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What are the barriers and facilitators to implementing Collaborative Care for depression?**A systematic review.**

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Abstract

Background: Collaborative Care is an evidence-based approach to the management of depression within primary care services recommended within NICE Guidance. However, uptake within the UK has been limited. This review aims to investigate the barriers and facilitators to implementing Collaborative Care.

Methods: A systematic review of the literature was undertaken to uncover what barriers and facilitators have been reported by previous research into Collaborative Care for depression in primary care.

Results: The review identified barriers and facilitators to successful implementation of Collaborative Care for depression in 18 studies across a range of settings. A framework analysis was applied using the Collaborative Care definition. The most commonly reported barriers related to the multi-professional approach, such as staff and organisational attitudes to integration, and poor inter-professional communication. Facilitators to successful implementation particularly focussed on improving inter-professional communication through standardised care pathways and case managers with clear role boundaries and key underpinning personal qualities.

Limitations: Not all papers were independent title and abstract screened by multiple reviewers thus limiting the reliability of the selected studies. There are many different frameworks for assessing the quality of qualitative research and little consensus as to which is most appropriate in what circumstances. The use of a quality threshold led to the exclusion of six papers that could have included further information on barriers and facilitators.

Conclusions: Although the evidence base for Collaborative Care is strong, and the population within primary care with depression is large, the preferred way to implement the approach has not been identified.

Keywords

Depression, Collaborative Care, barriers, facilitators, co-morbidity, multi-morbidity

[†]Background

- Description of the condition

Depression is a mental illness with disabling functional, social and physical impacts. It is associated with poor self-care, adverse medical outcomes, increased mortality, and risk of suicide (Holm and Severinsson, 2012). The King's Fund defines long term or chronic conditions as those for which there is currently no cure and which are managed with medication or other treatments (TheKing'sFund, 2016). On this definition, depression can be considered a long term or chronic condition for many of the people who experience it (Kupfer, 1991). More than 50% of people who experience a first episode of depression will experience a second episode, and after the second and third episode of depression risk of relapse rises to 70% and 90% respectively (Kupfer, 1991). Co-morbidity between a LTC such

[†] List of Abbreviations: CFIR = Consolidated Framework for Implementation Research, GP = General Practice (UK primary care provider), IAPT = Improving Access to Psychological Therapy, LTC = Long Term Conditions, NHS = National Health Service, NICE = National Institute for Health and Clinical Excellence, PCP = Primary Care Physician, PWP = Primary Wellbeing Practitioner, QIC = Quality Improvement Coordinator, QOF = Quality and Outcomes Framework, RE-AIM = Reach, Effectiveness, Adoption, Implementation and Maintenance framework

as diabetes, respiratory disorders or coronary heart disease, and depression is associated with greater functional impairment, morbidity and increased healthcare costs (Brilleman et al., 2013; Naylor et al., 2012).

- Description of the intervention

Collaborative Care (Gunn et al., 2006; Katon et al., 2001) (table 1) is a specific chronic illness management approach to the treatment of depression. It was developed from the Chronic Care Model (Bodenheimer et al., 2002), and is an approach to depression that is recommended within UK NICE Guidance (NICE, 2009). To date uptake within the UK has been limited, (DoH, 2011), and there appear to be issues of acceptability within the NHS primary care setting (Richards et al., 2006).

Table 1: The key elements of Collaborative Care

Collaborative Care (Gunn et al., 2006)
A multi professional approach to patient care (Including a minimum of two different professions working together)
A case manager (a named person who coordinates or delivers care to the depressed person (Coventry et al., 2014))
A structured management plan (including enhanced pharmacology and psychological interventions, must be more than just a screening programme)
Scheduled patient follow ups
Enhanced inter-professional communication

Collaborative Care is a primary care intervention which attempts to break down the silos inherent in health systems. It encourages different health professionals to work together by enhancing communication and utilising structured care planning and management of complex conditions. Although not specifically mentioned by Gunn the role of the case manager has been highlighted as crucial by later reviewers (Archer et al., 2012; Coventry et al., 2014; Gilbody et al., 2006). It ensures one professional is taking a lead keeping all other parties informed and following up patients. Collaborative Care is more than just co-locating mental and physical health services in the same building or implementing a screening programme. It requires a level of interaction on the part of health professionals to ensure holistic care for their patients (Gunn et al., 2006).

The efficacy of Collaborative Care for depression was evaluated in a meta-analysis by the Cochrane Collaboration which included 79 randomised controlled trials involving 24,308 patients (Archer et al., 2012). All of their comparisons focused on the impact of Collaborative Care on measures of depression (Archer et al., 2012). On those measures a standardised mean difference of 0.25 (95% Confidence Interval 0.18-0.32) was identified at six months. An earlier meta-analysis found maintenance of gains for up to five years (Gilbody et al., 2006). Similarly a recent systematic review and meta regression reported that compared to usual care, Collaborative Care was associated with improvements in depression (Coventry et al., 2014).

- Barriers and facilitators to implementation

Understanding why evidence-based approaches such as Collaborative Care are successfully implemented in some settings but not others, is a key issue for successful implementation of those approaches. A theoretical framework to guide interpretation of research findings allows for the generalisation of those findings across settings. Process evaluation is an essential part of designing and testing a complex intervention (Moore et al., 2015) There is an extensive evidence-base and a large number of theoretical frameworks regarding the most effective approaches to implementing evidence-based approaches in healthcare (Rycroft-Malone and Bucknall, 2010). The Consolidated Framework for Implementation Research (CFIR) resulted from a review of the implementation science literature with the aim of integrating previously published theories into a single over-arching framework that would be useful to guide future implementation research. The CFIR includes 39 constructs known to be relevant to implementation organised into five domains (Damschroder et al., 2009), intervention, outer setting, inner setting, characteristics of individuals and process.

A review on the use of the CFIR in implementation research identified 429 articles citing the CFIR (to January 2015) with 26 articles meeting inclusion criteria (Kirk et al., 2016). The studies mainly employed either a mixed methods (n=13) or qualitative (n=10) design. Three used quantitative only designs. Studies had been undertaken across a wide range of healthcare settings. The CFIR was largely used during or post-implementation to identify barriers and facilitators to implementation of an innovation. CFIR can be classified as a determinant framework, the overarching aim of this is to understand the influences on implementation (Nilsen, 2015).

In the current study, implementation was broadly defined to include both reports of barriers and facilitators to setting up Collaborative Care within research studies, and the execution of the approach within routine healthcare settings.

- Why is it important to do this review?

The UK Department of Health Framework for co-morbidities (DoH, 2014) has emphasised parity of esteem between physical and mental illnesses, and identified the need to develop coordinated interventions that address both. However, despite Government backing and consistent evidence of efficacy (Archer et al., 2012; Coventry et al., 2014; Gilbody et al., 2006), the implementation of Collaborative Care is sparse both in the UK (DoH, 2011) and in the USA (Whitebird et al., 2013). This review will identify factors in the qualitative and mixed methods literature that may illuminate this situation and allow future research to focus on overcoming those barriers so as to provide wider access to this effective intervention.

- Research Question

What patient, staff or organisational factors are barriers/facilitators to the implementation of Collaborative Care for patients with depression in primary care?

Methods

A systematic review of the literature was conducted to synthesize inquiries into the barriers and facilitators of implementation of Collaborative Care for depression within primary care health services, which may or may not be linked to randomised controlled trials, service evaluations or other implementation studies. Papers were sought that have attempted to implement and evaluate Collaborative Care for patients with depression with or without co-

morbid physical health conditions. As this research did not directly involve human subjects, ethical approval was not sought. The protocol for the systematic review was not registered.

- Literature Search

A systematic search of appropriate databases (Medline, Embase, Cinahl, Psychinfo and Cochrane) was conducted in February 2016 for all relevant English language publications. The search strategy was developed from combining search terms from previous systematic reviews looking at depression (Coventry *et al.*, 2014), primary care (Kadu and Stolee, 2015) and collaborative care (Coventry *et al.*, 2014) and combining them with acceptability outcome search terms adapted from Smith (2012) and terms derived by the research team in an attempt to capture papers which reported barriers and facilitators. Key MeSH terms; included depression, and primary care, general practice and family practice. Since there were no MeSH terms for Collaborative Care a wide range of search terms capturing Gunn *et al.*'s (2006) components of Collaborative Care and their synonyms were used in combination and separately using the Boolean and proximity operators to ensure all variants were captured. This approach was adapted from Coventry *et al.*'s (2014) search strategy, see Appendix A for the full search strategy for Cinahl incorporating the adaptations made. In order to achieve a comprehensive search it was expected that qualitative data on barriers and facilitators to implementation may be nested within larger RCTs and research reports. A manual search of the reference lists of included studies and relevant systematic reviews was conducted to identify any missed relevant papers. Citations were downloaded and screened with the aid of Mendeley, reference management software. Two co-authors (EW and SO) independently screened the titles and abstracts against inclusion and exclusion criteria (see table 2). Ten percent of these papers were cross checked with an inter-rater reliability

calculated at 96%. If there was uncertainty whether a study met these inclusion criteria, it was selected for full-text screening. All papers at full text were cross-checked by both authors to ensure consistency; any differences were resolved by discussion.

Table 2 Inclusion and Exclusion Criteria

Data extraction

Two co-authors (EW and SO) independently extracted the data from all the included papers. Both used a structured data extraction form (Appendix B). Data extracted included target population, if and what physical health condition was included, primary outcome, barriers, facilitators, setting and country and if the intervention discussed met the criteria for Collaborative Care as laid out in table 1. Any discrepancies were resolved in discussion by referring to the original papers.

Reviewers independently reviewed each publication in detail to assess its quality. The Cochrane assessment of bias and the Critical Appraisal Skills Programme (CASP) checklists for qualitative, cohort studies and randomised controlled trials were to be used with the different study types (CASP, 2010, 2013; Higgins et al., 2011). In the event as only qualitative studies were identified, the CASP checklist for qualitative studies was used. The CASP results were cross checked and any discrepancies or limitations of the included studies were discussed with the third author until agreement was reached. Only papers meeting acceptable quality standards were included.

- Data synthesis

Due to the nature of the research question, the focus of the synthesis was to synthesize the data according to the definition of Collaborative Care. This was to allow identification and understanding of any determinants (barriers and facilitators) that may be influencing implementation of any of the components of Collaborative Care as well as Collaborative Care as a whole. Given that the focus is on the Gunn *et al's* (2006) definition of Collaborative Care the extracted barriers and facilitators to implementation of Collaborative Care were analysed using a Framework analysis (Spencer *et al.*, 2003) derived from that definition. Framework analysis is a five stage process of familiarisation with the data, identifying a thematic framework (including both a priori and emerging themes), indexing (applying the framework), charting and mapping and interpretation (Pope *et al.*, 2000).

Familiarisation

Both reviewers repeatedly read the results sections of the included studies. This was partly to become familiar with the data but also for quality checking, data extraction and to ensure nothing had been missed.

Identifying the Framework

The Framework was based on Gunn *et al's* (2006) definition of Collaborative Care and was identified prior to the data extraction. However, any barriers or facilitators that did not fit in the Framework were identified to produce additional, emerging themes.

Indexing

Data was coded, where appropriate, into the different components of Collaborative Care (table 1); case manager; multi-professional approach; enhanced inter-professional communication; structured management plans and standardised follow up. Within each component of Collaborative Care, a number of sub themes were identified.

Any relevant data that did not correspond to the components of Collaborative Care were incorporated with the framework as emerging themes. The data coding was performed by one reviewer and cross-checked by a second reviewer.

Charting

Charting involves data handling techniques to make the volume of data more manageable. The coded data was transferred into a matrix spreadsheet to aid analysis.

Mapping and Interpretation

Mapping involved looking for the range of data, disconfirmatory data and associations between themes. Interpretations were guided by the original research objectives as well as emerging themes. This involved looking for what was not there as well as what was. For example, part of Gunn's definition is the need for follow up but this was rarely mentioned, nor were the views of service users. This stage saw the researchers work alone and meet as a team to discuss possible interpretations and ideas.

Once the data was mapped to the Framework, they were matched to the CFIR domains and constructs. The purpose of this was to enable a deeper understanding of the influences on implementation.

Results

Description of studies

- Results of the search

The initial search was broad and yielded nearly 7000 papers in total across all databases. Twenty-four papers met all the inclusion criteria. Papers were primarily excluded for not including barriers or facilitators to the implementation of Collaborative Care, not meeting Gunn *et al's* (2006) definition of Collaborative Care or reporting data collected pre implementation of Collaborative Care. Figure 1 shows the flow of papers through the screening process. No randomised controlled trials (RCTs) of organisational interventions to the implementation of Collaborative Care were found that included barriers or facilitators to implementation. However, some of the included qualitative studies were nested within RCTs evaluating Collaborative Care for depression.

- Quality Assessments

The CASP checklist for qualitative research (CASP, 2013) was used to assess twenty four studies; they were categorised according to the checklist guide and the outcome is shown in table 3. Six papers were excluded during the quality check process for not meeting the threshold of quality. Whilst the CASP checklist does not have a quality threshold it has nine areas to check for adequate explanation, the research team excluded studies that did not have information on at least six of these ; statement of aims (Reddy *et al.*, 2008; Rubenstein

et al., 2010), methodology and research design (Bauer et al., 2011; Belnap et al., 2006; Morgan et al., 2009; Reddy et al., 2008; Tai-Seale et al., 2010), recruitment strategy (Bauer et al., 2011; Belnap et al., 2006; Reddy et al., 2008; Rubenstein et al., 2010), ethical issues (Bauer et al., 2011; Belnap et al., 2006; Tai-Seale et al., 2010), data analysis (Bauer et al., 2011; Belnap et al., 2006; Morgan et al., 2009; Reddy et al., 2008; Rubenstein et al., 2010; Tai-Seale et al., 2010) and statement of findings (Morgan et al., 2009; Reddy et al., 2008; Rubenstein et al., 2010; Tai-Seale et al., 2010).

The remaining eighteen papers were deemed of sufficient quality to be included. All eighteen papers had a clear statement of aims, used methods appropriate to the research questions, data collection, and clear statement of findings and have something to add to this review and are of sufficient quality to be included. Five papers were recognised for being particularly well reported and of very high quality (Bennett et al., 2013; Coupe et al., 2014; Knowles et al., 2015; Simpson et al., 2007; Wozniak et al., 2015). Common omissions were not exploring concepts such as saturation, limited participant recruitment details (Bentham et al., 2011; Chew-Graham et al., 2007; Gensichen et al., 2012) focusing more on the views of the research team than the direct views of the health workers (Coupe et al., 2014; Whitebird et al., 2014) and presenting results with minimal explanation as to what, if any analysis had been undertaken (Blasinsky et al., 2006; Knowles et al., 2013; Whitebird et al., 2014). One study did not use primary reports of implementation from clinicians, rather relying on the researcher's assessment of implementation facilitators and barriers (Whitebird et al., 2014). Six of the included papers discuss the relationship between the research and participant (Bennett et al., 2013; Bentham et al., 2011; Chew-Graham et al., 2007; Coupe et al., 2014; Gensichen et al., 2011; Wozniak et al., 2015). Most studies

reported ethical oversight arrangements, five papers did not report this but for all five papers (Bentham et al., 2011; Blasinsky et al., 2006; Kathol et al., 2010; Nutting et al., 2007; Oishi et al., 2003) this was reported in an associated publication (Dietrich et al., 2004; Springgate et al., 2011; Unützer et al., 2002; Unützer et al., 2001). Five studies interviewed patients (Bennett et al., 2013; Chew-Graham et al., 2007; Gensichen et al., 2012; Knowles et al., 2015; Simpson et al., 2007)

The 18 included qualitative papers investigated the barriers and facilitators of implementing and evaluating Collaborative Care for depression with (Kathol et al., 2010; Knowles et al., 2015; Knowles et al., 2013; Wozniak et al., 2015) or without (Bennett et al., 2013; Bentham et al., 2011; Blasinsky et al., 2006; Chew-Graham et al., 2007; Coupe et al., 2014; Eghaneyan et al., 2014; Gensichen et al., 2012; Gensichen et al., 2011; Landis et al., 2007; Murphy et al., 2014; Nutting et al., 2007; Oishi et al., 2003; Simpson et al., 2007; Whitebird et al., 2014) an associated physical health condition (see table 4 for details).

- Included studies

Seven studies were from the UK (Bennett et al., 2013; Chew-Graham et al., 2007; Coupe et al., 2014; Knowles et al., 2015; Knowles et al., 2013; Murphy et al., 2014; Simpson et al., 2007) eight were from the USA (Bentham et al., 2011; Blasinsky et al., 2006; Eghaneyan et al., 2014; Kathol et al., 2010; Landis et al., 2007; Nutting et al., 2007; Oishi et al., 2003; Whitebird et al., 2014), one studies was conducted in Canada (Wozniak et al., 2015) and a further two in Germany (Gensichen et al., 2012; Gensichen et al., 2011).

- Study designs, participants, interventions and outcomes

The characteristics of the studies are described below and also summarised within table 4.

All studies were based in primary care, which for the UK studies were NHS family doctor surgeries (also called General Practices or GPs) (Bennett et al., 2013; Chew-Graham et al., 2007; Coupe et al., 2014; Murphy et al., 2014; Simpson et al., 2007); two of these studies also looked at access to the Improving Access to Psychological Therapies (IAPT) scheme for primary care psychological therapies (DoH, 2012; Knowles et al., 2015; Knowles et al., 2013). Two papers were located in Germany (Gensichen et al., 2012; Gensichen et al., 2011) both originating from the same RCT but reporting different sample group's views on Collaborative Care. These were based in primary care family practice centres. One study was located in family practice in Canada (Wozniak et al., 2015).

In the USA the studies were sited across a variety of primary care providers including the Veterans' Health Administration (Blasinsky et al., 2006; Oishi et al., 2003), academic group practices (Blasinsky et al., 2006; Oishi et al., 2003), Health Maintenance Organizations (Blasinsky et al., 2006; Kathol et al., 2010; Oishi et al., 2003), primary care medical groups (Bentham et al., 2011; Kathol et al., 2010; Whitebird et al., 2014), Federally Qualified Health Center (Eghaneyan et al., 2014), Healthcare organisations (Nutting et al., 2007) and Medicare (Landis et al., 2007). Two papers (Blasinsky et al., 2006; Oishi et al., 2003) included are separate qualitative arms of the same RCT (Unützer et al., 2002; Unützer et al., 2001) exploring perspectives of different stakeholders.

Of the 18 papers included, three made reference to a model of implementation. Two, from the same research group, used normalisation process theory (Coupe et al., 2014; Knowles et

al., 2013) and another paper used the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework (Wozniak et al., 2015).

Figure 1: The PRISMA flow diagram of papers during the screening process

Table 3: Quality checklist for the included studies

Table 4: Characteristics of the included studies

- Barriers and Facilitators

All included papers made reference to at least one barrier to the implementation of Collaborative Care. All but two studies (Bennett et al., 2013; Murphy et al., 2014) included facilitators to implementation. These barriers and facilitators were grouped according to the element of Collaborative Care (Gunn et al., 2006) that they related to, MDT working, case management, patient management plans, enhanced communication and scheduled follow up. The only emerging theme that arose was around sustainability. Table 5 provides an overview of the different barriers and facilitators identified within the framework analysis with illustrative quotations and how they fit with the CFIR domains and constructs.

Table 5: The different types of barriers and facilitators reported for the different aspects of Collaborative Care and emerging themes matched to CFIR domains and constructs

Multi-professional team working

All of the papers reported the healthcare organisations adopted a ‘multidisciplinary team-based approach’ with at least one mental health professional working with a physical health professional collaboratively. However the organisations’ readiness for change was often

seen as a key barrier to successful implementation, both in the readiness for physical

changes to daily practice (Bennett et al., 2013; Knowles et al., 2013; Nutting et al., 2007) and in attitudinal changes within the organisations culture (Whitebird et al., 2014). The barriers linked to cultural changes were seen on an organisation level, where without strong leadership or organisational buy in, it limited the organisation's ability to successfully incorporate mental wellbeing into their patients overall treatment pathway (Eghaneyan et al., 2014; Kathol et al., 2010; Knowles et al., 2015; Nutting et al., 2007; Whitebird et al., 2014; Wozniak et al., 2015). This was further limited when individual practitioners were resistant to change in their attitude (Eghaneyan et al., 2014; Kathol et al., 2010; Knowles et al., 2015; Nutting et al., 2007; Whitebird et al., 2014; Wozniak et al., 2015). However, when staff attitudes to change were viewed as positive (Blasinsky et al., 2006; Gensichen et al., 2011; Knowles et al., 2015; Whitebird et al., 2014; Wozniak et al., 2015) this was seen as a key facilitator for the implementation of Collaborative Care. This was particularly true if one of the senior physicians took the role of championing the service to his/her colleagues (Whitebird et al., 2014). Similarly if there was a strong buy in by the organisation (Blasinsky et al., 2006; Knowles et al., 2015) with a clear leadership structure lead by experts in both physical and mental health (Blasinsky et al., 2006) the outcome was more successful.

Case management

In many of the papers the role of case manager was implemented as part of the research, a new role for the practices and staff to adapt to. This presented new challenges for staff that already worked within the clinics within one professional role but took on the further role of case manager, identifying the additional role as burdensome in workload and in personal stress (Bentham et al., 2011; Gensichen et al., 2012; Murphy et al., 2014; Simpson et al.,

2007). However if the role was clearly developed and defined with role boundaries that were obvious to all involved and enforced by the organisation (Blasinsky et al., 2006; Eghaneyan et al., 2014; Landis et al., 2007; Oishi et al., 2003; Whitebird et al., 2014), the role was seen as efficient and effective.

Recruiting the 'right' new staff to the role of case manager was not without difficulty (Landis et al., 2007; Murphy et al., 2014; Wozniak et al., 2015), as many of the papers identified key characteristics needed within the role of the case manager as an integral part of Collaborative Care and getting the case managers right was seen as a key to successful implementation. Key characteristics identified included an ability to learn quickly; effective communication skills; capable; being adaptable and being well organized (Chew-Graham et al., 2007; Eghaneyan et al., 2014; Landis et al., 2007; Oishi et al., 2003; Wozniak et al., 2015).

Patient management plans

Papers found having structured management plans for patients, made of high quality materials provided alongside in-depth staff training, and confident staff to deliver it were key elements in the successful implementation of Collaborative Care. Often the interventions were new to both the practices and staff delivering them. Not everyone appeared to understand what Collaborative Care was and as such not understanding how the approach was different from usual care was identified by some papers (Coupe et al., 2014; Knowles et al., 2013). A vital key to successful implementation was to ensure that the staff involved have sufficient training on the intervention and what can be expected from it and from patients (Blasinsky et al., 2006; Eghaneyan et al., 2014). The style of some of the materials were unfamiliar for staff, in one paper staff reported the self-help material to be

difficult to introduce to patients and patients found it hard to engage with (Chew-Graham et al., 2007). Other papers raised issues about the quality of any screening tool that was used (Bentham et al., 2011; Nutting et al., 2007).

There were ways to negate some of these issues and facilitators to implementing the structured management plans included finding the right screening and outcome tools (Eghaneyan et al., 2014; Nutting et al., 2007) and training all staff in how and why these tools were being used. The screening was also enhanced by a standardised care pathway; GPs were more likely to be happy to talk about depression if they knew what to do once it was identified (Blasinsky et al., 2006; Coupe et al., 2014; Knowles et al., 2015; Knowles et al., 2013; Nutting et al., 2007). Case managers and staff reported confidence in the specific interventions available and being able to see their benefits was also helpful, especially behavioural activation and interventions around medication education and monitoring (Coupe et al., 2014; Landis et al., 2007; Simpson et al., 2007).

Enhanced communication

Breakdowns in networks and communication pathways were seen as major barriers in many papers reviewed. Poor communication was reported between health care professionals and patients, by professionals using jargon that was not accessible to patients (Knowles et al., 2015) or language which the patients did not identify with, such as 'mental health' and 'depression' (Eghaneyan et al., 2014; Knowles et al., 2015; Oishi et al., 2003). Breakdown in communication was also reported between the different members of the MDT, where one professional group appeared to avoid regular communication with the others despite pathways being in place (Coupe et al., 2014; Kathol et al., 2010; Knowles et al., 2015;

Knowles et al., 2013; Murphy et al., 2014), or in other cases there was limited technology to support timely communication (Coupe et al., 2014; Eghaneyan et al., 2014; Knowles et al., 2013; Landis et al., 2007).

One of the main facilitators identified in improving communication was co-location (Coupe et al., 2014; Eghaneyan et al., 2014; Knowles et al., 2013; Landis et al., 2007; Whitebird et al., 2014). If the different MDT members were based in the same building they have more chance to collaborate (Knowles et al., 2013; Nutting et al., 2007; Oishi et al., 2003), even if this was informal corridor conversations (Nutting et al., 2007). This also helped de-stigmatise mental health treatment for the patients as they did not have to go to the 'mental health building' (Gensichen et al., 2011; Knowles et al., 2015; Oishi et al., 2003). Integrated information systems also helped as it made it easier to share notes and pass messages to colleagues (Bentham et al., 2011; Blasinsky et al., 2006; Knowles et al., 2013; Oishi et al., 2003). Finally a supportive, constructive and regular supervision schedule helped the case managers deliver care and talk over difficult cases or ask questions about referral on to mental health services where required (Coupe et al., 2014; Knowles et al., 2015).

Scheduled follow up

Only three papers made any reference to the implementation of follow up sessions and this was predominantly around the medium of the appointment (Blasinsky et al., 2006; Chew-Graham et al., 2007; Simpson et al., 2007). When and where the follow ups occurred was important. Some studies used phone calls rather than face to face meetings to try to improve the number of follow up sessions attended (Simpson et al., 2007). However, this was not always welcomed and the issue of face to face or phone call follow up is not settled,

and different groups appear to prefer different methods (Chew-Graham et al., 2007).

However, it was viewed that the presence of scheduled follow ups and someone taking responsibility to ensure that happened was beneficial (Blasinsky et al., 2006; Chew-Graham et al., 2007; Simpson et al., 2007).

Sustainability

An emerging theme was identified as the sustainability of Collaborative Care. Where Collaborative Care had been introduced as part of a research project and funding was only initially granted for the lifespan of the research grant maintaining the service after the research finished was a concern. The barriers to sustainability reported focussed exclusively on the financial aspects of how Collaborative Care would be paid for in the long term after the research had been concluded (Blasinsky et al., 2006; Coupe et al., 2014; Kathol et al., 2010) *'the main barrier to sustainability was financial'* (Kathol et al., 2010). This was, in part, an issue of who paid for what intervention (Kathol et al., 2010) and who paid for the additional time staff needed to fulfil their additional roles as case managers, supervision and to attend joint meetings (Blasinsky et al., 2006; Gensichen et al., 2011; Knowles et al., 2015; Knowles et al., 2013; Murphy et al., 2014; Nutting et al., 2007; Whitebird et al., 2014; Wozniak et al., 2015). However Collaborative Care was considered to be cost effective by participants, but it was identified that this needed statistical underpinning for organisation's financial buy in, *'Collaborative Care intervention had to be seen either as revenue neutral or revenue enhancing.'* (Blasinsky et al., 2006). Therefore it was seen as helpful if funders were involved from the start of implementation (Blasinsky et al., 2006).

Discussion

- Summary of main results

Despite the efficacy and cost effectiveness (Green et al., 2014) of Collaborative Care for depression, problems remain in its implementation, both within a research study and sustaining its use in practice. Eighteen papers have investigated what those problems are and what solutions may be found. Healthcare tends to operate in silos, with staff specialising in one area and work focussing on that area, communication between areas is often poor (Kamalanathan et al., 2013). Staff also lacked the confidence to work outside of their specialism. Support from managers including training and continuing professional development, high quality clinical supervision, a standardised clinical pathway and good communication can help to break down silos but this will require sustained political and financial commitment.

One study reported that not all the patients wanted their care to be integrated, preferring to be able to talk separately to a mental health worker (Knowles et al., 2015). This is a potentially critical finding but is not raised by the other studies. Only five studies asked patients for their opinions (Bennett et al., 2013; Chew-Graham et al., 2007; Gensichen et al., 2012; Knowles et al., 2015; Simpson et al., 2007) and this response only came up in one of those. This does echo Whitebird et al (2013) who report barriers as including the resistant attitudes of staff and patients. However, this report is of barriers as perceived by staff before implementation had occurred and it is not clear why they thought patients might be resistant (Whitebird et al., 2013). Further qualitative work with patients is required.

- Implementation models

The majority of the barriers and facilitators identified within this systematic review relate to the CFIR domains of Intervention characteristics and inner setting (Damschroder et al., 2009) (table 5). The intervention characteristics of Collaborative Care include relatively high levels of complexity, a departure from existing practices with several components including a new role, that of case manager. The acceptability of structured management plans relied on the perceived evidence strength and quality of the pathway and materials, which was supported when GPs developed a good understanding of Collaborative Care through training and experience. MDT working in particular needed to be perceived to have a relative advantage over current practice to be embraced and sustained. Case managers were clearly under some pressure to justify their role and adapt it to the local context.

Barriers and facilitators related to the CFIR domain of Inner setting include the importance of cultural change for MDT working to be implemented, new resources being evident in the development of the case manager role, and the benefits of co-location. Implementation climate is not a strong feature of our analysis. The emerging theme of sustainability could be viewed as a feature of either the Inner setting, or the Outer setting, depending on the extent of local control of resources. There is a general lack of investigation of Outer setting barriers and facilitators, particularly those related to patient views and experiences.

One example that illustrates the importance of policy and funding decisions on the implementation of new practices is the study of the implementation of shared electronic summary records within the NHS in England (Greenhalgh et al., 2010). This study highlighted the importance of the social and political Outer context for the local implementation and use of electronic patient records by staff. In the case of Collaborative Care policies that

promote integrated care (DoH, 2014) needs to be matched by sustained financial support at local level (Naylor et al., 2016).

- Overall applicability of the evidence

The studies were split over four different countries with different types of health systems but come to similar conclusions about the difficulties faced by healthcare organisations attempting to implement Collaborative Care. Within the studies from the USA numerous different types of provider were involved. These different providers operate quite differently and this suggests that the results may be applicable to not only the UK National Health Service and Canadian, German and US health systems but also to other types of health system.

- Strengths and limitations in the review process

A key strength of the review was that the process was carried out rigorously adhering to a strict methodology. Whilst it is a limitation that not all papers were independently title and abstract screened by two reviewers, thus potentially limiting the reliability of the selected studies, high inter-rater reliability was observed. There are many different frameworks for assessing the quality of qualitative research (Walsh and Downe, 2006) and little consensus as to which is most appropriate in what circumstances (Thomas and Harden, 2008). The CASP approach is widely used and user friendly (Hannes et al., 2010); unlike many other quality appraisal tools the CASP programme have developed several tools for different study designs meaning appraisal can remain consistent when reviewing different types of studies. However, it does not specify a quality threshold. We applied a rule stating that if the paper

could not answer two thirds of the quality checklist it was excluded but this could have led us to miss some barriers and facilitators.

Reports of the randomised controlled trials of Collaborative Care were excluded if they only reported clinical outcomes. The benefit of nested qualitative studies within RCTs is evident from this review, as nine of the included studies were of this type (Bennett et al., 2013; Chew-Graham et al., 2007; Coupe et al., 2014; Gensichen et al., 2012; Gensichen et al., 2011; Knowles et al., 2015; Knowles et al., 2013; Landis et al., 2007; Oishi et al., 2003). Implementation issues either during or after the trials were rarely reported. We only found 18 studies that discussed implementation issues despite a recent efficacy review of RCTs including 74 studies (Coventry et al., 2014). Some contained only a few sentences relevant to implementation.

Both a strength and a potential limitation was our selection of a determinant framework (the CFIR model) to aid analysis and understanding of the barriers and facilitators identified. The use of the CFIR enabled the findings to be placed in the context of the wider implementation research literature (Kirk et al., 2016). However determinate frameworks have been criticised for their general use of terms and over reliance on 'barriers and facilitators' (Nilsen, 2015). This may not represent the full range of issues reported. The original papers' author's may report determinants that have not been directly 'experienced' but reported as 'hypothetical barriers and facilitators' by participants (Nilsen, 2015).

- Agreements/disagreements with other studies/reviews

A recent systematic review and meta-analysis that looked at the characteristics of Collaborative Care reviewed 74 RCTs of Collaborative Care for depression implementation

(Coventry et al., 2014). Our findings would concur with the findings of Coventry et al (2014) that standardised and systematic clinical pathways are helpful and that regular supervision is essential. Opinions on psychological therapies in the current review focussed more on ensuring the right patient got the right treatment rather than if it should be included or not, but the need for supervision, support and adequate training were highlighted. A recent review investigated the barriers and facilitators of implementing the chronic care model in primary care (Kadu and Stolee, 2015). They reported the key facilitators as networks and communication, culture, implementation climate, structural characteristics, engaging, and knowledge and beliefs about the intervention. The barriers they identified were executing (regarding the intervention process), structural characteristics, readiness for implementation, engaging senior leadership, and knowledge and beliefs (Kadu and Stolee, 2015).

The DIAMOND initiative (Solberg et al., 2013; Whitebird et al., 2014) oversaw the widespread implementation of Collaborative Care in Minnesota, USA. They extensively investigated perceived barriers prior to implementation (Whitebird et al., 2013) and then attempted to address them in the trial. They conclude that “primary care clinics that are prepared to implement evidenced based care can do so if financial barriers are reduced, effective training and facilitation are provided, and the new design introduces the specific mental models, new care processes, workers and expertise that are needed” (Solberg et al., 2013). As part of the CADET trial of Collaborative Care in the UK (Richards et al., 2008), a process evaluation using the normalisation process model occurred (Gask et al., 2010). This found that the key lessons for implementing the intervention included the preparation of

case managers and supervisors, the need for clear protocols for communication, engaging patients and management facilitating new ways of working.

These are in broad agreement with the barriers and facilitators identified in the current review. However, our review highlights the importance of case managers. Care must be taken in ensuring the right staff with the right training and support are employed for this role. This review adds a level of detail not previously identified to facilitate the implementation of Collaborative Care for people with depression.

- Implications for practice

Increasingly patients have multiple co-morbid long term conditions; this frequently includes a mental health issue like depression. Healthcare staff must recognise the impact these conditions have on each other and on the patient to treat them holistically. Staff need to be open to communicating with colleagues from other disciplines for the benefit of the patient. Senior managers and commissioners need to allow frontline staff time to engage in collaborative working across disciplines. Some papers looked only at depression whereas some looked at using Collaborative Care with depression and a comorbid physical health condition. Given the emphasis on multidisciplinary team working and enhanced communication it seems logical that Collaborative Care would be most suitable for these complex multi-morbid patients. It does not appear that the addition of physical long term conditions affects the efficacy of Collaborative Care (Panagioti et al., 2016).

Those introducing Collaborative Care should take account of the barriers and facilitators identified within the literature so as to plan, execute and evaluate implementation using an implementation framework such as the CFIR (Damschroder et al., 2009). Key barriers to

change were the attitudes of frontline staff and a lack of management support. Involving staff of all levels in the planning of Collaborative Care and encouraging staff champions may help. Involving frontline staff in the development and implementation of training is a priority; many staff reported not having the confidence to work with mental health issues, so adequate training based on the needs of the staff involved is essential. The training should be supported by continued clinical supervision to ensure staff have the confidence to tackle the necessary issues with their patients.

The long term implementation strategy needs to be considered from the start, particularly financial support. Staff are less likely to engage fully if they know this way of working will end when the research project ends.

- Implications for research

Further investigations into the implementation of Collaborative Care should include provision for qualitative investigations into the issues associated with implementation.

These investigations should include patients, front line staff and higher level health service managers and commissioners. The involvement of patients is a critical element. Of the papers included here few asked for the views of patients. Collaborative Care aims to enhance patient experience, with truly person centred services being co-produced. Patient involvement in research and implementation of service change will be part of this.

There is a lack of investigation into 'outer setting' influences, such as patient views, policy and incentives. This would be valuable further information to inform the implementation of Collaborative Care.

Some of the barriers identified are not unique to Collaborative Care and suggestions to overcome some of these barriers exist in literature elsewhere. A thorough investigation of these is required to further aid successful implementation.

Conclusions

Although the evidence base for the efficacy of Collaborative Care is strong, the existing service structures and financial arrangements in health systems are significant barriers to co-working between different professionals in general and mental and physical health services specifically. Post research implementation requires buy in from commissioners/funders to ensure financial barriers are removed. Allowing sufficient training and preparation work for staff is essential both at the planning stage and long term.

There are evidence-based approaches to implementation that can address the identified barriers, such as adequate training and supervision, including staff in service development, providing integrated IT systems and financial and managerial support. These should be subject to evaluation. The views of patients towards Collaborative Care, both for depression and depression plus a physical health condition, have not been fully investigated and more research is required on the patient experiences of Collaborative Care.

Declarations

Ethics approval and consent to participate

Not applicable

Availability of data and materials

All data is from published articles and is in the public domain

Competing Interests

None to declare

Author Contributions

EW drafted the paper, was involved in designing the protocol, screened the search results, and was involved in data extraction and synthesis. SO was involved in designing the protocol, ran the searches, screened the search results, was involved in data extraction and synthesis. TR was involved in designing the protocol and discussions of data synthesis. All Authors approved the paper.

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Table 2 Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Intervention - Must be Collaborative Care model as defined in table 1. Meeting at least 4 of the Collaborative Care – One of which must be ‘case manager’	Intervention - Not having at least 4 components of Collaborative Care. Not having a case manager
Condition - Collaborative Care intervention focus on reducing depression in patients with or without a comorbid condition	Condition - Collaborative Care interventions that are not targeting depression.
Setting – Primary care or equivalent	Setting - Not primary care setting
Method – Data must be collected during or after Collaborative Care intervention.	Method – data collected before Collaborative Care is implemented
Results – Barriers and/or facilitators that originates from data (for example:- interviews, focus groups, surveys).	Results – Barriers and facilitators that do not originate from actual data. The data to be extracted from the "Results" sections of the included studies, as the Discussion and Conclusion sections may not present any new data, only additional interpretation or contextualisation of a study's 'findings'.
Time - No limit	Target population was not adults aged 18+
Published in English	

Table 3: Quality checklist for the included studies

First Author and Year	CASP TOOL USED	Statement of aims	Appropriate methodology	Research design	Recruitment strategy	Data collected	Relationship btw R & P	Ethical issues	Data analysis	Clear Statement of findings	Valuable/ Included or excluded from systematic review
Bauer et al 2011	Qualitative CASP	Yes	No - Not for Qualitative section - observations but no justification or detail given.	Poor justification	No	No - No information reported	Can't tell - not discussed	Can't tell - not discussed	Can't tell - not discussed	yes	Out - Poor quality - very little information supplied - unable to trace any additional papers linked to this study.
Belnap et al 2006	Qualitative CASP	Yes	No - case studies not justified - no detail	No - not justified	No	Can't tell - not discussed	Can't tell - not discussed	Can't tell - not discussed	Not discussed	yes	Out - Poor quality
Bennett et al 2013	Qualitative CASP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In - High quality paper
Bentham et al 2011	Qualitative CASP	Yes	Yes	Yes	Can't tell - not discussed	Yes	Yes	Ethics reported in Springgate et al 2011	Yes	Yes	In - Useful findings, however recruitment element missing
Blasinsky et al 2006	Qualitative CASP	Yes	Yes	Yes	Yes	Yes	Can't tell - not discussed	Ethics reported in Unutzer et al 2002	Can't tell - not discussed	Yes	In - Overall useful findings, however some elements missing.
Chew-Graham et al 2007	Qualitative CASP	Yes	Yes	Yes	Can't tell - No details give how number was arrived at	Yes	Yes	Yes	Yes	Yes	In - Useful findings feasibility study - some method areas not discussed.
Coupe et al 2014	Qualitative CASP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In - high quality paper

Eghaneyan et al 2014	Qualitative CASP	Yes	Yes (although more justification and details given for interviews than the observations/field note)	Yes	Yes	Can't tell - not discussed	Yes	Yes	In - good links to practices - some elements of methods lacking detail.
Gensichen 2012	Qualitative CASP	Yes	Yes	Yes	Can't tell - No details give how number was arrived at	Yes	Yes	Yes	In - Patient perspective to CC - high quality
Gensichen, 2011	Qualitative CASP	Yes	Yes	Yes	Yes	Can't tell - not discussed	Yes	Yes	In - Links back to literature and gap in knowledge addressed - high quality
Kathol et al 2010	Qualitative CASP	Yes	Yes	Yes	Yes - but final numbers not recorded	Can't tell - not discussed	Can't tell - No ethical panel or consent mentioned.	Yes	In - Links to current practice and recommendations within USA health care
Knowles et al 2013	Qualitative CASP	Yes	Yes	Yes	Yes - But some details missing (saturation/if modified/little justification/ no examples given)	Can't tell - not discussed	Yes - UK ethic panel.	Yes	In - Good quality, to inform large scale qualitative study as part of RCT
Knowles et al 2015	Qualitative CASP	Yes	Yes	Yes	Yes	Can't tell - Not discussed	Yes - UK ethic panel.	Yes	In - Links back to literature and gap in knowledge addressed - high quality
Landis et al 2007	Qualitative CASP	Yes	Yes	Yes	Yes - but limited information.	Can't tell - Not	Yes - USA university	Yes	In - Overall useful findings, however some elements

Morgan et al 2009	Qualitative CASP	Yes	Can't tell – not discussed	Yes	Can't tell - no detail	discussed	ethics	Can't tell – not discussed	Yes	Can't tell – not so little detail	Out - Little detail in write up
Murphy et al 2014	Qualitative CASP (service evaluation)	Yes	Yes	Yes	Yes	Can't tell – not discussed	Yes	Yes	Yes	In - Overall a well written paper but service evaluation not research and Qualitative methods and analysis weak	
Nutting et al 2007	Qualitative CASP	Yes	Yes	Yes	Yes	Can't tell – not discussed	Ethics reported in Dietrich et al 2004	Yes	Yes	In - Good quality paper and journal	
Oishi et al 2003	Qualitative CASP	Yes	Yes	Yes	Yes	Can't tell – not discussed	Ethics reported in Unutzer et al 2001	Yes	Yes	In - Overall a well written paper	
Reddy et al 2008	Qualitative CASP	Can't tell – not discussed	Can't tell – not discussed	No – no detail on numbers	Can't tell – not discussed	Can't tell – not discussed	Can't tell – not discussed	Can't tell – not discussed	Can't tell – not discussed	Out - Method very poorly written	
Rubenstein et al 2010	Qualitative CASP (service evaluation)	No - not clear	No - not clear from Qualitative feedback	No - not clear from Qualitative feedback	No - not clear from Qualitative feedback	Can't tell – not discussed	Yes - USA agreement	No - not clear from Qualitative feedback	No - not clear from Qualitative feedback	Out - Qualitative section very poor lacking any detail	
Simpson et al 2008	Qualitative CASP	Yes	Yes	Yes	Yes	Can't tell – not discussed	Yes - UK ethics panel	Yes	Yes	In - High quality paper	
Tai-Seale et al 2008	Qualitative CASP	Yes	No - not for each case	Yes	No - not for each case	Can't tell – not discussed	Can't tell – not discussed	No - not for each case	No - not for each case	Out - Method very poorly written	

	CASP	study	study	case study	discussed	not discussed	case study	study	poorly written
al 2010	CASP								
Whitebird et al 2014	Qualitative CASP	Yes	Yes	Yes	Can't tell – not discussed	Yes - local USA panel and participant consent	No	Yes	In - Good quality paper and journal
Wozniak et al 2015	Qualitative CASP (service evaluation)	Yes	Yes	Yes	Yes	Yes – Service review	Yes	yes	In - High quality service evaluation

Table 4: Characteristics of the included studies

First Author and Year	Study Design	Country	Data collection method	Collaborative Care = Case manager	Collaborative Care = A multi-professional approach	Collaborative Care = Systems Changes - evidence-based protocols to organise patient management	Collaborative Care = Inter-professional communication systems	Collaborative Care = Scheduled follow-up	Health conditions	Participants	Primary outcomes	Site
Bennett et al 2013	Qualitative study evaluating RCT Thematic analysis followed by Framework Analysis	UK	Interviews post implementation of structured 'pro-active care'	Yes (nurses)	Yes (with GP/nurses ?/MH)	?	Yes - Additional clinical supervision	Yes	Chronic or recurrent depression and dysthymia	Patients receiving pro-active care and 15 primary care nurses providing the care.	The development of a therapeutic alliance between the patient and nurse was central to this model and, where it appeared lacking, dissatisfaction was felt by both patients and nurses with a likely negative impact on outcomes.	GP
Bentham et al 2011	Qualitative study	USA	Interviews post training and implementation of collaborative care.	Yes (care manager)	Yes	Yes	Yes - Additional clinical supervision	Yes	Depression, anxiety and trauma.	Social workers, care/case managers, primary care providers, and a psychiatrist that	Collaborative care model for treating depression and anxiety was possible in post-Katrina/Rita	Post-disaster recovery setting. Primary care clinic, a faith based community center with a mobile health

Blasinsky et al 2006	Mixed methods implementation study including program documentary review and qualitative interviews	USA	Interviews post implementation of Collaborative Care intervention (Project IMPACT REF)	Yes		Yes	Yes	Yes	Yes	Yes	Depression older adults	Primary care physicians, a psychiatrist, program coordinator and principal investigators	Evidence of sustainability of the program components and barriers and facilitators to sustainability	New Orleans	unit and a community healthcare center.
Chew-Graham et al 2007	Randomised controlled trial with a nested qualitative study:	UK	Outcome measures pre and post intervention and interviews with staff and patients.	Yes - community psychiatric nurse (CPN)	Yes	Yes	Yes	Yes	Yes	Yes	Depression older adults	Health professionals and patients	Acceptability and effectiveness of the intervention		Primary care
Coupe et al 2014	Qualitative study nested within RCT. Thematic analysis followed by Framework Analysis	UK	Interviews following RCT to implement Collaborative Care for depression (CADET trial Richards et al., 2013)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Depression	Case managers, trial research team members and general practitioners	To identify barriers and facilitators to the successful implementation of Collaborative Care		GP
Eghaneyan et al 2014	Qualitative single case study: Grounded theory analysis	USA	Semi structured interviews - post Collaborative Care implementation	Yes - Licensed Masters Social Worker	Yes	Yes	Yes	Yes	No	Yes	Depression	Clinical and administrative staff members	The experience of Collaborative Care and the barriers and facilitators to implementation		Primary care clinic (Federally Qualified Health Center) that primarily serves a low-income, uninsured Latino population
Gensichen et al	Qualitative study nested	Germany	Semi structured	Yes - Health care	Yes - with family	Yes	Yes	Yes	Yes	Yes	Depression	Patients who have received	General practices		Primary care - family doctors.

2012	within RCT. Thematic Analysis		Interviews - Post case managed chronic care model implementation	assistants	doctors					the intervention arm of the study	should ensure that depression case management is patient centred and non-mechanical.	
Gensichen et al 2011	Qualitative study nested within RCT. Thematic Analysis	Germany	Semi structured interviews - post Collaborative Care implementation	Yes - Health care assistants	Yes - with family doctors	Yes	Yes	Yes	Yes	Family doctors	Family doctors perceived practice-based case management by HCAs as beneficial for patient care.	Primary care - family doctors.
Kathol et al 2010	Qualitative study. Thematic Analysis	USA	Service evaluation of a collaborative program already in place.	Yes	Yes	Yes				Administrators, clinicians and care managers	Organisational and operational factors related to the integrated program initiation and enhancers and inhibitors or operational success and sustainability	HMO/medical groups/care delivery systems
Knowles et al 2013	Qualitative study nested within RCT. Thematic analysis	UK	Interviews - Pre and Post. Nested in a RCT Pilot which implemented Collaborative Care in family practices training IAPT workers and general practice nurses to work	Yes	Yes	Yes	Yes	Yes	Yes	Primary care and mental health Practitioners	The experience of Collaborative Care and the barriers and facilitators to implementation	GP/ Improving Access to Psychological Therapy (IAPT)

Knowles et al 2015	Qualitative study nested within RCT Framework Analysis	UK	together. Interviews nested in a RCT (COINCIDE-Coventry 2015) following on from the earlier pilot study (Knowles 2013) implementing Collaborative Care in primary care	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Depression / diabetes and Coronary heart disease	Primary care and mental health workers and patients	The ways Collaborative Care promoted the integration of mental health physical health care and the divisions, especially at a service level, that hindered the processes.	GP/IAPT
Landis et al 2007	Feasibility study: Pre and post outcome measures and a nested qualitative study.	USA	Questionnaire s Pre and post outcome measures; GCM case notes and physician and office staff focus groups	Yes - generalist care managers	Yes	Yes	Yes	Yes	Yes	Yes	Depression	Physician and office staff	Physicians valued using GCMs	Primary care (medicare)
Murphy et al 2014	Service evaluation of an RCT	UK	Patient records audit and staff interview post collaborative care implementation from a previous RCT.	Yes - primary care nurses	Yes	Yes	Yes	Yes	Yes	Yes	moderate-to-severe depression	Primary care nurses	Primary care nurses are ideally placed for delivering care to depressed patients; especially in cases where a patient also has a comorbid long-term medical condition.	General Practice (GP)
Nutting et al 2007	Three Component	USA	Interviews to establish the	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Depression	Project principals,	Characteristics which were	Primary care - health care

Yes - Depression Clinical Specialists (DCS)	Yes	Yes	Yes	Yes	Yes	Depression	Older adult depression
Yes - nurse, counsellor and occupational therapist and para-professionals (graduate nurses, psychiatric nurses, etc.)	Yes	Yes	Yes	Yes	Yes	Depression	Older adult depression

Whitebird et al 2014	Researcher narratives nested within Implementation Evaluation Content Analysis. Modified Delphi approach	USA	care in the UK (Richards 2008)	health workers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Depression	Research staff	Perceptions of the implementation strategies, barriers and facilitators, noting information about team dynamics, staff concerns, clinic staff response to the program, and their overall impression of program implementation at the site. After these visits they completed qualitative narratives to document their assessment of the factors affecting implementation.	Medical groups
Wozniak et al 2015	Qualitative Service Evaluation.	Canada	Interviews with PCN staff and specialists, research team reflections, and systematic documentation	Yes - Nurses	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Depression and LTC	key informants with expert knowledge of the implementation	Identifying key intervention components that facilitated implementation.	Primary care

****Components of the Collaborative Care; A= a multi-professional approach; B = A structured management plan to organise patient management; C= scheduled follow-up; D= Enhanced inter-professional working /defined inter-professional communication systems.**

Table 5: The different types of barriers and facilitators reported for the different aspects of Collaborative Care and how they match to the CFIR domains and constructs			
CFIR domains and constructs (Damschroder et al., 2009)	Facilitators	CFIR domains and constructs (Damschroder et al., 2009)	CFIR domains and constructs (Damschroder et al., 2009)
Multi-professional team working	Multi-professional team working		
<p>Organisation culture:</p> <p><i>'Change in their practice is very difficult and not worth the effort unless it would make a big difference. Many acknowledged that referring patients to the care manager was not a huge change, but that it was still hard to take the first steps, e.g. enrol the first patient' (Nutting et al., 2007).</i></p> <p><i>'Culture change was a common need... acceptance that mental health was part of total health.'</i> (Kathol et al., 2010)</p> <p>Negative staff attitudes to change:</p> <p><i>'Resistance by individual physicians to sharing the care of their patients with a care manager can be a significant barrier to patient activation' (Whitebird et al., 2014)</i></p>	<p>Staff champions:</p> <p><i>'A physician champion for depression care... can encourage PCPs to refer their depressed patients to the care manager' (Whitebird et al., 2014)</i></p> <p>Culture change:</p> <p><i>'The willingness of the organization to promote change in the service delivery system' (Blasinsky et al., 2006)</i></p> <p>Positive staff attitude to change:</p> <p><i>'Doctors recognized benefits of a structured case</i></p>	<p>Inner setting :- (Implementation climate)</p> <p>Inner setting:- (Readiness for implementation)</p>	<p>Process:- (Engaging champions)</p> <p>Inner setting:- (Culture; Implementation climate; and Readiness for implementation)</p> <p>Inner setting:- (Implementation climate Relative priority) Intervention: (Intervention source)</p>

		<p><i>management intervention'</i> (Gensichen et al., 2012)</p> <p>Peer learning and support:</p> <p><i>'PCN staff identified mentoring or shadowing another CM as being helpful in learning how to deliver TeamCare successfully.'</i> (Wozniak et al., 2015)</p> <p>Reduced stigma for patients:</p> <p><i>'Though patients may be initially wary of seeking mental health services, education by the DCS and initial improvements in symptoms may dispel stigma, making it more acceptable to seek further help.'</i> (45) (Oishi et al., 2003)</p>	<p>Inner setting:- (Implementation climate Learning climate and access to information and knowledge)</p> <p>Outer setting :- (patient needs and resources)</p>
<p>Case manager</p> <p>Characteristics of the CM:</p> <p><i>'They reported only one barrier related to human resources: finding the appropriate CM with the right mix of personal and professional qualities for the role.'</i> (Wozniak et al., 2015)</p> <p>Role creating a strain on resources:</p> <p><i>'Social worker, care manager, and psychiatrist participants reported that addition of care</i></p>	<p>Characteristics of individuals:- (other personal attributes)</p> <p>Outer setting:- (patient needs and resources)</p>	<p>Case manager</p> <p>Characteristics of the CM:</p> <p><i>'They also identified personal and professional qualities required of CMs to facilitate its successful delivery. Respondents listed the following personal qualities as desirable: ability to learn quickly; effective communication skills; being motivated, capable or confident; being adaptable and well organized.'</i> (Wozniak et al., 2015)</p> <p>Access to the CM:</p> <p><i>'a care manager that is on site and accessible were significantly correlated with activating patients</i></p>	<p>Characteristics of individuals:- (knowledge and beliefs about the intervention; self –efficacy; other personal attributes)</p> <p>Inner setting:- (Structural characteristics)</p>

<p>manager functions to existing responsibilities was difficult, creating a perception that the Collaborative Care model was too burdensome to implement and represented additional work on already strained resources.' (Bentham et al., 2011)</p>		<p>Clear role boundaries:</p> <p>'[Depression care specialists (DCSs)] spoke of the importance of a clear role within the healthcare team. The model envisions the DCS as a care manager who works in partnership with the patient and the PCP. DCSs pointed to the importance of not being perceived as taking over the patient's depression care. Instead, the DCS reports to the PCP whether a patient is experiencing side effects, for example, and discusses alternate treatment options, but it is the PCP who decides when to change dosage or medication type.' (Oishi et al., 2003)</p>	<p>Intervention:- (Complexity)</p>
<p>Structured management plan</p> <p>Prescribing and medication difficulties:</p> <p>'and a lack of confidence in diagnosing depression and prescribing medications.' (Eghaneyan et al., 2014)</p> <p>Use of screening tools:</p> <p>'Some participants questioned whether screening tools accurately reflected patient's' functioning as they reported that some patients found questions</p>	<p>Intervention :- (Design quality and packaging)</p> <p>Intervention :- (Design quality and packaging: Complexity)</p>	<p>Structured management plan:</p> <p>Patient centred interventions:</p> <p>'Perceived benefit of providing holistic care.' (Knowles et al., 2013)</p> <p>Outcome measures:</p> <p>'PHQ-9 was widely perceived among the clinicians as the most useful of the [trial] components, and many clinicians reported continuing its use, even when other [trial] components appeared to have</p>	<p>Intervention:- (Relative advantage)</p> <p>Intervention:- (Evidence strength and quality)</p>

<p><i>confusing'</i> (Bentham et al., 2011)</p> <p>Poor quality self-help materials:</p> <p><i>'Descriptions of the use of the SHADE manual were limited: patients seemed to find it difficult to engage with, and expressed ambivalent feelings towards, the self-help material' (Chew-Graham et al., 2007)</i></p> <p>Staff lacking the skills to deliver the interventions:</p> <p><i>'Lack of provider knowledge regarding treatment goals for enrolled patients' (Eghaneyan et al., 2014)</i></p> <p><i>'Only a minority of GPs demonstrated good understanding of CC... and could differentiate between management of patients with depression in CC as distinct from routine care' (Coupe et al., 2014)</i></p>	<p>Intervention :- (Design quality and packaging)</p> <p><i>extinguished; There was also widespread endorsement of the general structure of the [trial] and the confidence it gave primary care clinicians in their ability to provide high quality depression care.' (Nutting et al., 2007)</i></p> <p>Specific intervention benefits:</p> <p><i>'[Behavioural Activation] intervention encourages them to develop joint plans with patients to a greater extent than in their usual practice' (Coupe et al., 2014)</i></p> <p><i>'Patients were often uninformed and ambivalent about taking the antidepressant medication prescribed by their GP. They were concerned about addiction and side-effects and doubted the ability of antidepressants to help in situations where there were social issues underlying their depression. Case managers were able to give detailed information to patients regarding medication and advice on how they should be taken, which was seen by patients as helpful to resolve misconceptions about the drugs and allay their fears.' (Simpson et al., 2007)</i></p> <p>Inner setting:- (Readiness for implementation; Access to information and knowledge)</p>	<p>Intervention:- (Evidence strength and quality)</p>
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Preference for separate services:	Outer setting: (Patient needs and resources)	Standardised pathways of care:	Intervention:- (Evidence strength and quality)
<p>'attempts to explicitly integrate physical and mental health treatments were resisted by patients when it encroached on their freedom to talk about other factors...patients wanted the mental health treatment to be separate and distinct from their physical health management' (Knowles et al., 2015)</p>		<p><i>'Easier disposal route encourages detection... already I'm more enthusiastic about talking about (depression) and approaching it... because I feel I have something to give now' (Knowles et al., 2013)</i></p>	
Enhanced communication		Enhanced communication	
<p>Breakdown in communication:</p> <p>'Direct contact between CM and GP seemed to be the exception, rather than the rule' (Coupe et al., 2014)</p> <p>Communication methods not patient centred:</p> <p>'Many described patients who did not really understand why they had been referred to the study, as they did not consider themselves "depressed."' (Oishi et al., 2003)</p> <p>Lack of shared location and system:</p> <p>'Development of ad hoc communication systems – email, messaging via EHR (electronic health record) system, telephone calls, and brief in-person meetings. Miscommunication due to language barriers, constraints of EHR, and patient confidentiality limitations.' (Eghaneyan et al., 2014)</p>	<p>Inner setting:- (networks and communications)</p> <p>Outer setting:- (Patient needs and resources)</p> <p>Inner setting:- (Networks and communications)</p>	<p>Colocation:</p> <p>'Co-location within GP practices could bring more opportunities for collaboration with GPs' (Coupe et al., 2014)</p> <p>Shared systems and pathways:</p> <p>'Collaborative care framework facilitated delivery of mental health care on a more acceptable, less stigmatised way' ((Knowles et al., 2015)</p> <p>'Consolidated physical and mental clinical records'. (Knowles et al., 2013)</p>	<p>Inner setting:- (networks and communications)</p> <p>Inner setting:- (Networks and communications)</p>

No access to supervision and support: <i>Need for a well supervised team of recognised experts in mental and physical health, rather than nurses alone. (Knowles et al., 2015)</i>	Inner setting:- (Implementation climate: goals and feedback)	Access to supervision and support: <i>'Well-structured, weekly scheduled supervision sessions' (Coupe et al., 2014)</i>	Inner setting:- (Implementation climate: goals and feedback)
Scheduled follow up		Scheduled follow up	
Style of appointment: <i>'It is not always private enough for a phone call at home' (Simpson et al., 2007)</i>	Intervention:- (Adaptability)	Style of appointment: <i>'Some patients found the phone calls convenient as they did not have to find the time to come to an appointment in the surgery.' (Simpson et al., 2007)</i> <i>'Face-to-face contact was preferred to telephone consultations, unlike studies from the US.' (Chew-Graham et al., 2007)</i> Value of follow ups: <i>'Having someone dedicated to proactively follow-up of patients, which can substantially improve the continuity and effectiveness of care' (Blasinsky et al., 2006)</i>	Outer setting:- (Patient need and resources)
Emerging themes:			
Sustainability		Sustainability	
Lack of ongoing funding: <i>Continued funding... was a major barrier to sustainability across all 7 study sites' (Blasinsky et</i>	Intervention :- (Cost)	Teams ongoing support needs: <i>Respondents cited ongoing support provided by the research team, including regular site visits and addressing implementation challenges, as essential</i>	Intervention:- (Adaptability)

<p><i>al., 2006)</i></p> <p><i>'the main barrier to sustainability was financial'</i> (Kathol et al., 2010)</p> <p>Research incentives:</p> <p><i>'GPs saw the main benefit of participating in the CADET trial as the potential for increased support in their management of patients with depression in the context of limited access to psychological therapy'. (Coupe et al., 2014)</i></p>	<p>Outer setting:- (External policies and incentives)</p>	<p>to implementing TeamCare. (Wozniak et al., 2015)</p>	
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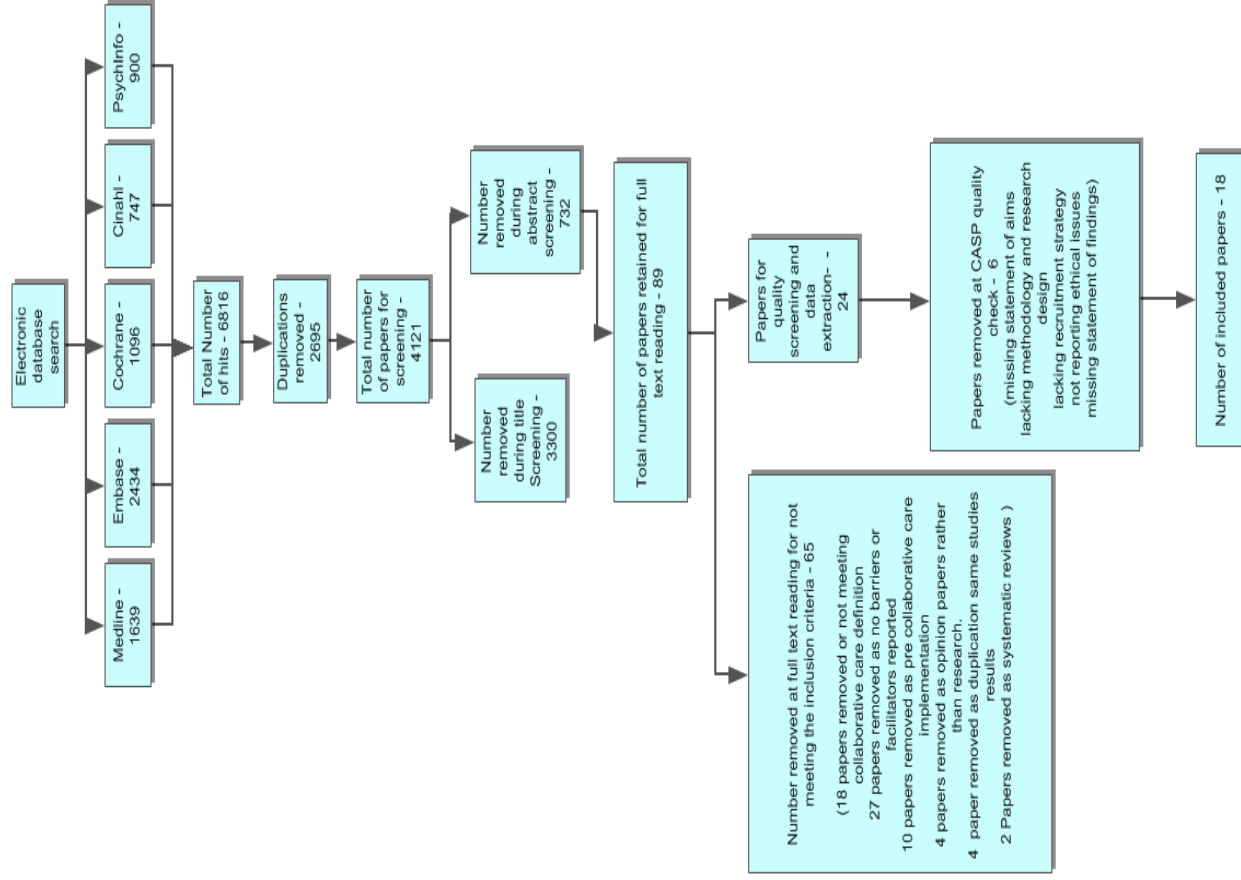


Figure 1:- PRISMA flow diagram

Highlights

- Case managers are key to successful implementation of Collaborative Care
- Current siloed working inhibits Collaborative Care
- Successful implementation starts with Commissioners
- Clinical supervision is essential for role expansion