

# Primary care mental health workers: models of working and evidence of effectiveness

Peter Bower

## SUMMARY

*The NHS Plan proposed the creation of a new role in primary care to assist with the management of common mental health problems: the primary care mental health worker (PCMHW). However, it is not clear how PCMHWs should be employed to be most effective. Current literature concerning different models of mental health care is reviewed. This suggests that four key dimensions are of relevance: the types of patients that PCMHWs will manage; the degree to which PCMHWs will work autonomously, or as part of a system of care; at what stage in patients' illness trajectory they will intervene; and whether the role of PCMHWs will be related to clinical interventions, or whether they will have a wider, non-clinical role in the organisation and monitoring of care. Finally, published data concerning relevant interventions are presented. Experimental studies reporting the empirical outcomes associated with these models are reviewed in relation to four different outcomes: clinical effectiveness, cost effectiveness, patient satisfaction, and access to care. The data suggest that problem-solving therapy, group psycho-education, self-help, and some models of 'collaborative care' may be highly relevant to PCMHWs. Each model provides different advantages and disadvantages in terms of the four dimensions of outcome.*

**Keywords:** mental health services; primary care mental health workers; NHS Plan; organisational models.

## Introduction

THE importance of mental health problems in primary care is reflected in the number of mental health professionals in this setting.<sup>1</sup> The recent NHS Plan<sup>2</sup> proposed a further addition, the primary care mental health worker (PCMHW).

*'One thousand new graduate primary care mental health workers, trained in brief therapy techniques of proven effectiveness, will be employed to help GPs [general practitioners] manage and treat common mental health problems in all age groups, including children.'*<sup>2</sup>

The optimal way of organising services to manage mental health problems is controversial.<sup>3-5</sup> Previous developments in primary care, such as the proliferation of counsellors and other psychological therapists,<sup>1,6</sup> have tended to involve *ad hoc* and unsystematic changes in response to perceived need in primary care, and have only been weakly informed by evidence,<sup>4</sup> partly because high-quality evidence was often unavailable. However, the available theoretical and experimental literature on ways of organising effective services in primary care is growing, and it is important that future developments utilise this evidence where appropriate.

This paper deals with the following questions: which types of patients and problems present in primary care, and which would be appropriate for PCMHWs to work with? How will PCMHWs work — as autonomous mental health professionals (similar to psychological therapists, such as counsellors and psychologists), or as part of a wider system of care in primary care (so-called 'collaborative care' models)? Will PCMHWs deliver clinical interventions, such as psychological therapies, or will they have a role in the general organisation and management of care? When will PCMHWs intervene in the course of a mental health problem, i.e. will they be employed to prevent problems (primary prevention), to shorten the severity and duration of acute disorder (secondary prevention), or to limit recurrence and relapse (tertiary prevention)? Finally, the paper provides a review of the available evidence concerning the effectiveness of different treatments and models of working in primary care.

## Types of problems in primary mental health care

The role of PCMHWs will reflect the types of patients they are expected to manage. According to the NHS Plan, PCMHWs will be employed to 'help GPs manage and treat common mental health problems'. This reflects the frequent distinction between 'severe and long-term mental health problems'; for example, schizophrenia, and 'common' problems; for example, anxiety and depression.

P Bower, PhD, research fellow, National Primary Care Research and Development Centre, University of Manchester.

### Address for correspondence

Dr Peter Bower, NPCRDC, Fifth floor, Williamson Building, University of Manchester, Oxford Road M13 9PL. E-mail: peter.bower@man.ac.uk

Submitted: 12 June 2001; Editor's response: 6 September 2001; final acceptance: 10 December 2001.

©British Journal of General Practice, 2002, 52, 926-933.

A more complex typology defined four subgroups by the type of problem, its prevalence, and the availability of effective treatments (Table 1).<sup>7</sup> The NHS Plan suggests roles in relation to Group 2 (prevalent, well-defined, 'common' disorders for which there are effective pharmacological and psychological treatments) and Group 4 (prevalent disorders that resolve spontaneously). Both of these groups are a significant burden on primary care services, and PCMHW involvement would involve augmenting skills already present in primary care. Interventions in Group 2 might require training in specific, evidence-based psychological therapies, while Group 4 might require simpler, supportive interventions.

However, disorders in Group 3, although prevalent and amenable to psychological therapy, are rarely treated in primary care or by specialist teams. Involvement with this group would mean introducing new skills into primary care. However, the complexity of problems in Group 3 might require extensive therapeutic skills, which may not be entirely appropriate for PCMHWs. Although the NHS Plan did not originally envisage PCMHWs working with patients in Group 1 (low prevalence, severe disorders), there is the possibility of a role working collaboratively with other clinicians.

## Models of mental health care in primary care

### *Replacement and collaborative care models*

Previous work has distinguished two models of working for mental health professionals in primary care.<sup>8,9</sup> In the replacement model, the GP refers the patient to the mental health professional, who assumes responsibility for providing a distinct treatment. This is the usual model for psychological therapists in primary care. In contrast, in the collaborative care model, the GP retains primary responsibility for care, but the mental health professional works as part of a package of care, liaising with both patient and GP to increase the overall effectiveness of care.<sup>10-12</sup>

The difference between these two models is not always strict, as there is likely to be a level of collaboration between primary care professionals in a replacement model. However, the key distinction is that, in a collaborative care model, the collaboration is planned and standardised and is part of a system of care, rather than occurring on an *ad hoc* basis.

### *Developments in replacement models*

Providing psychological therapies in primary care has involved a number of important developments of relevance to PCMHWs.

*Simplifying psychological therapies.* Traditional psychological therapy is too staff-intensive to meet the current demand for care, which has led to interest in more efficient approaches. Problem-solving is a brief treatment specifically developed for primary care,<sup>13,14</sup> while interpersonal counselling<sup>15</sup> is an abbreviated version of formal interpersonal therapy.<sup>16</sup> Alternatively, there have been attempts to distil the key 'ingredients' from therapies, so that they could be taught as specific skills rather than complete treatments.<sup>17,18</sup>

*Self-help.* Research has indicated that effective psychotherapeutic techniques can be imparted to patients using written materials (so-called 'bibliotherapy') or computers, leading to the development of 'self-help' approaches with limited professional involvement. Such forms of delivery do not seem to be associated with marked reductions in effectiveness.<sup>19,20</sup> Three types of self-help can be distinguished: as an adjunct to traditional therapy; facilitated self-help, in which the therapist assists by explaining the materials and enhancing motivation;<sup>21</sup> and pure self-help, in which self-help is provided with little additional instruction.

*Group treatment and psycho-education.* An alternative to abbreviated treatments is the development of group approaches.<sup>22</sup> An additional modification is the development of psycho-education. Unlike traditional psychological therapy, psycho-education involves a didactic approach, using the model of 'therapist as teacher'. The teaching format makes it appropriate for large group administration, and it may be more acceptable to patients in the context of prevention, where patients do not consider themselves as being ill.

### *Developments in collaborative care models*

There is concern that replacement models are inefficient in comparison with improving the skills of the GP, who is still the initial contact for most patients with mental health problems. Collaborative care models are based on the assumption that improvements in GP management will have a

Table 1. Typology of problems in primary care.<sup>7</sup>

Group	Description	Examples of disorders	Care
1	Severe mental disorders unlikely to remit spontaneously	Schizophrenia, organic disorders	Involves both primary and secondary care
2	Well-defined disorders, for which there are effective pharmacological and psychological treatments. Even when these disorders remit, they are likely to relapse once more	Anxious depression, pure depression, panic disorder	Can usually be managed entirely within primary care
3	Disorders for which drugs have a more limited role, but for which psychological therapies are available	Somatised presentations of distress, eating disorder	Rarely treated within primary care, and only a small proportion of cases are treated by community mental health teams
4	Disorders that resolve spontaneously	Bereavement, adjustment disorder	Supportive help only is required

greater impact on the overall quality of care for practice populations, but that the GP needs support and assistance with management and that this is best provided through a structured system of care.

The traditional collaborative care model was 'consultation-liaison', a long-term process of mutual learning, dependent on the expertise of a psychiatrist.<sup>3,23</sup> However, recent studies<sup>24,25</sup> have involved a wider range of professionals; for example, nurses, psychologists, and non-clinical 'care managers'. Long-term mutual learning has been replaced by standardised interventions, such as feedback of information on treatment adherence.<sup>26,27</sup> These newer interventions do not require the expertise of a psychiatrist, and are therefore of greater relevance to PCMHWs. A recent trial used care managers, who were experienced in telephone assessment but who had no specific mental health experience, to assess medication adherence, side effects, and outcomes, and to provide feedback to the GP.<sup>24</sup> The managers were supervised by a psychiatrist.

### Timing of PCMHW interventions

Another issue concerns the point at which PCMHWs might intervene in the development of a mental health problem. Three different types of intervention have been defined.<sup>28,29</sup> Primary prevention aims to prevent problems and includes health education and promotion. Secondary prevention seeks to shorten the severity and duration of acute disorder and to limit subsequent impairment — this involves early diagnosis and prompt, appropriate treatment. Tertiary prevention involves limiting disability and the reduction of recurrence or relapse.

The relevance of this issue is illustrated by changes in the focus of research in the management of major depression in primary care. Much early research was concerned with the recognition and management of acute depressive problems. However, the prognosis of many acute disorders is relatively good, and specialist interventions are often no more effective than usual primary care.<sup>30</sup> Focusing resources on patients at high risk for chronicity or additional episodes, i.e. tertiary prevention, may be more effective than secondary prevention.

The increasing emphasis on relapse and recurrence has led to the view that depression should be managed similarly to other chronic diseases.<sup>31</sup> Effective chronic disease management involves a number of key components, including the use of guidelines and protocols, practice reorganisation, patient education, expert systems, and computer support.<sup>27</sup> Some of these aspects; for example, organising follow-ups, monitoring progress, and patient education, are relevant to PCMHWs, as they do not require extensive clinical skills or experience and may be relatively easily taught.<sup>32</sup>

The earlier typology (Table 1) is based on a *a priori* identification of types of patients who benefit from different types of intervention. An alternative approach ('stepped care') puts less emphasis on predicting patient response, but initially provides simple, low-intensity treatments, monitoring progress and adapting management if initial treatment is unsuccessful.<sup>20,33</sup> PCMHWs might have a number of roles in stepped care. They might provide simple 'first-line' treatments; for example, self-help, or they might be used at other

points in the stepped care hierarchy, providing collaborative care interventions to patients who have not responded to previous interventions. They might also take on an entirely non-clinical role, monitoring the outcomes of patients to assist the decision making of other clinicians.

Adoption of these complex 'system' approaches requires that the deployment of PCMHWs is more than the addition of a new professional.<sup>34</sup> Instead, they will require integration; both horizontally, i.e. within primary care, and vertically, i.e. between primary and secondary care. For example, in the United States, an integrated system of care for late-life depression (Project IMPACT) involves a depression clinical specialist who works with both primary care clinicians to provide feedback about the care of patients, and a specialist liaison psychiatrist, who provides clinical supervision and support.<sup>35</sup>

### Categorising potential roles for PCMHWs

Table 2 shows the interventions that are of relevance to each stage of prevention, subdivided into replacement and collaborative care models.

Primary prevention in a replacement model might involve self-help or psycho-education with patients without current mental health problems, or training parents in the prevention of child behaviour problems.<sup>36</sup> Such efforts could be universal, i.e. aimed at the entire patient population, or targeted towards those at high risk.<sup>37,38</sup> As collaborative care interventions are targeted at patients with identified mental health problems, they are not generally used in primary prevention.

Secondary prevention within a replacement model involves psychological therapy or self-help. Collaborative care models might involve feedback of screening information or more formal approaches to developing the skills of primary care staff (mental health facilitation) to encourage prompt detection and treatment. Additionally, it might involve PCMHWs facilitating referrals to other groups, such as the voluntary sector, or providing psychological therapy as part of a wider package of care; for example, cognitive behavioural therapy (CBT) as an adjunct to medication. Other collaborative care models focused on acute management have aimed to assist with medication adherence and monitoring of outcome in patients who have been newly prescribed antidepressants.

Finally, in terms of tertiary prevention, replacement models might involve the PCMHW monitoring outcome in patients who have received psychological therapy from other mental health professionals. Such monitoring might be linked to specific relapse prevention interventions; for example, 'booster' sessions of treatment. Collaborative care models might again involve interventions designed to improve adherence to antidepressant medication, or monitoring of outcome and feedback to primary care clinicians, but with patients who fail to respond to initial primary care treatment or are at risk of relapse. Both could be used in a chronic disease management programme.

### Outcomes and effectiveness

There are two other key questions concerning PCMHWs: what are these workers supposed to achieve in terms of out-

Table 2. Potential roles of the PCMHW.

Type	Primary	Secondary	Tertiary
Replacement models	Health education and mental health promotion <sup>36,97</sup>	Befriending <sup>49</sup> and other supportive work	Outcome monitoring
	Group psycho-education <sup>47</sup>	Counselling, cognitive behavioural therapy, interpersonal therapy, problem solving or other psychological therapy <sup>98</sup> Self-help and facilitated self-help <sup>43</sup> Group psycho-education <sup>62</sup>	Relapse prevention 'booster sessions' of all types of psychological therapy <sup>99</sup>
Collaborative care models	None identified	Feedback of screening information <sup>81</sup> and other educational interventions to improve detection and management <sup>82</sup> Consultation-liaison and other interventions designed to improve acute management <sup>10-12</sup> Referral co-ordination <sup>83</sup> Psychological therapy provided as a component of wider care <sup>98,100</sup>	Outcome monitoring Antidepressant adherence, counselling, and other interventions designed to reduce relapse <sup>32,90,91</sup> Consultation-liaison and other interventions designed to improve chronic management <sup>93,101</sup> Complex chronic disease management approaches <sup>24,92</sup>

comes? And what is the current evidence concerning the effectiveness of different models in achieving these outcomes?

### Key dimensions of outcome

Most intervention trials have been concerned with the clinical effectiveness of interventions. Analyses of cost effectiveness are increasingly prevalent. In addition, interest in 'patient-centred medicine'<sup>39</sup> has highlighted acceptability and patient satisfaction with care.

A recent definition of quality of care<sup>40</sup> suggested a fourth dimension. Quality is conceptualised as two distinct dimensions: the ease with which patients can get to care (access), and how good the care is when they receive it (effectiveness). The recent National Service Framework in mental health<sup>41</sup> also identified access as a key issue through Standards 2 and 3.

### Evidence concerning models of working

The following summary of the evidence was not based on a new systematic review, but was derived from previous systematic reviews conducted at the National Primary Care Research and Development Centre (NPCRDC) and elsewhere.<sup>8,9,42-46</sup>

Because of the breadth of the literature involved, few methodological details can be presented. However, information on key methodological criteria — i.e. quality of randomisation, sample size, statistical analysis — was extracted by the author and used to judge the overall internal validity of the studies.

### The effectiveness of different models of adult mental health care

Each model will be described in terms of clinical and cost-effectiveness and patient satisfaction. Access issues will be considered separately.

#### Primary prevention, replacement models

There were no trials concerning health education for primary prevention. A group psycho-education course, targeting

patients without current major mental health problems, was associated with a reduction in some measures of depressive symptoms, although the study was underpowered to examine differences in the incidence of major depression — the gold standard test for primary prevention.<sup>47,48</sup>

#### Secondary prevention, replacement models

One trial indicated that a simple befriending intervention was superior to a wait-list control with chronically depressed women recruited through primary care.<sup>49,50</sup> A meta-analysis of four trials indicated that counselling is modestly clinically effective in the short term, but no better than usual care in the long term,<sup>45</sup> results confirmed by another recent trial.<sup>51,52</sup> Other trials suggested that counselling was as effective as antidepressants from a GP,<sup>53,54</sup> although it may be no more effective than usual care for chronic depression.<sup>55</sup> Patient satisfaction with counselling treatments is generally high. Counselling requires full professional training, although limited training in non-directive techniques provided to health visitors was more effective than usual care in the treatment of postnatal depression.<sup>56,57</sup>

Problem solving has been demonstrated to be as effective as medication and more effective than placebo and usual GP care,<sup>14,58-62</sup> although studies have often involved patients with major depression and the results may not generalise to other patients.<sup>13</sup> Data on cost-effectiveness is very limited.<sup>13</sup> Additional studies of group problem solving<sup>63</sup> and telephone treatments<sup>64</sup> have shown some positive results, although the quality of the evaluations is limited. Patient satisfaction with problem-solving treatment is generally high.

Cognitive behavioural therapy in primary care is modestly more clinically effective than usual care, but there is little evidence of long-term benefit.<sup>22,51,52,65-70</sup> Costs may not be markedly greater than usual care.<sup>51,52</sup> Patient satisfaction with CBT is generally high. As with counselling, CBT requires extensive training. However, one trial evaluated 'CBT counselling', which was designed to be delivered by non-specialists; for example, psychologists with no clinical training,<sup>71</sup> and found it to be useful in postnatal depression.

There is evidence from one United States trial that interpersonal therapy is as effective as medication and more

effective than usual care in depression,<sup>16</sup> although also more costly than usual care.<sup>72</sup> Although interpersonal therapy requires extensive training, there is evidence from a non-randomised trial that the brief version (interpersonal counselling) taught to nurse practitioners is also more effective than usual care.<sup>15</sup>

Generally, evidence from a number of trials suggests that group psycho-education in secondary prevention is more clinically effective than waiting-list, no-intervention or usual GP care,<sup>73-78</sup> and as effective as individual problem solving.<sup>62</sup> However, only one trial reported long-term outcomes and it found no additional benefit over usual care.<sup>62</sup> The quality of the studies was generally not high. Data on cost-effectiveness is awaited from one trial.<sup>62</sup> However, each treatment is of similar length to traditional therapy but involves many more patients, so may reduce direct treatment costs. One study reported that group psycho-education was less acceptable than individual treatment, but patients receiving psycho-education had to travel to treatment, whereas those receiving individual treatment often received it at home.<sup>62</sup>

There is preliminary evidence from a meta-analysis of eight trials that self-help is superior to usual care in the management of anxiety and depression, although the quality of some studies was low and there was no data on cost effectiveness.<sup>43</sup> The impact of facilitation is unclear.<sup>21</sup> Although a number of computerised packages have been developed and evaluated,<sup>79,80</sup> there are no published controlled trials in primary care populations.

### *Secondary prevention, collaborative care*

A meta-analysis of nine trials indicated that feedback of mental health screening data on unselected patients was ineffective in improving GP diagnosis, but feedback of information on patients scoring over some clinical threshold did influence recognition.<sup>81</sup> However, there was no evidence of effects on GP management or patient outcome. A single trial has indicated that practice-level facilitation (based on audit, education, and feedback) may have an impact on GP recognition of mental disorder,<sup>82</sup> but not management behaviour or patient outcome. The intervention was based on a generic facilitator without pre-existing mental health skills, but the applicability of this model to PCMHWs remains unclear.

One trial demonstrated that individuals facilitating referrals between primary care and the voluntary sector improved some aspects of patient functioning, with some attendant increase in costs.<sup>83</sup>

The original consultation-liaison studies from the United States examined secondary prevention and indicated that these models were more clinically effective and cost effective in patients with major depression (but not minor depression), and led to higher patient satisfaction,<sup>10-12</sup> although the effects did not endure.<sup>84</sup> However, these studies involved psychiatrists and are therefore not obviously applicable to PCMHWs, similar to the United Kingdom (UK) studies of a community mental health team in primary care<sup>85-88</sup> or community nurse intervention with the elderly.<sup>89</sup>

However, further studies of the collaborative care approach may be more relevant. Three UK studies trained practice nurses to support GP provision of antidepressants

through screening and patient follow-up, although there was little effect on medication adherence or outcome.<sup>90,91</sup> However, a trial of a more intensive counselling approach did impact on adherence, although this did not translate into clinical benefit.<sup>32</sup>

Two studies have examined the use of 'co-ordinators' or 'care managers', who were involved in the organisation of care rather than clinical interventions.<sup>24,25</sup> Both interventions were more clinically effective than usual care, although both increased costs. A third study using primary care nurses providing adherence counselling, feedback to the GP, and simple counselling and behavioural techniques, found no impact on medication adherence but a significant improvement in outcome.<sup>92</sup>

Two studies were more specific to tertiary prevention. The first targeted non-responders to antidepressant therapy as part of a stepped-care approach.<sup>93</sup> Although a psychiatrist was used, some aspects of the intervention; for example, monitoring adherence to antidepressants, might be of relevance to PCMHWs. The intervention was associated with higher quality of antidepressant prescribing, patient satisfaction, and better clinical outcomes. The second study was of a depression relapse prevention programme run by 'depression specialists'. The intervention was associated with greater adequacy of antidepressant use and superior clinical outcomes, although there was no impact on relapse.<sup>94</sup>

Collaborative care interventions are often based on improving antidepressant prescribing. Antidepressants are unpopular with patients, compared with psychological therapies.<sup>95</sup> However, these negative attitudes might be overcome by these interventions; for example, dealing with misconceptions about addiction, providing psychological support as well as medication, and patient satisfaction may not necessarily be compromised.

### **Access issues**

Group treatments and self-help provide significant advantages over individual treatments in terms of efficiency of provision and improving access to care. All talking therapies may be limited by the lack of therapists working in languages other than English. It is not known whether self-help materials are available in languages other than English, or whether such approaches would be acceptable to other ethnic groups. However, if appropriate, such materials would provide a highly accessible resource once the necessary translation and modification has been conducted. Written materials are restricted to patients who can read, but self-help can potentially be provided via telephone<sup>96</sup> or computer audio systems.<sup>80</sup>

Interventions designed to improve detection; for example, feedback of screening data, will improve access to treatment to the degree that resources are available to deal with detected patients. Similarly, referral facilitation has the potential to increase access to the degree that relevant voluntary organisations are available. Facilitators could direct patients from underserved groups; for example, ethnic minorities, towards relevant organisations. Other collaborative care approaches have little impact on access to care but are focused on improving the quality of care once patients

have been recognised and management initiated.

### Child and adolescent mental health

The NHS Plan explicitly states that PCMHs will be involved with disorders in children. However, a recent review of this area<sup>46</sup> found very limited high-quality evidence concerning relevant interventions in primary care. Specific training in such interventions may be inappropriate without further primary research.

### Discussion

This paper examines the potential roles of PCMHs in terms of four key dimensions: types of problems, models of working, specific types of intervention, and the timing of interventions. These distinctions may not always apply rigidly to the complexity of mental health provision in primary care, where secondary and tertiary prevention may be difficult to distinguish, or where particular models of working may defeat the simple 'replacement/collaborative care' distinction. However, these dimensions may have value in encouraging a systematic approach to the employment of PCMHs and the achievement of defined goals in mental health care.

There are a number of other issues that will impact on PCMHs, such as the previous experience of staff employed as PCMHs and their planned training. The current configuration of local services will also be a factor, as will the priorities of particular primary care groups or trusts. The applicability of more complex chronic disease management models may be dependent on the availability of additional resources; for example, information technology systems.

Given the relatively limited training and experience of PCMHs, it is likely that effective support and supervision will be required, but it is not clear whether this will be provided from primary or secondary care, or from which professional group. PCMHs will be joining a primary care environment that includes a number of other professional groups with a vested interest in mental health issues, and it is necessary to ensure that they are deployed in such a way as to avoid role conflicts and professional boundary disputes.

### Summary of the evidence review

It should be noted that many interventions demonstrate modest, short-term effects that may not be highly cost effective. Whether this reflects the types of patients treated and the natural history of their conditions, or the ineffectiveness of the interventions, is unclear. The relative importance of such short-term benefits will likely differ between patients, primary care staff, and service managers and commissioners.

Although there are no direct comparisons, there is indirect evidence that problem-solving treatment is as effective as other psychological therapies, without the extensive training requirements. However, 1000 PCMHs providing individual therapy would be unlikely to extend access to care significantly.

The quality of the evidence concerning group psychoeducation is more limited. However, the findings from one

high-quality UK study provide evidence that such approaches are broadly as effective as individual problem solving.<sup>62</sup> The training requirements are relatively modest, and the group format and didactic approach could potentially increase access to effective mental health care. Although the quality of studies of self-help is not high, they do provide preliminary evidence that the provision of these materials may be a clinically effective method that could increase access. However, it is unclear exactly how PCMHs might be involved in their use.

There is limited evidence that PCMHs employed as referral facilitators would be clinically effective. However, this model might reduce social exclusion through the development of local resources and social networks, thus meeting the aims of Standard 1 of the National Service Framework.

In terms of collaborative care models, feedback of screening information would only be useful if increasing recognition and access to care were to be prioritised. Only one of four UK studies found that nurse adherence counselling improved antidepressant adherence. United States collaborative care models suggest that integrating PCMHs into primary care management of depression would be worthwhile, but that successful programmes require a system for monitoring patient outcome and medication adherence and linking this information effectively with the GP. The difference in impact between UK and US collaborative care models may reflect differences in the studies, the professionals, or the organisation of care and infrastructure.

### Limitations of the review

Although based on systematic reviews, the current review conducted no primary searching and may therefore have missed studies of relevance. Methodological drawbacks in the included studies may weaken confidence in the conclusions, and there are problems with the external validity of randomised controlled trials, as patients, practices, and therapists may not be representative. Finally, much of the evidence is not directly applicable to PCMHs, as the studies have been based on other professional groups and their relevance must be inferred to a degree. There is an obvious need for further controlled research or service evaluations of this innovative role.

Finally, the current review takes no account of the difficulties of implementing particular models of care in local contexts. The current mix of staff, infrastructure, GP attitudes to mental health care, patient preferences, and other factors may make particular models more or less applicable or acceptable. It is possible that training PCMHs in a number of the simple models identified might be the best solution, to ensure that they can work flexibly and according to local needs.

### References

1. Sibbald B, Addington-Hall J, Brennehan D, Freeling P. Counsellors in English and Welsh general practices: their nature and distribution. *BMJ* 1993; **306**: 29-33.
2. Secretary of State for Health. *The NHS Plan*. London: The Stationery Office, 2000.
3. Gask L, Sibbald B, Creed F. Evaluating models of working at the interface between mental health services and primary care. *Br J Psychiatry* 1997; **170**: 6-11.

4. Wessely S. The rise of counselling and the return of alienism. *BMJ* 1996; **313**: 158-160.
5. Williams P, Clare A. Changing patterns of psychiatric practice. *BMJ* 1981; **282**: 375-377.
6. Mellor-Clark J, Simms-Ellis R, Burton M. *National survey of counsellors in primary care: evidence for growing professionalisation*. London: Royal College of General Practitioners, 2001.
7. Goldberg D, Gournay K. *The general practitioner, the psychiatrist and the burden of mental health care*. London: Maudsley Hospital, Institute of Psychiatry, 1997.
8. Bower P, Sibbald B. On-site mental health workers in primary care: effects on professional practice. In: Cochrane Collaboration. *Cochrane Library*. Issue 3. Oxford: Update Software, 2000.
9. Bower P, Sibbald B. Do consultation-liaison services change the behaviour of primary care providers? A review. *Gen Hosp Psychiatry* 2000; **22**: 84-96.
10. Katon W, Robinson P, von Korff M, et al. A multifaceted intervention to improve treatment of depression in primary care. *Arch Gen Psychiatry* 1996; **53**: 924-932.
11. Katon W, von Korff M, Lin E, et al. A randomized trial of psychiatric consultation with distressed high utilizers. *Gen Hosp Psychiatry* 1992; **14**: 86-89.
12. Katon W, von Korff M, Lin E, et al. Collaborative management to achieve treatment guidelines: impact on depression in primary care. *JAMA* 1995; **273**: 1026-1031.
13. Mynors-Wallis L, Davies I, Gray A, et al. A randomised controlled trial and cost analysis of problem-solving treatment for emotional disorders given by community nurses in primary care. *Br J Psychiatry* 1997; **170**: 113-119.
14. Mynors-Wallis L, Gath D, Lloyd-Thomas A, Tomlinson D. Randomised controlled trial comparing problem solving treatment with amitriptyline and placebo for major depression in primary care. *BMJ* 1995; **310**: 441-445.
15. Klerman G, Budman S, Berwick S, et al. Efficacy of a brief psychosocial intervention for symptoms of stress and distress among patients in primary care. *Med Care* 1996; **25**: 1078-1088.
16. Schulberg H, Block M, Madonia M, et al. Treating major depression in primary care practice: eight-month clinical outcomes. *Arch Gen Psychiatry* 1996; **53**: 913-919.
17. Cape J, Barker C, Buszewicz M, Pistrang N. General practitioner psychological management of common emotional problems (II): a research agenda for the development of evidence-based practice. *Br J Gen Pract* 2000; **50**: 396-400.
18. Cape J, Barker C, Buszewicz M, Pistrang N. General practitioner psychological management of common emotional problems (I): definitions and literature review. *Br J Gen Pract* 2000; **50**: 313-318.
19. Christensen A, Jacobson N. Who (or what) can do psychotherapy: the status and challenge of non-professional therapies. *Psychol Sci* 1994; **5**: 8-14.
20. Lovell K, Richards D. Multiple Access Points and Levels of Entry (MAPLE): Ensuring choice, accessibility and equity for CBT services. *Behav Cogn Psychother* 2000; **28**: 379-391.
21. Kupshik G, Fisher C. Assisted bibliotherapy: effective, efficient treatment for moderate anxiety problems. *Br J Gen Pract* 1999; **49**: 47-48.
22. Ross M, Scott M. An evaluation of the effectiveness of individual and group cognitive therapy in the treatment of depressed patients in an inner-city health centre. *J R Coll Gen Pract* 1985; **35**: 239-242.
23. Mitchell A. Psychiatrists in primary health care settings. *Br J Psychiatry* 1985; **147**: 371-379.
24. Simon G, von Korff M, Rutter C, Wagner E. Randomised trial of monitoring, feedback and management of care by telephone to improve treatment of depression in primary care. *BMJ* 2000; **320**: 550-554.
25. Katzelnick D, Simon G, Pearson S, et al. Randomized trial of a depression management program in high utilizers of medical care. *Arch Fam Med* 2000; **9**: 345-351.
26. Wagner E, Simon G. Managing depression in primary care. *BMJ* 2001; **322**: 747-748.
27. Wagner E, Austin B, von Korff M. Organizing care for patients with chronic illness. *Milbank Q* 1996; **74**: 511-543.
28. Freeling P, Kendrick T. Introduction. In: Kendrick T, Tylee A, Freeling P (eds). *The prevention of mental illness in primary care*. Cambridge: Cambridge University Press, 1997; 1-18.
29. Jenkins R. Depression and anxiety: an overview of preventive strategies. In: Jenkins R, Newton J, Young R (eds). *The prevention of anxiety and depression: the role of the primary care team*. London: The Stationery Office, 1992; 11-21.
30. Katon W, von Korff M, Lin E, et al. Population-based care of depression: effective disease management strategies to decrease prevalence. *Gen Hosp Psychiatry* 1997; **19**: 169-178.
31. Andrews G. Should depression be managed as a chronic disease? *BMJ* 2001; **322**: 419-421.
32. Peveler R, George C, Kinmonth A, et al. Effect of antidepressant drug counselling and information leaflets on adherence to drug treatment in primary care: randomised controlled trial. *BMJ* 1999; **319**: 612-615.
33. Sobell M, Sobell L. Stepped care as a heuristic approach to the treatment of alcohol problems. *J Consult Clin Psychol* 2000; **68**: 573-579.
34. Wagner E. More than a case manager. *Ann Intern Med* 1998; **129**: 654-656.
35. Unutzer J, Oishi S. *IMPACT intervention manual*. California: UCLA Center for Health Services Research, 1999.
36. Hewitt K. Parent education in preventing behaviour problems. *Health Visitor* 1991; **64**: 415.
37. Harris T. Primary prevention: assessing the relevance of life events and difficulties among primary care attenders. In: Kendrick T, Tylee A, Freeling P (eds). *The prevention of mental illness in primary care*. Cambridge: Cambridge University Press, 1997; 41-56.
38. Brown G. Life events and social support: possibilities for primary prevention. In: Jenkins R, Newton J, Young R (eds). *The prevention of anxiety and depression*. London: The Stationery Office, 1992; 22-32.
39. Stewart M. Towards a global definition of patient-centred care. *BMJ* 2001; **322**: 444-445.
40. Campbell S, Roland M, Buetow S. Defining quality of care. *Soc Sci Med* 2000; **51**: 1611-1625.
41. NHS. *National Service Framework for mental health: modern standards and service models*. London: The Stationery Office, 1999.
42. Bower P, Sibbald B. Systematic review of the effect of on-site mental health professionals on the clinical behaviour of general practitioners. *BMJ* 2000; **320**: 314-317.
43. Bower P, Richards D, Lovell K. The clinical and cost-effectiveness of self-help treatments for anxiety and depressive disorders in primary care: a systematic review. *Br J Gen Pract* 2001; **51**: 838-845.
44. Rowland N, Godfrey C, Bower P, et al. Counselling in primary care: a systematic review of the research evidence. *Br J Guid Counsel* 2000; **28**: 215-231.
45. Rowland N, Bower P, Mellor-Clark J, et al. Counselling for depression in primary care. In: Cochrane Collaboration. *Cochrane Library*. Issue 1. Oxford: Update Software, 2001.
46. Bower P, Garralda E, Kramer T, et al. The treatment of child and adolescent mental health problems in primary care: a systematic review. *Fam Pract* 2001; **18**: 373-382.
47. Munoz R, Ying Y, Bernal G, et al. Prevention of depression with primary care patients: a randomized controlled trial. *Am J Community Psychol* 1995; **23**: 199-222.
48. Miranda J, Munoz R. Intervention for minor depression in primary care patients. *Psychosom Med* 1994; **56**: 136-142.
49. Harris T, Brown G, Robinson R. Befriending as an intervention for chronic depression among women in an inner city. 1: Randomised controlled trial. *Br J Psychiatry* 1999; **174**: 219-224.
50. Harris T, Brown G, Robinson R. Befriending as an intervention for chronic depression among women in an inner city. 2: Role of fresh start experiences and baseline psychosocial factors in remission from depression. *Br J Psychiatry* 1999; **174**: 225-232.
51. Ward E, King M, Lloyd M, et al. Randomised controlled trial of non-directive counselling, cognitive-behaviour therapy and usual GP care for patients with depression. I: Clinical effectiveness. *BMJ* 2000; **321**: 1383-1388.
52. Bower P, Byford S, Sibbald B, et al. Randomised controlled trial of non-directive counselling, cognitive-behaviour therapy and usual GP care for patients with depression. II: Cost effectiveness. *BMJ* 2000; **321**: 1389-1392.
53. Bedi N, Chilvers C, Churchill R, et al. Assessing effectiveness of treatment of depression in primary care: partially randomised preference trial. *Br J Psychiatry* 2000; **177**: 312-318.
54. Chilvers C, Dewey M, Fielding K, et al. Antidepressant drugs and generic counselling for treatment of major depression in primary care: randomised trial with patient preference arms. *BMJ* 2001; **322**: 775.
55. Simpson S, Corney R, Fitzgerald P, Beecham J. A randomised controlled trial to evaluate the effectiveness and cost-effectiveness of counselling patients with chronic depression. *Health Technol Assess* 2000; **4**(36).
56. Holden J, Sagovsky R, Cox J. Counselling in the general practice setting: controlled study of health visitor intervention in the treatment of postnatal depression. *BMJ* 1989; **298**: 223-226.
57. Wickberg B, Hwang C. Counselling of postnatal depression: a controlled study on a population-based Swedish sample. *J Affective Dis* 1996; **39**: 209-216.

58. Mynors-Wallis L, Gath D, Day A, Baker F. Randomised controlled trial of problem-solving treatment, antidepressant medication, and combined treatment for major depression in primary care. *BMJ* 2000; **320**: 26-30.
59. Barrett J, Williams J, Oxman T, *et al.* The treatment effectiveness project. A comparison of the effectiveness of paroxetine, problem-solving therapy, and placebo in the treatment of minor depression and dysthymia in primary care patients: background and research plan. *Gen Hosp Psychiatry* 1999; **21**: 260-273.
60. Williams J, Barrett J, Oxman T, *et al.* Treatment of dysthymia and minor depression in primary care: a randomized controlled trial in older adults. *JAMA* 2000; **284**: 1519-1526.
61. Dowrick C, Casey P, Dalgard O, *et al.* Outcomes of depression international network (ODIN). *Br J Psychiatry* 1998; **172**: 359-363.
62. Dowrick C, Dunn G, Ayuso-Mateos J-L, *et al.* Problem solving treatment and group psychoeducation for depression: multicentre randomised controlled trial. *BMJ* 2000; **321**: 1-6.
63. Hunter M, Liao K. Problem-solving groups for mid-aged women in general practice: a pilot study. *J Reproductive Infant Psychol* 1995; **13**: 147-151.
64. Lynch D, Tamburrino M, Nagel R. Telephone counselling for patients with minor depression: preliminary findings in a family practice setting. *J Fam Pract* 1997; **44**: 293-298.
65. Scott A, Freeman C. Edinburgh primary care depression study: treatment outcome, patient satisfaction, and cost after 16 weeks. *BMJ* 1992; **304**: 883-887.
66. Robson M, France R, Bland M. Clinical psychologist in primary care: controlled clinical and economic evaluation. *BMJ* 1984; **288**: 1805-1808.
67. Scott C, Tacchi M, Jones R, Scott J. Acute and one-year outcome of a randomised controlled trial of brief cognitive therapy for major depressive disorder in primary care. *Br J Psychiatry* 1997; **171**: 131-134.
68. Earll L, Kincey J. Clinical psychology in general practice: a controlled trial evaluation. *J R Coll Gen Pract* 1982; **32**: 32-37.
69. Marks I. Controlled trial of psychiatric nurse therapists in primary care. *BMJ* 1985; **290**: 1181-1184.
70. Teasdale J, Fennel M, Hibbert G, Amies P. Cognitive therapy for major depressive disorder in primary care. *Br J Psychiatry* 1984; **144**: 400-406.
71. Appleby L, Warner R, Whitton A, Faragher B. A controlled study of fluoxetine and cognitive-behavioural counselling in the treatment of postnatal depression. *BMJ* 1997; **314**: 932-936.
72. Lave J, Frank R, Schulberg H, Kamlet M. Cost-effectiveness of treatments for major depression in primary care practice. *Arch Gen Psychiatry* 1998; **55**: 645-651.
73. Hellman C, Budd M, Borysenko J, *et al.* A study of the effectiveness of two group behavioural medicine interventions for patients with psychosomatic complaints. *Behav Med* 1990; **16**: 165-173.
74. McLeod C, Budd M, McClelland D. Treatment of somatisation in primary care. *Gen Hosp Psychiatry* 1997; **19**: 251-258.
75. Brown J, Cochrane R, Hancox T. Large scale health promotion stress workshops for the general public: a controlled evaluation. *Behav Cogn Psychother* 2000; **28**: 139-151.
76. Brown J, Cochrane R, Cardone D. Large-scale health promotion stress workshops: promotion, programme content and client response. *J Mental Health* 1999; **8**: 391-402.
77. White J. 'Stress control' large group therapy for generalised anxiety disorder: two-year follow-up. *Behav Cogn Psychother* 1998; **26**: 237-245.
78. White J, Keenan M, Brooks N. 'Stress Control': a controlled comparative investigation of large group therapy for generalized anxiety disorder. *Behav Psychother* 1992; **20**: 97-114.
79. White J, Jones R, McGarry E. Interactive treatment in primary care: can computers provide 'real' therapy? *Clin Psychol Forum* 1999; **131**: 17-20.
80. White J, Jones R, McGarry E. Cognitive-behavioural computer therapy for the anxiety disorders: a pilot study. *J Mental Health* 2000; **9**: 505-516.
81. Gilbody S, House A, Sheldon T. Routinely administered questionnaires for depression and anxiety: systematic review. *BMJ* 2001; **322**: 406-409.
82. Bashir K, Blizard B, Bosanquet A, *et al.* The evaluation of a mental health facilitator in general practice: effects on recognition, management, and outcome of mental illness. *Br J Gen Pract* 2000; **50**: 626-629.
83. Grant C, Goodenough T, Harvey I, Hine C. A randomised controlled trial and economic evaluation of a referrals facilitator between primary care and the voluntary sector. *BMJ* 2000; **320**: 419-423.
84. Lin E, Simon G, Katon W, *et al.* Can enhanced acute phase treatment of depression improve long-term outcomes? A report of randomized trials in primary care. *Am J Psychiatry* 1999; **156**: 643-645.
85. Warner R, Gater R, Jackson M, Goldberg D. Effects of a community mental health team on the practice and attitudes of general practitioners. *Br J Gen Pract* 1993; **43**: 507-511.
86. Jackson G, Gater R, Goldberg D, *et al.* A new community mental health team based in primary care: a description of the service and its effect on service use in the first year. *Br J Psychiatry* 1993; **162**: 375-384.
87. Gater R, Goldberg D, Jackson G, *et al.* The care of patients with chronic schizophrenia: a comparison of two services. *Psychol Med* 1997; **27**: 1325-1336.
88. Goldberg D, Jackson G, Gater R, *et al.* The treatment of common mental disorders by a community team based in primary care: a cost-effectiveness study. *Psychol Med* 1996; **26**: 487-492.
89. Blanchard M, Waterreus A, Mann A. The effect of primary care nurse intervention upon older people screened as depressed. *Int J Geriatr Psychiatry* 1995; **10**: 289-298.
90. Mann A, Blizard R, Murray J, *et al.* An evaluation of practice nurses working with general practitioners to treat people with depression. *Br J Gen Pract* 1998; **48**: 875-879.
91. Wilkinson G, Allen P, Marshall E, *et al.* The role of the practice nurse in the management of depression in general practice: treatment adherence to antidepressant medication. *Psychol Med* 1993; **23**: 229-237.
92. Hunkeler E, Meresman J, Hargreaves W, *et al.* Efficacy of nurse telehealth care and peer support in augmenting treatment of depression in primary care. *Arch Fam Med* 2000; **9**: 700-708.
93. Katon W, von Korff M, Lin E, *et al.* Stepped collaborative care for primary care patients with persistent symptoms of depression: a randomized trial. *Arch Gen Psychiatry* 1999; **56**: 1109-1115.
94. Katon W, Rutter C, Ludman E, *et al.* A randomized trial of relapse prevention of depression in primary care. *Arch Gen Psychiatry* 2001; **58**: 241-247.
95. Priest R, Vize C, Roberts A, *et al.* Lay people's attitudes to treatment of depression: results of opinion poll for Defeat Depression Campaign just before its launch. *BMJ* 1996; **313**: 858-859.
96. Osgood-Hynes D, Greist J, Marks I, *et al.* Self-administered psychotherapy for depression using a telephone-accessed computer system plus booklets: an open US-UK study. *J Clin Psychiatry* 1998; **59**: 358-365.
97. Tsiantis J, Smith M, Dragonas T, Cox A. Early mental health promotion in children through primary health care services: a multi-centre implementation. *Int J Mental Health Promotion* 2000; **2**: 5-17.
98. Department of Health. *Treatment choice in psychological therapies and counselling: evidence-based clinical practice guideline*. London: DoH, 2001.
99. Scott J. Tertiary prevention in depression: cognitive therapy and other psychological treatments. In: Kendrick T, Tylee A, Freeling P (eds). *The prevention of mental illness in primary care*. Cambridge: Cambridge University Press, 1997; 294-310.
100. NHS Executive. *NHS psychotherapy services in England: review of strategic policy*. London: NHS Executive, 1996.
101. Simon G, Manning W, Katzelnick D, *et al.* Cost-effectiveness of systematic depression treatment for high utilisers of general medical care. *Arch Gen Psychiatry* 2001; **58**: 181-187.

### Acknowledgements

The author would like to thank Dave Richards, Karina Lovell, Linda Gask, Anne Rogers, and Bonnie Sibbald for ideas and discussions related to this paper, and Tracey Shield, Wendy Macdonald, Nicki Mead and Carolyn Chew-Graham for comments on an earlier draft. The NPCRDC is funded by the Department of Health.