THE CHRONIC DISEASE MANAGEMENT MODEL FOR DEPRESSION IN PRIMARY CARE

Mark Haddad, Andre Tylee

Abstract

Objective: This paper reviews the development of chronic disease management approaches, and explores the suitability and effectiveness of these ways of organizing care for depression.

Method: The relevant literature including systematic reviews, service evaluations, and clinical guidelines have been appraised to provide a review of the development of health care management approaches for long term conditions and their application to depression.

Results: The chronic care model originally developed in the USA has been successfully adopted in other countries, and has been applied to the management of depression in primary care. This multicomponent approach involves enhanced collaboration between primary and secondary care clinicians often by means of case managers, support for improved patient self-management, and systematic follow-up. These approaches to health care organization significantly enhance the quality of care for depression: reviews consistently show improvements in depression severity, treatment adherence, and patient satisfaction.

Conclusions: There appears value in the continued use of chronic disease management approaches for depression in primary care. For depression alone and depression combined with medical conditions there is consistent evidence for beneficial effects on depression outcomes. However there remain challenges in tailoring these approaches to influence physical outcomes in patients with medical comorbidity.

Key Words: collaborative care, primary care, depression, chronic disease

Declaration of interest: none

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Background: chronic disease epidemiology, disease burden and the development of models of service delivery

Chronic diseases or long term conditions (the term preferred by the UK Department of Health) are characterised by a sustained course of illness that is typically associated with impairment or disability; there are multiple but often shared risk factors, and usually a long latency period between exposure and outcome (World Health Organization 2000). These conditions are non-communicable and their onset is strongly influenced by personal psychosocial and behavioural factors as well as non-modifiable factors such as sex and genetic predisposition. There are also clear associations with broader socio-demographic variables such as education and employment, and popular media, advertising and product marketing may affect behaviours related to risk.

Worldwide, 60% of deaths are attributable to chronic diseases, which is double the number caused by infectious diseases, malnutrition, and maternal and perinatal conditions (World Health Organisation 2005). In addition to premature death, long term conditions are a major cause of disability, with an associated economic and social burden resulting from lost productivity and increased health and social care demands. It is estimated that 43% of the global burden of disease is due to chronic conditions (World Health Organisation 2005).

Long term conditions are strongly associated with ageing, and transnational demographic changes have resulted in their increased incidence in all world regions. It is predicted that over the next decade their contribution will rise to 73% of all deaths and 60% of the global burden of disease (WHO 2011). Considerable disparities are evident in the age standardised prevalence of chronic morbidity. In the European Union, chronic diseases are measured by several global instruments included in national and pan-European surveys, including the Eurobarometer since 2002 (European Commission 2009); their prevalence among men ranges from 17.5% (Greece) to 39.9% (Finland) and for women from 21.8% (Greece) to 45.4%

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(Sweden). The reported prevalence of chronic disease in women is higher than that for men within every European Member State (European Commission 2009).

Treatment for long term conditions such as hypertension, type 2 diabetes, coronary heart disease, stroke, chronic obstructive pulmonary disease (COPD) and end-stage renal disease is a major part of health expenditure. An estimated total of 133 million people in the United States— nearly half of all Americans— have at least one chronic condition and the annual direct medical costs of just three such conditions, asthma, depression, and diabetes is estimated to account for $62bn (Weingarten et al. 2002); whilst in England, there are 15 million people with such conditions and their treatment and care accounts for 69% of the total health and social care spending in the country (Department of Health 2008).

There has been a gradual recognition that much medical practice has been driven by '*the tyranny of the urgent*' – that is, the need to provide health care for acute presenting problems which may often overshadow the more subtle, complex and gradual development of chronic illnesses. This appreciation of an *acute care bias* in the health system and fragmentation of care for chronic conditions led to developments in the USA. In the early 1970s the Robert Wood Johnson Foundation, an independent philanthropic organisation, supported a range of projects to address the needs of patients with chronic illnesses, typically involving case management and patient education elements. In the early 1990s a more systematic and comprehensive approach was led by Edward Wagner, a physician (general internist), epidemiologist and director of the MacColl Institute for Healthcare Innovation at the Center for Health Studies Group Health Cooperative in Seattle. Supported by the Robert Wood Johnson Foundation, he set up the Improving Chronic Illness Care collaborative with colleagues (http://www.improvingchroniccare.org); and following an extensive literature review and consultation with national experts, the Chronic Care Model was constructed. This approach has subsequently been used in quality improvement programmes worldwide.

This model is based on a collaborative approach between the patient and clinicians, involvement of the wider community, and redesign of the system of health care organisation to enable systematic and proactive care. It involves six elements, shown in **box 1**.

Box 1. *The Chronic Care Model, after Wagner (1996, 2001)*

- **Community Resources**. Health centres and clinics should identify existing local, regional and national programs and encourage patients to participate.
- **Health system**. Health care organizations must make excellence a priority and pursue it visibly. Essential to achieving this is senior management support and open communication on error as well as strategies for quality improvement.
- **Self-management support**. Collaboration between patients and clinicians is crucial: there should be an ethos of encouraging participation, with patients active in setting goals and adjusting treatment.
- **Delivery system design**. A team led approach rather than emphasis on the doctor/patient relationship, with defined roles and tasks for clinical staff. Follow-up with patients is essential so they feel supported in self-management efforts outside the professional care setting.
- **Decision support**. Evidence-based clinical guidelines are used to link treatment to research evidence, whether this concerns medication or psychosocial and behaviour modification approaches.
- **Clinical information systems**. Information technology is used to efficiently deliver disease management information, such as protocols, guidelines, test results, and reminders about individual patients. This technology can also facilitate population studies so the clinical team can measure their performance against quality benchmarks.

These innovations are seen as the necessary means of shifting health services for long term conditions to planned rather than reactive care with an emphasis on sustained follow-up and a prepared and pro-active clinical team engaging with well-informed and active patients - rather than a service that is geared to episodic encounters, with intermittent ad hoc care responses to exacerbations and crises.

The chronic disease-management programmes described in the literature most commonly target cardiovascular diseases, depression, diabetes, chronic pain, hypertension, hyperlipidemia, and chronic lung diseases. Systematic reviews have defined these approaches broadly, for instance as "an intervention designed to manage or prevent a chronic condition using a systematic approach to care and potentially employing multiple treatment modalities" (Weingarten et al. 2002), and as "an approach to patient care that emphasizes coordinated, comprehensive care along the continuum of disease and across health care delivery systems" (Ofman et al. 2004).

Many programmes employ multiple interventions designed to improve care processes and outcomes (**box 2**). Among the intervention components, the most frequently used across all conditions appears to be *patient education* – which features as an integral part of around 80% of programmes that have been reviewed (Ofman et al. 2004, Weingarten et al. 2002) (92 of 118 and 81 of 102 programmes in these systematic reviews).

Education for health professionals is also a commonly used approach, evaluated in around 40% of programmes. This in itself usually involves several elements, such as printed materials, traditional didactic teaching sessions, academic detailing, and interactive group learning often involving case review.

The explicit use of *multidisciplinary teams* to provide care (rather than reliance upon the doctor patient model of care) is a common part of management: this component was identified as a specific approach to care in more than half (57%) of studies reviewed by Ofman and colleagues (2004).

Setting up and using *feedback for care providers*, for instance using letters or electronic mail to deliver relevant health records or specific symptom scale scores

to assist assessment and refinement of management, has been evaluated in 32 (27%) controlled studies. A similar number of studies have examined the effect of prompts or reminders for clinicians, and reminders for patients.

Although less frequently evaluated, the use of *financial incentives* for organizations and providers (and occasionally for patients) is an approach that has been adopted in the US and several European nations: in Denmark, France, Germany, and the United Kingdom, payments to providers are variously linked to adapting the structures and processes of care to chronic diseases (Scheller-Kreinsen et al. 2009). In the UK, the Quality and Outcomes Framework (QOF) contract for primary care introduced in 2004, specifically includes payment-for-performance payments focused at the GP practice level by monitoring outcomes and quality variables. About 25% of practice income is dependent on these incentives.

Box 2. *Intervention components in chronic care evaluation studies (after Weingarten et al. 2002)*

- **Patient education -** involving materials and instructions designed for patients providing information on their condition and how it could be managed.
- **Provider education -** educational materials and/or sessions are given to healthcare providers concerning evidence-based care for patients with the targeted condition.
- **Provider feedback** - information is given to care providers about the specific care or results of care received or experienced by their patients.
- **Provider reminders -** prompts given to clinicians to perform specific care tasks.
- **Patient reminders - p**rompts given to patients to perform specific tasks related to care for their condition.
- **Financial incentives -** provided to providers or patients for achieving specific treatment-related goals.

These methods of tailoring care to the needs of people with long-term conditions are associated with significant changes in many different processes of care such as provider adherence to treatment guidelines, patient concordance with agreed management, and with clinically important improvements in outcomes of care shown by disease control measures such as reinfarction rates, LDL cholesterol levels, depression symptom scores/caseness, and patient satisfaction levels. There is most robust evidence for the effectiveness of disease management programmes in contributing to substantial clinical improvements for depression, heart disease hyperlipidemia, hypertension. and diabetes, with these approaches appearing less effective for chronic pain and COPD (Ofman et al. 2004).

The chronic care model been enthusiastically greeted by many commentators and championed in the UK and elsewhere as a way of improving outcomes and more efficiently managing resources (Department of Health 2004, Department of Health 2007, RCP 2004). Primary care providers in England are currently piloting systems of chronic disease management based on those used in the US by healthcare organisations such as Kaiser Permanente, EverCare (United Healthcare) and Pfizer Health Solution, that typically include nurse case management roles and greater integration of primary care services to enable more efficient management of hospital use. Usually these approaches target patients with complex needs at high risk of hospitalization and unplanned specialist care; often these are frail older people.

In the UK, the practical management of chronic conditions has focused particularly on case management methods as a means of ensuring continuity of care, improving patient outcomes and enabling efficient use of resources. A recent review of studies of this approach shows that nurses are the professional group that most commonly perform in this role (Reilly et al. 2010), though social workers and occupational therapists were involved in a minority of initiatives. The core elements of case management are: case finding or screening to identify individuals likely to benefit from this approach, assessment of problems and need for services, care planning of ways to address the agreed needs (including self care), referral to and co-ordination of services to implement the care plan, and regular review, monitoring and amendment of the care plan. In the UK a central part of the strategy to manage chronic conditions has been by primary care trusts developing case management services and appointing 3,000 nurse community matrons to work as case managers (Department of Health 2005).

Case management for depression has developed from the same model and the recognition of similar care needs, but there are some differences of emphasis in practice that will be explored later in this article.

Depression as a chronic disease

Depression may merit consideration and management as a chronic condition for two main reasons. Firstly, for many people it is a life long illness characterised by relapses and recurrences, and for a significant minority of people it exhibits a chronic course. And secondly, depression frequently accompanies chronic physical illnesses, and it seems that the onset and development of medical conditions and depression are inter-related with the presence of either of these complicating and worsening the overall prognosis.

Depression epidemiology

Depression is a common disorder: an estimated 151 million people experience this condition worldwide (WHO 2008). Its lifetime risk is estimated between 15% and 25% (Kessler et al. 2005), and 12-month prevalence findings are typically around 4% in adult community samples (Waraich et al. 2004). It associated with marked impairment of function and is a major contributor to disability in developed and developing countries: currently, it is ranked the third leading cause of disease burden in the world and the leading cause of disability in middle- and high-income countries (World Health

Organization 2008).

The findings of longitudinal studies indicate that the illness course is variable, but that for many people depression has a lifelong episodic course. Consistent evidence from population-based studies, as well as primary and specialist care samples, reveals that around 50% of people who have an initial depressive episode will experience further episodes (Eaton et al. 2008, Mueller et al. 1999). It apears that each episode of depression increases the risks for additional episodes, such that following three episodes there appears a 90% risk of further recurrence (Kupfer 1991). People with a history of depression have been found to have on average between five and nine further episodes during their lifetime (Kessler et al. 1997). Incomplete recovery after severe episodes, with sub-syndromal levels of depression persisting seems relatively common, (Kennedy et al. 2004); such residual symptoms are a reliable clinical marker of increased risk of relapse to depressive episodes (Judd et al. 2000).

For 10% to 20% of people who are depressed, their experience is of a chronic unremitting disorder. There are limited predictors of this course though it appears that some clinical, demographic and interpersonal factors are associated with lower remission rates: concurrent mental disorders (especially anxiety disorders or substance misuse), general medical disorders, dysfunctional interpersonal relationships, and never having been married (Klein and Santiago 2003). Older people with depression are more likely to exhibit a more chronic course. A meta-analysis of data from twelve primary care and community secondary care studies of people with depression aged sixty years and older showed that after two years 21% of those depressed had died, and among survivors nearly half remained depressed (Cole et al. 1999). This more adverse longitudinal trajectory seems to be related to higher rates of medical comorbidity, poor self-rated health status, inadequacy of social support and adverse life events.

Depression and chronic medical illness

There is consistent evidence from cross-sectional studies that people; experiencing a wide range of medical conditions are more likely to be depressed than the general population (Robinson 2003, Rudisch and Nemeroff 2003, Wagena et al. 2005). Large-scale community studies in Canada (Patten 1999), the United States (Kessler et al. 2003), and elsewhere, show that that this association remains after controlling for such factors as age, gender and social support. The relationship between depression and medical illness appears strongest for conditions that are painful and disabling, indicating that these attributes of medical illness may be influential factors for the association.

Although many medical illnesses are associated with increased depression prevalence, there is a particularly strong association with those that are chronic diseases or long term conditions. Longitudinal studies have been conducted to explore the direction of effect between these conditions, and it seems that the links are complex, with a several mechanisms implicated such that depression may be a risk of medical disease incidence and medical illness a risk for depression (Tylee and Haddad 2007). The combination of medical illness and depression exerts a joint effect on disability, with greater limitation from combined conditions than a simple additive relationship would predict (Kessler et al. 2003). Findings from a Canadian population study show that the strongest effect of depression was found for heart diseases, suggesting a six-fold increase in functional disability (Schmitz et al. 2007). Depression increases the odds for functional disability more in people with several chronic conditions than a single condition. This powerful negative synergistic effect indicates that treating depression may have the potential to improve the management of co-existing medical conditions and reduce disability.

Although studies of chronic care management for single conditions, such as depression *or* diabetes have achieved clear clinical benefits, there have been more limited effects for the application of these models to patients with medical conditions *and* comorbid depression. Depression is responsive to a range of interventions irrespective of whether combined with medical conditions (NICE 2009b), but the benefits of depression treatment have yet to extend to improvements in physical health status, such as diabetes selfcare or HbA1c levels (Katon et al. 2004), or cardiac events (Berkman et al. 2003). The management of patients with multiple conditions patients may well require further developments to simultaneously address physical and psychological elements, probably with specific targeting of behavioural risk factors.

Chronic care and depression

As has been seen, the delivery of care for long term conditions involves a range of enhancements; often these overlap and there have been limitations in the way they are differentiated and operationalised in the literature. This appears particularly the case for depression, where the terms used to describe an enhanced model of care typically include *collaborative care*, a *stepped care* sequence of interventions, and *case management.* These approaches are often poorly differentiated, and appear to relate to similar organisational strategies to address the long-term needs of people with depression.

Collaborative care

The collaborative care approach emerged from the chronic disease model and studies conducted in the USA. The key element that this refers to within the chronic care model literature is the *collaboration between patient and provider* - which was envisaged as a more appropriate and effective basis for facilitating active engagement with condition management and self care than a traditional medical expert led approach.

Collaborative care, within this frame of reference encompasses (NICE 2009a):

- the definition of problems, wherein patient defined problems are identified alongside clinician diagnosed medical problems;

- a focus on specific problems with goals and plans jointly developed by the patient and professional, in the context of patient preference and readiness;
- the development of a range of self-management training and support, so patients may access services to teach necessary skills for guided behaviour change and self care elements of treatment plans;
- the provision of active and sustained follow-up to monitor health status, identify possible complications, and check and reinforce progress in implementing the care plan.

Influential experts in the field of primary care depression management have emphasised the importance of *collaboration between healthcare providers*, and refocused this term on realigning the roles of the specialist, the primary care physician, and the allied health professional (Gilbody et al. 2006, Katon et al. 2001). This is built upon the understanding that extended primary care roles are necessary to enable ongoing patient education, monitoring, proactive interventions and treatment adjustments, and coordination of the speciality and primary care services. 37 controlled evaluations involving more than 12,000 patients have been identified that meet this definition of collaborative care - that is - a multifaceted intervention involving combinations of three distinct professionals working collaboratively within the primary care setting: a case manager, a primary care practitioner, and a mental health specialist (Gilbody et al. 2006).

The involvement and cooperation of these professionals is seen to be of prime importance to ensure coordinated patient care, and whilst an emphasis on team delivery is a core part of the Wagner model, it is noteworthy that the focus of collaborative care has shifted from the professional/patient relationship to the structures and professional roles that may facilitate this.

Gilbody and colleagues (2006) rightly recognise that collaborative care is a way of organising care that is multifaceted and best examined as a complex intervention. To better understand how this approach operates these reviewers have used this model based upon the key clinical roles to identify the mechanisms delivering benefits (Bower et al. 2006). This understanding of collaborative care focuses on several characteristics (Gunn et al. 2006):

- Scheduled patient follow-up: systematic contacts to provide interventions, facilitate treatment adherence, and monitor symptoms – this will often involve a case manager role in primary care;
- A multi-professional approach to patient care with mechanisms to foster closer liaison between primary care clinicians and mental health specialists (including case managers) around individual patient care;
- A structured management plan based on guidelines or protocols.
- Enhanced inter-professional communication, with mechanisms to collect and share information on the progress of individual patients such as team meetings, individual consultation/supervision, shared medical records, written or verbal feedback between care providers.

Collaborative care is associated with clear benefit for depression outcomes and antidepressant use (Badamgarav et al. 2003, Gilbody et al. 2006). Exploration of effects related to differing elements of this approach indicates that increased patient adherence to antidepressants is likely to be the major mechanism by which collaborative care benefits depression outcomes, and that using case managers with a specific mental health background is more effective than using those without. The selection of patients for case management by a systematic procedure rather than clinician referral was significantly linked to improved outcome, as was providing regular mental health specialist supervision of case managers (Bower et al. 2006).

Case Management

In the broader literature on chronic care, case management is often considered as a specific approach to care – whilst within the primary care depression literature it is generally subsumed to an important ingredient of collaborative care. As such it describes the role that is adopted by the non-medical health professional within the collaborative care system.

Case management is defined as '*a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual's health needs through communication and available resources to promote quality cost effective outcomes*' (http://www.cmsa.org).

Case management may be seen as a key ingredient of chronic care delivery. It basically involves assigning a case manager to patients who are assessed to have complex needs and are vulnerable to adverse outcomes. The case manager role is to: assess individual needs; develop a care plan and facilitate suitable care; monitor the quality of care and work with the patient to make adjustments as necessary. Case management may be seen as the vehicle for ensuring ongoing responsibility for coordinating the care needs of vulnerable patients, and for assisting their transitions between services.

The literature concerning case management for chronic medical problems usually notes systematic case finding as a key part of the case manager role, with risk prediction tools (such as the Patient at Risk of Rehospitalisation tool) advocated; and there is a general expectation that case managers will work relatively autonomously and have responsibility for non-medical prescribing (Department of Health 2005)

Although similar in many ways, this role within primary care depression management is more usually seen as the patient-centred element of collaborative care, working closely with psychiatry and primary care colleagues. Typically, problem-solving interventions and medication management are provided and telephone-based contact has been used in a number of studies (and this may be the main mode of contact). A systematic review of this approach for depression in primary care based on 13 studies (Gensichen et al. 2006) provided good evidence of its effectiveness for improved clinical outcomes; it was also associated with better medication adherence and (as in the broader collaborative care review) this increased treatment adherence was considered the likely mechanism of

action for the improvements associated with case management.

Although generally performing less of an autonomous specialist role than their counterparts in chronic medical care, in many studies case managers for depression care are trained mental health professionals. However several evaluations have employed primary care nurses in this role (Hunkeler et al. 2000, Mann et al. 1998), or used graduates without mental health professional training to perform some limited elements of case management (Katzelnick et al. 2000, Simon et al. 2000). A recent study conducted in Germany has used health care assistants to support self-management, monitor symptoms regularly and provide behavioural activation for patients with depression (Gensichen et al. 2009), and has identified improvements in depression and treatment adherence outcomes

A related approach to improving primary care depression management involves mental health specialists providing ongoing educational support for the primary care team to assist their management for specific patients currently undergoing care. This approach, termed the consultation–liaison model, involves regular face-to-face contact between the specialist and primary care but treatment of patients is provided by primary care. A recent review has found little evidence for the benefit of this model (Cape et al. 2010).

Stepped care

Stepped care is a system of health care based on treatments of differing intensity being matched to the needs of the individual, so that the least intrusive or restrictive (in terms of intensity, inconvenience, and cost) approaches are used. Allied with this is the systematic monitoring of progress so that treatment can be altered (stepped-up) if response is inadequate. This way of organising care involves standardising the procedures and their indications, and has been used for the management of diverse conditions from diabetes and hypertension to addiction and back pain. A stepped care framework for providing identification and treatment options appropriate to the differing needs of people with depression has been adopted in the UK, and is integral to systems for depression care developed in health maintenance organisations in the US. The stepped care model advocated in the National Institute for Health and Clinical Excellence (NICE) guidelines (England and Wales) for depression is shown in **box 3**.

Although it appears an effective and efficient way to deliver services, there is only limited evidence about the value of stepped care. In order to operate, several conditions should be satisfied (Bower and Gilbody 2005):

- receiving and delivering minimal interventions needs to be acceptable to both patients and service providers;
- the effect of different treatments should be equivalent for patients at particular levels of need (i.e. minimal interventions should not differ – for appropriate patients - in effectiveness from more intensive treatments);
- and the tailoring of services in this way is more cost-effective (savings may be illusory, with patients receiving minimal interventions seeking additional interventions more frequently than those using traditional treatments).

To date, the evidence to support stepped care for depression management is limited; however in the UK it has been adopted as the model for organising and delivering depression care (NICE 2009a, NICE 2009b), and for delivering psychological therapies for common mental disorders in the Improving Access to Psychological Therapies (IAPT) programme where role and treatment protocols distinguish differing levels of severity and treatment intensity based upon systematic

Box 3. *The stepped care model recommended by NICE, 2009*

Step	***Focus of management***	***Types of intervention***
Step 1	Recognition of depression	Assessment, referral, active monitoring, education and support
Step 2	Treatment of mild to moderate depression	Medication, low intensity psychosocial interventions, referral to other supports
Step3	Treatment of mild to moderate depression with poor response to interventions, and of moderate and severe depression	Medication, high intensity psychological therapy, combined treatments, referral to other supports
Step 4	Severe or complicated depression, severe self-neglect, significant suicide risk	Medication, high intensity psychological therapy, combined treatments, multi-professional care, ECT, in-patient care

evaluation of features and presentation.

Conclusion and future directions

The approaches to depression service delivery derived from the chronic care model appear well-suited to the many people who experience depression as a recurrent or chronic health problem. This system enables the delivery of co-ordinated care with long term follow-up, and importantly facilitates more active engagement with care and self care. This model involves systematic approaches for organising care and making available appropriate treatment choices as well as developing staff roles for care coordination (case management) in primary care. Overall there appears robust evidence for the effectiveness of system-based approaches to depression management: independently conducted reviews have consistently found significant effects compared to standard care (Badamgarav et al. 2003, Ofman et al. 2004, Neumeyer-Gromen et al. 2004, Gilbody et al. 2006, Gunn et al. 2006, Kates and Mach 2007).

Problems remain concerning the terminology used to describe the approaches to service design and delivery. The updated UK depression guidelines (NICE, 2009ab) use the over-arching term 'enhanced care' to refer to them all, because of the degree of overlap between approaches, or because individual interventions are contained within larger models, for instance collaborative care interventions may include a case management or stepped-care component.

There are also important questions about the level of complexity of interventions - benefits have been derived from brief telephone-based reviews and encouragement to follow agreed medication regimens, as well as from complex interventions involving structured psychological therapy and intensive follow-up. Current evidence indicates uncertainty about benefits related to either the number of case management sessions or the provision of psychological interventions in addition to medication management within collaborative care (Gilbody et al. 2006). Similarly, the stepped model for care delivery, though appealing and adopted for a number of common mental disorders, rests upon limited evidence.

Most of the developments in service delivery for chronic conditions and depression that have emerged over the past two decades have occurred in the context of these illnesses in isolation. There are particular needs associated with people who have depression together with chronic physical health problems, and the prevalence and extent of this combination of problems is likely to increase as a consequence of population ageing and improved healthcare. There is good reason to believe that a systematic approach to the management of depression for people with complex physical health problems may deliver important clinical benefits for both areas of health. Given the very considerable negative effects of depression comorbid with medical illness, this is a key challenge for clinicians and researchers.

Despite beneficial effects on depression, there is limited evidence for the benefit of depression treatments on physical outcomes. There remains much important work in developing and evaluating depression treatments that are beneficial for outcomes beyond depressive symptoms such as quality of life, functional ability and physical health.

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