>
<td>2 years (based upon 69% follow up)</td>
<td>No difference in detection of depression (I 56/162 v C 55/162; RR 1.00)</td>
<td>Pooled-all risk feedback</td>
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Figure 1 Forrest plot for studies examining the effect of feedback on the rate of recognition of depression.

Nine studies investigated the effect of the feedback of questionnaire results on the rate of intervention for emotional problems (such as referral to outside agencies and the commencement of treatment for depression). All but two showed non-significant results. Heterogeneity of methods and definition of an active intervention meant that overall pooling was not justified.

Eight studies examined the effect of routine questionnaires on the level of depression over time. No overall effect on depression was identified in seven of the eight studies. For example, in one study the Beck Depression Inventory was re-administered at 6 and 12 months and no significant difference was found between those on whom scores were fed back and controls. Although this study suggests that unrecognised depressive symptoms resolve over a 12 month period, irrespective of whether feedback was employed or not. Similarly, another study showed a lack of overall effect of GHQ feedback on subsequent GHQ scores.

Nine randomised and non-randomised controlled clinical trials assessing health related quality of life (HRQoL) questionnaires conducted in non-specialist settings were identified. All the instruments used included an assessment of mental well being, with specific questions relating to depression. The routine feedback of the findings of these instruments had no impact on the recognition of depression or on longer term psychosocial functioning in any of the studies. While clinicians welcomed the information these instruments imparted, their results were rarely incorporated into routine clinical decision making.

EDUCATIONAL AND ORGANISATIONAL INTERVENTIONS

Thirty four studies (reported in 46 papers) examining educational and organisational interventions to improve the recognition and management of depression were identified.

Effective strategies

Two major studies used a population based approach. Intensified care incorporating patient education, shared care between the primary care physician, psychiatrist and psychologist (using a cognitive-behavioural approach), were associated with improved treatment adherence and patient recovery rates. This intervention was cost effective, with a lower overall cost per successfully treated case. A sustained improvement in the management of depressive disorders was not seen beyond the period of enhanced organisational care, suggesting that clinician education alone was not sufficient to maintain change. A supplementary intervention targeted at those at high risk of recurrence of depression following acute
phase treatment showed improved depression outcomes at 12 months, and concordance with medication. A related study offered enhanced care for patients not responding to usual care by a primary care physician.

Complex quality improvement strategies—involving patient screening, clinician education, patient-specific reminders, nurse case management, and enhanced integration of specialist care—were effective in improving concordance and depression outcomes over 12 months, although this effect had disappeared at 24 month follow up.

Several studies showed that simple follow up by non-clinicians ensured that patients started on antidepressants were taking their medication and could discuss emerging difficulties. For example, brief 20 minute sessions with a practice nurse could substantially enhance medication concordance (OR 2.7, 95% CI 1.6 to 4.8, NNT 4), and depression outcome was improved in a subset of patients with major depression. Nurses were the providers of this care in several interventions. This support was given using weekly 10 minute telephone calls in one intervention.

Clinician education on prescribing delivered by pharmacists to groups of physicians resulted in improved prescribing of antidepressants among patients over aged 60 (RR 0.55, 95% CI 0.33 to 0.92).

Guideline implementation strategies targeted at the overall recognition and management of depression were only successful when educational interventions were accompanied by complex organisational interventions such as nurse case management, collaborative care, or intensive quality improvement.

**Ineffective strategies**

A well designed UK study involved a clinician education and guideline implementation strategy that was well received in primary care but had no impact on either recognition rates for depression or clinical improvement. Less complex guideline implementation strategies conducted in the UK have also shown negative results. A further UK study of a guideline strategy involving identification of barriers to their implementation showed mixed results.

Educational strategies were generally negative. For example, studies of clinician education, even when accompanied by audit and feedback or academic detailing, had no impact on depression, quality of life, or concordance with medication. Educational meetings, while improving clinicians’ knowledge and attitudes about depression, had no impact on practice or depression outcomes.

Less intensive forms of continuous quality improvement that were not accompanied by a patient level intervention (such as nurse case management) were largely equivocal or negative. Similarly, chronic care clinics, combined with physician and nurse education about the importance of various conditions including depression, had no impact on the recognition of depression or health related quality of life in the elderly.

**Implications**

The routine administration and feedback of simple questionnaires measuring depression or quality of life has no impact on the recognition, management, or outcome of depression in non-specialist settings. Evidence suggests that, when depression questionnaires are administered and scored by an administrative assistant or practice nurse with feedback of results only if above a diagnostic threshold, detection rates of depression increase. However, there is no evidence that this actually influences clinical practice or clinical outcome.

Simple educational strategies to improve the recognition and management of depression, when given alone, have minimal impact on clinical practice and the outcome of depression. Pharmacist delivered educational interventions may be effective for improving prescribing.

Integrated quality improvement strategies involving combinations of clinician and patient education, nurse case management, enhanced support from specialist psychiatric services, and monitoring of drug concordance have been shown to be clinically and cost effective in the shorter term, but this effect disappears in longer term follow up.

Evidence regarding successful and unsuccessful strategies is in line with other reviews of organisational and educational interventions targeted at changing professional behaviour.

Simple and relatively cheap telephone support, counselling, and medication monitoring delivered by counsellors or practice nurses are clinically effective and likely to be cost effective.

Many interventions shown to improve the management and outcome of depression in primary care will require substantial enhancement of the role of nurses and greater integration with secondary care. This is recognised as a major priority in current UK mental health policy. However, the investment of resources in primary care required will be substantial.

Implementation of the interventions presented in this review represents substantial organisational change and realignment of professional roles. Organisational research is needed to examine the optimum manner in which any change in professional roles and boundaries can be achieved. There are clear guidelines on the type of research needed to evaluate such interventions.

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