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**SYSTEMATIC REVIEW ON SERVICE LINKAGES IN
PRIMARY MENTAL HEALTH CARE: INFORMING
AUSTRALIAN POLICY AND PRACTICE**

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* Please note that the above are not responsible for any errors of fact or interpretation in this review.

GLOSSARY OF TERMS

ADHD	Attention Deficit Hyperactivity Disorder
AD	Antidepressants
AGPN	Australian General Practice Network
ATAPS	Access to Allied Psychological Services
BHS	Behaviour Health Specialist
BOiMH	Better Outcomes in Mental Health
CAMHS	Child and Adolescent Mental Health Services
CBOC	Community Based Outpatient Clinics
CBT	Cognitive Behavioural Therapy
CC	Collaborative Care
CL	Consultation Liaison
CLIPP	Consultation Liaison in Psychiatry Program
CLO	Clinical Liaison Officer
CM	Care Management/Manager
CMHT	Community Mental Health Team
CMHW	Community Mental Health Worker
CMHN	Community Mental Health Nurse
CNS	Clinical Nurse Specialist
COAG	Council of Australian Governments
CoL	Co-location
CPN	Community Psychiatric Nurse
DCM	Depression Care Manager
DCS	Depression Care Specialist
DGP	Divisions of General Practice
EC	Enhanced Communication
ER	Enhanced Referral
FP	Family Physician
GMHW	Graduate Mental Health Worker
GP	General Practitioner
HC	Health Care
ICS	Integrated Care Specialist
LW	Link Worker
MBS	Medical Benefits Schedule
MH	Mental Health
MHC	Mental Health Care
MHN	Mental Health Nurse
MHW	Mental Health Worker
MoU	Memorandum of Understanding
NACMH	National Advisory Committee on Mental Health
NGO	Non Governmental Organisation
PC	Primary Care
PMHW	Primary Mental Health Worker
PCP	Primary Care Physician
PHC	Primary Health Care
PMHC	Primary Mental Health Care
Prot	Protocol
PST-PC	Problem Solving Treatment in Primary Care
QI	Quality Improvement
RCT	Randomised Control Trial
SA	Substance Abuse
SC	Stepped Care
SMI	Serious Mental Illness
TAG	Threshold Assessment Grid
UC	Usual Care
VA	Veteran Affairs
VMO	Visiting Medical Officer

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1. BACKGROUND AND RATIONALE

INTRODUCTION

Mental health problems affect many Australians. The 2007 National Survey of Mental Health and Wellbeing (2008) found that one in five Australians experienced a mental disorder in the year before the survey. Mental disorders are the largest cause of disability in Australia and account for about 30 percent of the burden of non-fatal disease (Fourth National Mental Health Plan 2009). Primary care plays a key role in the care of those experiencing mental health problems and mental illness with General Practitioners often being the first point of call to the system of care (Andrews 2006). People who consult their General Practitioner (GP) about a mental health problem may be treated by their GP or referred for specialist psychological treatment. Referrals may be to State-funded services, or to Commonwealth-funded services. In addition, there are a range of referral options for rural and Indigenous populations (Moulding 2007). "In many areas, primary care must be self-reliant as access to more specialist services is limited by distance or availability" (Fourth National Mental Health Plan 2009:45). GPs are also well positioned to identify co-morbidities, including physical health and substance use problems. Early identification of mental health problems may enable earlier intervention and subsequently better outcomes.

FOCUS OF THE STUDY

Australian national policies have advocated linkages and collaboration (partnerships) between mental health, generalist primary health, specialist medical and other human services across government and non-government sectors for many years. Recent policies include the National Social and Emotional Wellbeing Framework (2004), the Council of Australian Government (COAG) National Action Plan of Mental Health (2006), and the Fourth National Mental Health Plan (2009). The First National Mental Health Plan (1992) proposed structural changes in the delivery of mental health services, and successive reports have noted the importance of partnerships between sectors. The Fourth National Mental Health Plan (2009:66) concluded that "in the context of the work by the National Health and Hospitals Reform Commission (NHHRC), there is currently an opportunity for further development of mental health in primary care, and its integration with the specialist sector".

Partnership as a form of service organisation can be problematic, however, necessitating teamwork, coordination and negotiation of stakeholder interests to achieve optimal performance. This narrative systematic review arises from the emphasis on partnerships in relation to primary care advocated in recent plans and policies in order to understand what partnership (linkages) lead to effective outcomes and how partnerships can be developed and sustained.

PRIMARY MENTAL HEALTH CARE

Since the First National Mental Health Plan there has been considerable reform to mental health care in Australia, including those policies relating to collaboration (partnerships) originating in primary health care. It is helpful to provide a clear definition of what is understood by primary health care and how primary mental health care fits within the health care framework. The Australian Primary Health Care Research Institute (APHCRI) (2008) defines primary health care as health care that is:

Socially appropriate, universally accessible, scientifically sound first level care provided by a suitably trained workforce supported by integrated referral systems and in a way that gives priority to those most need, maximises community and individual self-reliance and participation and involves collaboration with other sectors.

It includes the following: health promotion; illness prevention; care of the sick; advocacy; and community development.

Butler (2008) argues that the rationale for providing specialty mental health care in the primary care setting is driven by the following research evidence. Often people with mental health problems do not receive treatment; GPs as first point of contact are best positioned to recognise people with mental health problems because they are more likely to see a GP each year rather than a mental health specialist; attending the general practice is usually not accompanied by social stigma; and many people with mental health problems have co-morbid physical health problems.

For this review Primary Mental Health Care (PMHC) is defined as:

1. Multi-faceted and comprising first level of contact, providing continuous care in a non-specialist setting. As mental disorders are often chronic, PMHC must encompass recovery; rehabilitation and ongoing support and the provider may be engaged over a long period;
2. Including early intervention, treatment, health education and promotion and integrated care to individuals as well as a pathway to secondary and/or specialist care;
3. Involving linkages with and referral to other services (both health e.g. to a psychiatrist, and non-health e.g. to a welfare service). This can occur through other referral pathways including state-funded mental health services, the Medicare Benefits Schedule (Better Access) Initiative and Better Outcomes in Mental Health Care;
4. Case-based care with individuals involving a primary health care clinician (while PMHC can include population wide health promotion, advocacy and community development, these are not the focus of this review); and
5. Including providers such as a GP, community health or mental health staff in the public or private sector.

Models of integration can be differentiated based upon how they define the collaborative care process. Collaborative mental health care must include linkages between primary care providers and mental health providers or community services, but as Butler (2008) notes, models of care vary in the nature of these linkages and the strategies used. Our definition of a Primary Mental Health Care linkage includes the following:

1. The linkages concern the provision of a clinical primary health care service not broader activity such as advocacy, health promotion or community development;
2. One element of the linkage takes place in a primary health care setting;
3. The linkage must involve a primary health care practitioner (e.g. GP, community nurse, counsellor, psychologist, Community Mental Health Team (CMHT) member, practice nurse etc.);
4. The other part(s) of the linkage can involve any health service tier (eg psychiatrist in a tertiary hospital etc), private practitioner, or a non-health agency (e.g. housing, education, welfare etc.); and
5. The linkage is two-way and excludes a single referral with no evidence of feedback or continuing relationship.

POLICES TO IMPROVE LINKAGES BETWEEN PRIMARY AND SPECIALIST MENTAL HEALTH SERVICES

In Australia, the National Mental Health Policy (1992) aimed to move the locus of care from institutions to the community and deliver mental health care in mainstream health and welfare services. This was reinforced by the National Inquiry into the Human Rights of People with Mental Illness (1993) which raised public awareness about rights and mental illness and

its treatment. Succeeding reports emphasised the importance of partnerships between sectors including the need for links within the wider health service. The Second National Mental Health Plan (1998) for example highlighted the need to establish formal partnership arrangements through policies and funding. The National Mental Health Strategy (2004) identified a need for the development of mechanisms for joint planning and coordination of services and the development of links and collaboration between mental health and other health services. The Strategy is articulated in several key documents including the National Mental Health Policy (2008), the Fourth National Mental Health Plan (2009), the Council of Australian Governments (COAG) National Action Plan for Mental Health (2006), and the Mental Health Statement of Rights and Responsibilities (1991). The National Action Plan on Mental Health (COAG 2006) provides a strategic framework that emphasises coordination and collaboration between providers and identified key priorities including:

- Social inclusion - e.g. through stable accommodation, employment, education, support with living skills as well as social activities in the community;
- Expansion of funding to services delivered by psychiatrists, GPs, psychologists, mental health nurses and other allied health professionals;
- Provisions of emergency and crisis responses;
- Early intervention programs; and
- Greater access to telephone counselling and advisory services.

Access to, and collaboration between support services, including meaningful occupation and living environments, were also identified in the National Health and Hospitals Reform Commission Final Report (2009), as vital aspects in the recovery and self determination of people with mental illness. The Fourth National Mental Health Plan further notes that the original concepts of human rights have evolved to incorporate contemporary concepts of social inclusion, community participation, partnerships and pathways to care (2009:17-18):

People should feel a valued part of their community, and be able to exert choice in where and how they live. Some groups are at risk of entrenched social exclusion, including those with chronic and persistent mental illness and mental disorders. Developing pathways that support community participation and that allow movement towards greater independence minimises the risk of social exclusion.

Therefore, policies and initiatives continue to recognise the importance of the formation of effective linkages between community support services as well as expert clinical services that are culturally and socially relevant. Key Australian policies and related documents are summarised in Appendix 1.

It is less clear, however, how these linkages are to be introduced, sustained and made to work effectively. The focus of this review is to explore the evidence surrounding primary mental health care linkages within the international literature, to ascertain the perspectives of key informants, and to consider how such linkages might be further developed in Australia.

The questions below are the focus of the review and form the structure of this report.

RESEARCH QUESTIONS

1. What linkage strategies and combinations of linkages in primary mental health care have proven to be effective?
2. What is known about the factors that enable the development and sustainability of these strategies?
3. What processes would assist managers to implement such strategies?

Chapter two describes the study methodology with a particular focus on a search and analysis of the published literature. The following chapters describe the study results and their possible implications for policy and practice in Australia.

Note on terminology

The term used to describe a person with a mental disorder who receives treatment varies in the literature. Patients, clients and consumers are terms equally used and as such we have chosen to use the term provided in the source document.

2. METHODOLOGY

This review consisted of an ongoing process of consultations, a review of Australian policy and a systematic review of the peer reviewed published literature. This process allowed for continuous testing of the emerging findings and an informed consideration of the application in the Australian setting.

CONSULTATIONS

The research team consulted informants with particular expertise about primary mental health care services including clinicians, consumer representatives, policy developers and service managers. This was to ensure that the review was well informed and of practical use. The research team was deliberately set up to provide a balance of academic, policy, clinical and service perspectives. We formed a reference group and conducted consultations in three phases:

Initial interviews

The first interview adopted a broad focus on the following question:

What do you consider has worked well and has not worked well to improve service linkages in primary mental health care in Australia?

- Between the service sectors (mental health services, general practice, community health, non-government services etc);
- Related to referral arrangements; and
- For different priority groups.

Reference group meetings

Two face-to-face reference group meetings were held to guide the review by advising on matters of the Australian health care context, review methods and initial findings.

Further interviews and final reference group

Further interviews and a final 3rd reference group were conducted to discuss the review findings, assist in interpretation of these findings, recommend specific decision support strategies and help to develop recommendations for action to improve service linkages.

LITERATURE SEARCH

A comprehensive search of biomedical and psychological/social databases was conducted to find published studies and systematic reviews that have examined primary mental health care linkages and linkage strategies. Databases were chosen on the basis of their coverage of mental health, primary health, psychosocial, health service and consumer content. They included MEDLINE, Embase, Psychinfo, Cinahl, ProQuest, Sociological abstracts, Family and Society plus, Meditext and all Evidence Based Medicine (EBM) reviews. A range of search terms were used for each of the three major subject components of the review question (mental health, primary care, and descriptors relating to types of linkages and linkage strategies). Search terms were adapted for each database based on an initial Medline search strategy, and whether the database supported Medical Subject Headings (MeSH) or used other indexing terms (Appendix 2). The years 1998-2009 were chosen as an appropriate timeframe for the search and although arbitrary, were considered appropriate for the research question. The search was completed in March 2009 and citations from the search were managed using Endnote bibliographic software.

INCLUSION/EXCLUSION CRITERIA

To ensure that the methods for dealing with the search results were 'systematic' and consistent across different team members, the operational definitions for primary mental health care and primary mental health care linkages (page 9) formed the basis for the inclusion/exclusion criteria. The inclusion criteria were developed by the research team in consultation with the reference group and applied to all citations. Citations were included if:

1. They met the operational definitions of primary mental health care *and* primary mental health care linkage/s;
2. The study provided some evidence about the factors which improve linkages (collaboration, partnership/integrated models etc), based on known benefit (patient benefit or health gain), improvement in service provision, provider satisfaction or consumer satisfaction;
3. The study was conducted in Australia, or in a country with a comparable health system (New Zealand, Canada, The European Community, United States) and the abstract/full article was available in English; and
4. The study was of analytic (randomized and controlled trials, cohort studies, case control studies, pre/post) or descriptive design (surveys, questionnaires, audits, case studies etc).

Citations were excluded if they did not meet all of the above criteria or where it was not clear that a research program or intervention had taken place. The latter included commentary, editorials, literature reviews and articles based on personal opinion or experience.

SEARCH RESULTS AND STUDY SELECTION

The results of the search process are presented in Diagram 1. The initial database search retrieved 2189 citations of which 372 were identified as duplicate publications, leaving 1817 citations to be further reviewed.

Round 1 - Title assessment

Two people (LH and SP) independently reviewed all titles and abstracts. Through joint discussion, all citations were classified as 'excluded', 'included' or 'unclear'. Citations were excluded in round one if they were not a study, not from a comparable country or not about a mental health linkage. 'Unclear' citations were those with insufficient information for assessment or ambiguity regarding scope. The full article was obtained for 370 citations.

Round 2 - Full paper assessment

Based on assessment of the full paper, citations were excluded in round two if they were not a study, not from a comparable country, not a two way linkage or provided no evidence of benefit in the form of health gain, service improvement or satisfaction. All full text articles were assessed by one of the research team. Those previously marked as 'unclear' were re-classified as excluded, included or 'unclear'. Where a classification of 'unclear' was made, a second person assessed the paper and a decision was made to include or exclude the paper. For papers previously marked as 'included', these were also reassessed by another team member and re-classified as 'excluded', 'included' or 'unclear'. Where a classification of 'excluded' or 'unclear' was made, a second person assessed the paper and a decision was made to include or exclude the paper (Diagram 2).

DATA EXTRACTION

Data extraction was undertaken on 183 citations using a template developed specifically for the project (Appendix 3). Team members (JF, DP, LH and SP) independently extracted data for a proportion of papers and a second team member checked, and added additional information if required. Where there was disagreement or uncertainty, individual papers were

either discussed by the group at face-to-face meetings or by a third person and CI (JF, DP). An additional 42 papers were excluded during this phase of the assessment. In addition, citations relating to the same study were identified during this process to allow the collation of study specific data.

Diagram 1. Search results and process for selecting primary studies

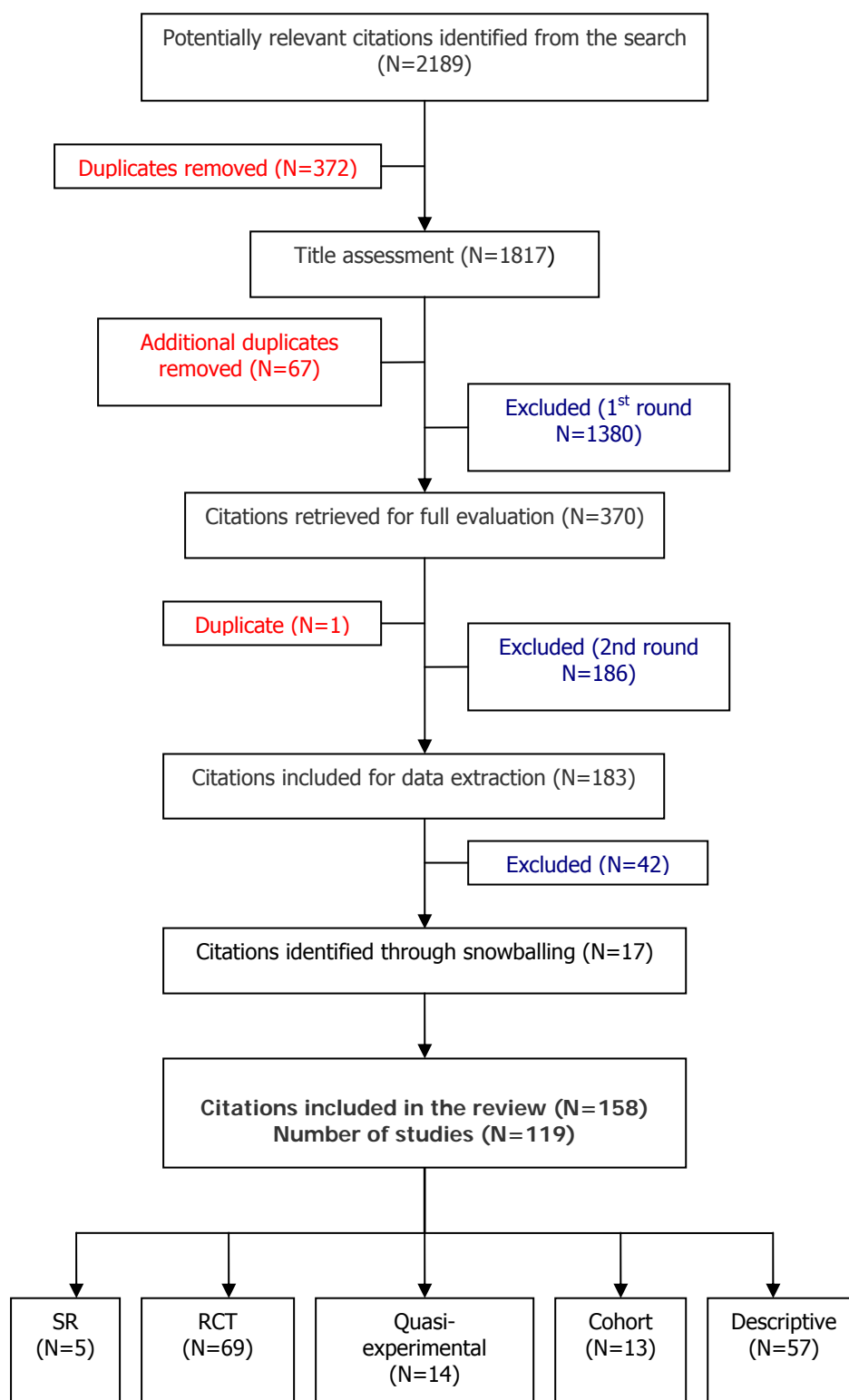
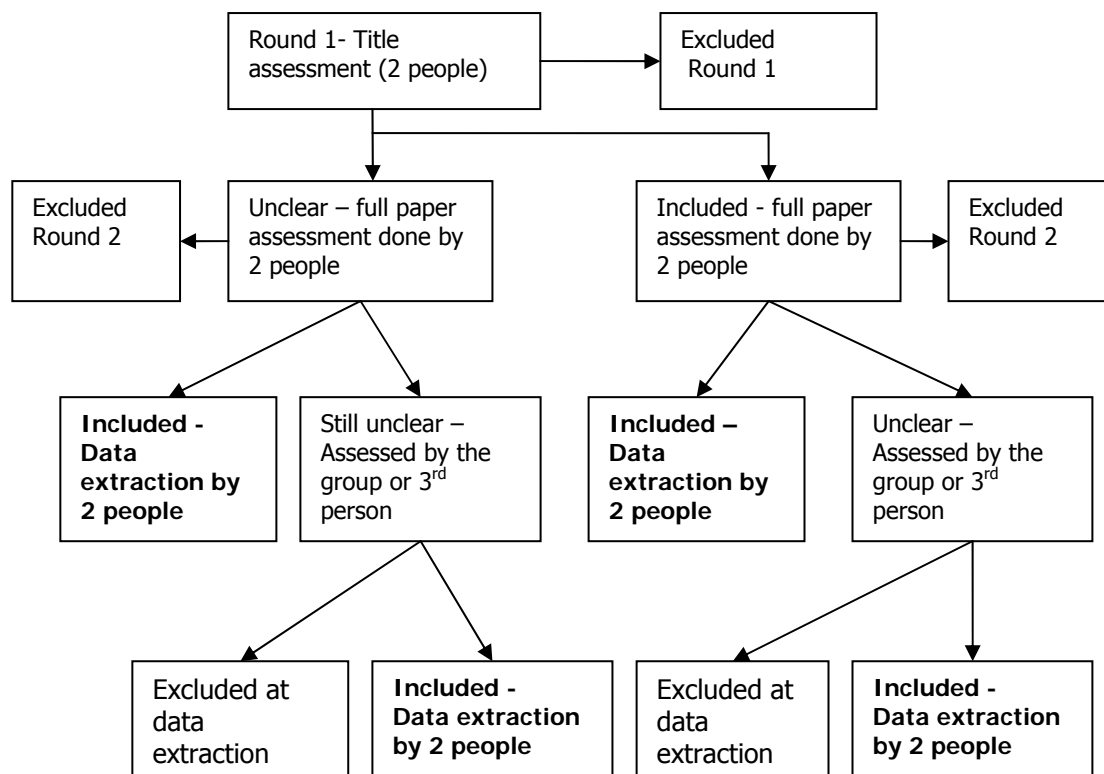


Diagram 2. Application of inclusion/exclusion criteria



SNOWBALLING

Reference lists and included trials from systematic reviews were assessed during snowballing, and a further 39 citations identified for assessment. Two researchers (SP & JF) assessed these citations, resulting in a further 17 being included in the review.

ANALYSIS

An Access database was designed which allowed direct import of all data contained on each data extraction template. Due to the range of study types and the amount of data, analysis was conducted using descriptive statistics and narrative content analysis. An analytical framework was developed to assist with the synthesis of data based on the content of the linkage strategies described in the included studies. This framework is further described on page 18.

A range of outcomes were explored in this review. To answer question one as to what linkage strategies have proven effective, only randomised evidence was used. Particular outcomes of interest were those where a positive clinical, organisational or economic benefit could be shown. All study types were used to explore the context around the development and sustainability of linkage strategies.

3. RESULTS

OVERVIEW OF INCLUDED STUDIES

In total 158 citations were included in the review as a result of the literature search (5 SRs, 69 RCTs, 14 pre/post, 13 cohort, 57 descriptive). These reported on 119 separate studies (Appendix 4).

Studies from the UK and USA accounted for 80 of the 119 studies. Twenty-one studies came from Australia, representing all states. The study population was only recorded where a patient group was the unit of analysis. This excludes those studies where providers such as GPs or mental health workers were the main focus of the study. Most studies concerned a general adult population with the next largest categories being elderly (10) or adolescent populations (9). Only 12% of studies were conducted in rural or remote areas, 41% in urban settings and for 39%, the setting was not described. The year of publication was examined for all studies included in this review. There was an increase in the number of studies published during 2002-2005, however it should be noted that our search was conducted in early 2009, and as such, all publications for that year are not accounted for (Table 1).

Table 1. Country, setting and year of publication of included studies

Country	No of studies
Australia	21
Canada	8
EEC	4
NZ	1
UK	40
USA	40
NA	5
Setting	No of studies
Rural/remote	2
Rural	10
remote	2
Urban	49
Mixed	11
Not described	45
Year of publication	No of studies
1998-2001	22
2002-2005	53
2006-2009	44

The 'condition' category was not mutually exclusive but depression and/or anxiety were both well studied. Sixteen studies dealt with psychosis including first presentation psychosis and early intervention, serious mental illness (SMI) or chronic mental health conditions or mixed conditions with psychotic features (Table 2).

Table 2. The mental health conditions studied

Condition	No of studies
Anxiety	12
Depression	38
Other mood disorder	3
Psychosis	16
Eating disorder	1
Dual diagnosis	1
Mixed psychiatric conditions	10
Not specified	39
Other	23
Total	145

The 1st partner of a linkage was more likely to be a PC provider and the second a specialist (usually a psychiatrist), a psychologist or nurse. The 2nd part of the linkage also tended to involve more people than the first. The 'other' category in part 2 includes trial specific roles e.g. Depression Care Specialist, dieticians and pharmacists (Table 3).

Table 3. Disciplines involved in the linkage

Participant 1st part	Number of studies	Participant 2nd Part	Number of studies
GP/PCP/FP	104	G/PCP/FP	8
Medical special	3	Medical Special	54
Psychiatrist	3	Psych	56
Child Psychiatrist	0	Child Psychiatrist	1
Geriatrician	0	Geriatrician	0
Paediatrician	0	Paediatrician	1
Other	17	Other	57
Psychologist	1	Psychologist	27
General Psychologist	0	General Psychologist	7
Clinical Psychologist	1	Clinical Psychologist	8
Nurse	6	Nurse	23
Practice Nurse	1	Practice Nurse	1
Community Nurse	0	Community Nurse	1
Hospital Nurse	0	Hospital Nurse	0
MH Nurse	3	MH Nurse	19
Nurse Practitioner	2	Nurse Practitioner	1
Counsellor	1	Counsellor	10
Social Worker	1	Social Worker	9
MH Worker	2	MH worker	13
Total	145	Total	296

LINK STRATEGIES IDENTIFIED IN THE PEER REVIEWED LITERATURE

During data extraction all studies were coded according to the individual elements of the linkage strategy reported. Codes were set 'a priori' and based on the research team's knowledge and prior reading. During data synthesis this coding was revised for various reasons. Studies with numerous publications did not always describe the linkage strategy identically across publications, resulting in members coding the same study differently. Some terms used to describe linkage strategies such as collaborative care and integrated care were also used interchangeably and were therefore open to varying interpretations. Also, team members had different interpretations about the meaning of particular strategies.

In defining collaborative care we drew on the definitions from the peer reviewed literature. Katon's (2003) definition includes the integration of care by a care manager into the primary care setting who provides education and support to the patient and helps to achieve a shared care approach between the primary care physician and mental health specialist. Bower (2006) suggests that collaboration comprises roles such as case management and systems to encourage closer liaison between primary care clinicians and mental health specialists; plus methods to gather and share information on patient progress. A range of collaborative care theories also exist and include models in which patients, their carers and various health care providers "work together to promote mental health and provide more coordinated and effective services for individuals with mental health needs" (Gagne 2005:1). Doherty (1995)

describes five levels of collaborative care ranging from minimal to close collaboration. Minimal collaboration takes place when health care practitioners are in different settings with little interaction (eg one-way referral with limited or no communication) while fully integrated systems include co-location and shared responsibility for patient care.

The main recurring linkage elements found in the studies were defined by the research team and discussed with the reference group. Two researchers coded all studies using the 'micro' coding system. Because most studies used multiple strategies, this coding system was further refined to simplify the fifty different combinations of linkage strategies identified. The four 'macro' codes were subsequently developed to group sets of common components found in the 'micro' coding (Table 4). Some studies were coded context (CONTX) if there was no intervention but the paper added useful information to the review.

Table 4. Classification of the linkage strategies found in the review

Macro code	Micro code	Code	Definition
Collaborative Care	Link worker	LW	Trained/ untrained - role involves connecting 2+ services - may also involve some treatment - does not include an existing employed practice nurse in extended role if there is no linkage work outside current general practice. Includes a process to clarify role between LW and others.
	Co-location	CoL	Face-to-face not virtual co-location- could lead to improved practitioner communication. Also includes MH worker (nurse, psychologist) located in primary care practice. Must be providing treatment, not simply an administrative arrangement.
	Consultation liaison	CL	A practitioner connection where P1 has an explicit arrangement to provide advice about ongoing care to P2 that is apart from the usual referral relationship – it may involve P1 receiving referral letters, making an assessment & providing some treatment. Includes the specialists' advice to the primary care practitioner regarding treatment (either directly or via another worker e.g. LW). It does not involve the transfer of the patient from primary care.
	Care management	CM	The coordination of care – it can include assessment, review and follow-up and a care management plan - linking with other services, or defined care pathway.
Guidelines	Protocols	Prot	An agreed process of patient treatment or patient management (but not referral, stepped care or care management plan) for specified conditions – e.g. evidenced based algorithms such as in pharmacotherapy, Problem Solving Therapy in Primary Care (PST-PC) etc.
	Stepped care	SC	A formal treatment escalation or de-escalation procedure to involve other providers based on specified patient outcomes.
Communication systems	Enhanced communication	EC	A formal process with feedback -includes meetings, shared medical records, patient held records, consistent process for notifications, standardised letters, referrals and reports. May includes a worker from outside the practice attending the practice - e.g. to attend meetings.
	Enhanced referral	ER	Expedited access, explicit referral criteria &/or process, which can include process for emergencies.
	Electronic communication system	ECS	Telephone or video communication between 2+ people with at least 2 practitioners not in same room - may or may not include patients. Includes 'telemedicine'.
Service agreement	Service or formal work agreement	MoU	Formalised contract or funding mechanism about how services will work together.

QUESTION ONE

What linkage strategies and combinations of linkages in primary mental health care have proven to be effective?

A meta-analysis could not be conducted for this review due to inconsistent categories and measurements in the studies. To ascertain the effectiveness of the linkage interventions we concentrated on reported clinical, organisational and economic outcomes. These are detailed below. While we have collected data on patient and provider satisfaction, these have not yet been synthesised. Our reference group suggested that we focus first on indicators of health and service change before moving onto satisfaction indicators.

To summarise the evidence for these outcomes, the results of all 42 randomised controlled studies (RCTs) (76 published papers) were analysed to determine whether they reported a statistically significant positive clinical, organisational or economic outcome according to the micro link strategy they contained. This was based on whether the intervention comprised a single strategy or was one of a combination of strategies. Only one single strategy study (care management) reported a statistically significant positive result (clinical). Among the RCTs showing a statistically significant positive clinical or organisational outcome, consultation liaison, care management, protocol based care and enhanced communication were most common (Table 5).

Table 5. Number of randomised studies reporting statistically significant outcomes according to micro link strategy (where the strategy occurs alone or as part of a combination strategy)

Linkage Strategy Single (N=6 studies) and combination strategy (N=36 studies)	Clinical (number)	Organisational (number)	Economic (number)
Link worker	8	5	3
CoL	6	4	3
CL	15	10	5
CM	18*	11	8
Protocol	15	7	6
Stepped care	3	2	1
Enhanced communication	17	12	5
Enhanced referral	3	5	0
Electronic communication systems	1	1	0
Service or formal work agreement	0	0	0

* Contains one study which reported a positive clinical outcome for care management when used as a single linkage strategy

The RCTs that attempted to measure effectiveness and were able to show a statistically significant effect were also analysed according to the 'macro' link strategy they employed. The combination of collaborative care plus guideline plus communication was the most commonly used macro-strategy. Studies reporting this combination reported a higher proportion of positive clinical and organisational outcomes (Table 6).

Table 6. Number of randomised studies by macro link strategy - number reporting a statistically significant positive outcome/the number assessing that outcome.

Strategy	Number of studies	Clinical	Organisational	Economic
Collaborative Care only	6	2/5	1/5	1/3
Collaborative Care + Guidelines	5	3/5	1/2	2/3
Collaborative Care + Communication systems	10	5/9	5/5	3/5
Collaborative Care + Service Agreement	0	-	-	-
Collaborative Care + Guideline + Communication systems	16	13/16	7/9	3/4
Collaborative Care + Communication systems + Service Agreement	1	-	-	-
Communication systems only	4	0/2	1/4	0/1
Service agreement only	0	-	-	-
Total	42	23/37	15/25	9/16

CLINICAL EFFECTIVENESS

We examined all systematic reviews and RCTs reporting statistically significant positive results for clinical outcomes. Included were changes and improvements where validated tools were used to assess clinical outcomes associated with mental health conditions (mood, anxiety, psychiatric symptoms etc); physical outcomes, social functioning and quality of life. Physical outcomes were included due to the propensity for people with mental health issues to have co-morbid chronic or debilitating physical symptomatology.

EVIDENCE FROM TWO SYSTEMATIC REVIEWS

Bower (2006) assessed British Association for Counselling and Psychotherapy (BACP) accredited counsellors located in PC versus usual care. The review included eight trials but only six of these were used to assess clinical effectiveness. Significantly greater clinical effectiveness was found in the counselling group compared with usual care in the short-term (1-6 months) based on psychological symptom scores (standardised mean difference -0.28, 95% CI -0.43 to -0.13, n= 772). There was no difference at 12 months. There was also no difference between patients receiving counselling and those receiving usual care in terms of overall social function at short, long or very long time-points.

The Gilbody review (2006) included 37 trials of patients with depression randomised to either collaborative care or usual primary care. Collaborative care was defined as "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". To be included trials had to include two of the three professional types. Depression outcomes were improved at six months (SMD, 0.25; 95% CI, 0.18-0.32) and evidence of longer-term benefit was found for up to five years (SMD, 0.15; 95% CI, 0.001-0.31). The main determinants of effect size were medication compliance and the professional background and method of supervision of case managers. The use of regular and planned supervision of the case manager, usually by a psychiatrist, was related to a more positive clinical outcome. In addition, a cumulative meta-analysis showed that sufficient evidence had emerged by 2000 to demonstrate the statistically significant benefit of collaborative care. It should be noted, however, that this was only the case when large US studies were included in the analysis. The effect disappeared when these were removed from the analysis.

In the trials included in both the Bower and Gilbody reviews (Appendix 5), there was little description of the components of usual care. As this was not standardised, the therapeutic encounter between the patient and GP cannot be known.

EVIDENCE FROM RANDOMISED CONTROLLED TRIALS

Thirty-seven studies assessed clinical outcomes and 23 (62%) reported some statistically significant positive result (Appendix 6). The macro-strategy most assessed was collaborative care plus guideline directed treatment (treatment algorithm, stepped care or treatment escalation protocol) plus communication systems. No studies assessed the use of a service agreement alone and combinations that included service agreements were few.

The largest proportion of RCTs (13/27) to report a statistically significant positive clinical effect concerned patients with depression (11 trials depression and/or dysthymia; 2 trials of depression with an associated risk of drinking). Of these, nine trials involved a general adult population and four a population aged 60yrs or over. In the depression trials, the most common linkage strategy was collaborative care plus guidelines plus communication systems (8/13 studies).

This same linkage strategy was commonly shown to produce clinical benefits in 13/23 randomised studies where a clinical benefit was found. Positive clinical benefit was generally measured by one, or more of the following:

- 1) Depression severity - (a change in score on a validated tool from baseline and measured in intervals of three to six months with follow up of anywhere between three months and two years).
- 2) Patient response – (a 50% reduction in scores on a validated tool over similar timeframes).
- 3) Mental health, social and physical functioning (assessed on a range of validated tools and varying timeframes).

The remaining 10 RCTs concerned disorders such as bipolar disorder (1), panic disorder (3), serious mental illness (2), and long term mental illness (1) and mixed disorders (3).

Of the trials reporting a positive clinical effect, 20 (87%) compared the intervention with 'usual care'. Of these, 30% did not adequately describe usual care and for the others, no standardised definition of usual care was provided. For the most part usual care involved the following components: the PCP received the results of screening/diagnosis (5); patients were notified of screening results (1); guideline specific treatment was promoted including annual screening +/- a treatment plan (3); other clinical information was provided (2); and patients could self refer to MH services (1).

The two major RCTs included in this review are IMPACT and PRISM-E. Both are large, multi-centred, rigorous and widely reported trials conducted in the USA for older people with depression.

IMPACT assessed a Depression Care Specialist (DCS) who was a nurse or psychologist with special study related training, supervised by a psychiatrist and PC expert. The DCS role included assessment, education, care management, implementing a short behavioral health care intervention (problem solving treatment) and developing a relapse prevention plan. The DCS worked with patients and the primary care providers over a 12 month period to develop a treatment plan and undertake frequent monitoring. The treatment plan followed an algorithm (stepped care) whereby the patient showing no improvement was discussed at the IMPACT team meeting and moved to step two treatments. Step two was to augment or change medications, change to psychotherapy, or receive a consultation with a psychiatrist and have other treatments considered.

Patients receiving the IMPACT intervention fared significantly better than controls at every time-point and on every outcome, except overall functional impairment at 24 months. The greatest differences were at 12 months, with differences in use of counselling or specialty mental health care observed during the intervention disappearing after 12 months. Significantly higher rates of depression treatment at 18 and 24 months were accounted for entirely by pharmacotherapy.

PRISM-E compared two linked models - an on-site integrated care clinic versus an off-site specialty referral service. The integrated clinic (IC) provided a mental health and substance abuse specialists co-located within primary care. The clinic provided no signage so it was not evident which service was being used by patients, and the primary care provider kept an active role in treatment. This intervention included: assessment, care planning, counselling, case management, psychotherapy and pharmacological treatment provided by a psychiatrist, psychologist, clinical social worker or nurse, with mental health/substance abuse training, who had verbal or written communication about the treatment plan.

The alternative, enhanced speciality referral (ESR) intervention was referral to a separately located mental health and substance abuse specialist service within two to four weeks. There was a clear referral process and the service also provided coordinated follow up and notification if the first appointment was missed. Transport was provided and also emergency consultations if required. This service was also provided by the same range of licensed providers as in the integrated clinic.

PRISM-E had a shorter follow up (six months) than IMPACT. Depression severity declined in both models used in PRISM-E with a trend toward greater reduction in the ESR model. This was mainly due to the statistically significant reduction in depression severity for the sub-group with major depression in the ESR model versus the IC model.

ORGANISATIONAL EFFECTIVENESS

We looked at all systematic reviews and RCTs reporting statistically significant positive organisational outcomes. We included in this category indicators of treatment adequacy (access to and use of appropriate medications and duration of treatment); effective management (hospitalisation rates, bed days, referral rates to specialty services); treatment engagement (attendance at appointments, time to treatment etc); evidenced based treatment (management according to treatment guidelines); quality improvement and improvement in organisational processes.

EVIDENCE FROM ONE SYSTEMATIC REVIEW

The review by Harkness (2002) showed a positive organisational effect for onsite mental health workers (MHW) providing psychological therapy and psychosocial interventions in PC practices when provided as an addition to usual practice. All MHWs were employed by, or attached to the PCP organisation. This review and meta-analysis included 42 studies and concluded that there was evidence that MHWs caused significant reductions in PCP consultations (SMD -0.17, 95% CI -0.30 to -0.05), psychotropic prescribing (RR 0.67, 95% CI 0.56 to 0.79), prescribing costs (SMD -0.22, 95% CI -0.38 to -0.07), and rates of mental health referral (RR 0.13, 95% CI 0.09 to 0.20) (Appendix 7).

EVIDENCE FROM RANDOMISED CONTROLLED TRIALS

Twenty-five trials assessed organisational outcomes and 15 (60%) reported some statistically significant positive results (Appendix 8).

As with clinical effectiveness, the linkage strategies most often associated with positive organisational outcomes were the combination of collaborative care plus guideline plus communication systems (7/15 studies), closely followed by collaborative care plus communication systems (5/15 studies).

The largest proportion of RCTs (11/15) to show a statistically significant positive organisational effect involved patients with depression (10 trials depression and/or dysthymia and 1 trial of depression with an associated risk of drinking). Of these, seven trials recruited a general adult population, two a population aged 60yrs or more and two a population ranging from 18-80yrs. In the depression trials, collaborative care plus guideline plus communication was the linkage strategy used most often (8/13 studies).

The remaining four trials concerned patients with bipolar disorder (1), serious mental illness (1), long term mental illness (1) and first episode of mental illness (1).

The duration of follow up in all studies ranged from three to 36 months. Of the trials showing a positive organisational effect, 73% compared the intervention with 'usual care'. Usual care was defined in various ways and could involve any, or a combination of the following: the PCP received screening/diagnostic results (2); mental health or psychological services were available (5); guideline specific treatment was promoted including annual screening and/or a treatment plan (1); other clinical or educational material was provided (1); and patients could self refer to MH services (1).

The assessment of organisational outcomes varied across trials. The use of antidepressants (AD) featured highly in the depression trials (8) and was usually assessed by the number of prescriptions filled. Only two trials assessed therapeutic dosage of ADs or length of treatment. Medication compliance and patient reported levels of self-efficacy with AD medication were assessed in one trial each. Hospitalisation rates were assessed in three trials of bipolar disorder, serious mental illness and first episode psychosis respectively. Treatment engagement (number of mental health specialty visits, time to first visit or referral to specialty mental health services) was assessed in four trials, and change in PCP behaviour (asking about suicidal thoughts, offering educational material or assisting with setting self-management goals) in one. Other outcomes assessed were adherence to programs, adherence to guideline initiated treatment and improvements in key areas of practice by PCPs.

Both the IMPACT and PRISM-E trials (described on pages 21 & 22) reported statistically significant organisational outcomes. A higher proportion of IMPACT patients reported taking any AD medication at 12, (P<0.0001); 18 (P<0.0001) and 24 months (P <0.0001), peaking at 12 months (66%). A significantly higher proportion of IMPACT patients also reported using any depression treatment at 12 (P <0.0001), 18 (P<0.0001) and 24 months (P<0.0001) also peaking at 12 months (78%). Additionally, a significantly higher proportion of IMPACT patients reported using any specialty mental health visits or psychotherapy at 12 months (P<0.0001) and greater confidence in managing their depression (self efficacy) at 24 months (P<.0001).

PRISME-E showed higher treatment engagement in the Integrated Care (IC) model versus the Enhanced Specialty Referral (ESR) model for two or more visits (P<0.001), number of visits (P</= 0.001) and time to first MH visit (0-14 days; P<0.001). There was no difference observed beyond 14 days. Rates of engagement were also higher overall in the IC group (P</=0.001) by diagnostic category depression (P</= 0.001 with a greater differential rate for those with milder depression), for at risk alcohol (P= 0.005) and for dual diagnosis (P= 0.001). Rates of engagement progressively decreased with greater distance between PC and MH/SA services for the whole sample (P<0.001) and also among the subset of ESR sites (P=0.02). Assignment to the IC model was also associated with an increased likelihood of treatment engagement when symptom severity was controlled for. Also, severe depression and severe problem drinking were predictive of engagement.

ECONOMIC ANALYSIS

Comment on the economic (cost) data must be made with extreme caution. Studies were conducted over different and sometimes very short timescales and reported different types of

information about the costs and benefits of interventions. The range of costs that were measured varied, from provider-only costs with no attempt to measure benefits in economic terms, to studies that attempted to assess the costs per anxiety or depression-free day (Katon, 2002 and Liu, 2003 respectively). Some studies apportioned intervention development costs by patient while others reported costs such as primary care practice payments separately.

The interpretation of findings as positive outcomes is not without difficulties either. For instance, a study that found no significant difference in costs between the intervention and usual care arms might be interpreted as a positive economic result if the intervention was associated with positive clinical and/or organisational outcomes but not if there was no evidence of such outcomes.

It seems sensible in a broad narrative review to interpret positive economic outcomes as follows:

- Where a significant positive clinical or organisational outcome was reported at reduced or equivalent cost.
- Where a cost effectiveness analysis reported patient benefits (e.g. anxiety free days at a cost similar to that of mainstream treatments (such as standard treatments for high cholesterol).

Studies were classed as having no positive economic outcome where increased or equivalent costs were not accompanied by a significant positive clinical or organisational outcome.

EVIDENCE FROM ONE SYSTEMATIC REVIEW

Bower (2006) found seven trials of the use of counsellors providing psychological therapies in general practice which reported economic data. He concluded that the differences in analyses prevented any pooling of data but that overall costs of counselling appeared similar to the costs of usual care (Appendix 9).

EVIDENCE FROM RANDOMISED CONTROLLED TRIALS

Sixteen studies assessed economic outcomes and nine (>50%) reported some statistically significant positive result (Appendix 10). Five trials examined collaborative care and communication systems and four, collaborative care, guidelines and communications systems.

Three of the four studies of collaborative care, guidelines and communication reported some positive economic findings. In a large study of an intervention to treat bipolar disorder with a three year follow up, Bauer (2006b) reported lower costs for the intervention than for the usual care arm. A study of the treatment of depression with a six month follow-up reported no difference in costs for total treatment between the intervention or usual care groups but significant positive clinical outcomes for depression scores in the care management group (Simon 2000). Again the trial was of short duration with a nine month follow up. Katon (2006) reports a cost effectiveness analysis of an intervention to treat panic disorder with a 12 month follow up. Outpatient costs were US\$492 higher for the intervention group (CL, CM, EC, Prot) than usual care and the incremental outpatient cost per anxiety free day was \$8.40 which was thought to be in line with treatments such as statin use and hypertension treatment. A trial of collaborative team care for depression and/or dysthymia reported by (Hedrick 2003 and Liu 2003) found an additional cost per depression-free day of \$US24 when only depression treatment costs were considered. This was classed as not demonstrating a positive economic outcome although some mainstream treatments may view \$US24 per day as a reasonable cost.

Two of three studies of collaborative care and guidelines reported positive outcomes. In a study of panic disorder, Katon (2002a) reported outpatient costs that were significantly lower for the intervention group and an incremental cost effectiveness ratio of \$-4 per anxiety free day. The IMPACT study of major depression and/or dysthymia reported that the average cost

per patient of the intervention was US\$591, the incremental outpatient cost per depression-free day was \$2.76, and the cost per QALY \$2519, which was thought similar to other mainstream treatments. This study was unusual in reporting a 24 month follow up. A study of co-location and protocols reported increased primary care costs at 12 months due entirely to the costs of counsellors in the intervention (Corney, 2003).

Three studies of collaborative care and communication reported positive economic outcomes. In a study that included care management, use of a link worker and enhanced communication for patients with psychosis, Byng (2004b) reported that medication costs were significantly lower in the intervention group at follow up. Druss (2001) found no significant difference in costs between integrated care and usual care for patients with serious mental illness. Emmanuel (2002) reported that costs were higher for the enhanced liaison intervention group. Katon (2002a) in a study of depression reported that the intervention treatment was more expensive and these costs comprised ADs and outpatient visits.

There were three studies of collaborative care only, but only one found both a positive economic outcome with positive clinical or organisational outcome. Jajoura (2004) found no significant costs differences in a small, 12 month follow up care management intervention which reported positive clinical outcomes

A study of one strategy alone, communication, using a referral improvement form (ER) reported an annual cost of £GB42 per patient but with no positive significant clinical outcome and only a marginally positive organisational outcome (Slade, 2008).

SUB-GROUPS OF INTEREST

In conducting this review, we were also interested in a number of sub-groups. As the review is focused on mental health, we were particularly interested in studies that addressed linkages for people with psychosis as they are a group who would generally have a high need for linked services. We were also interested in looking at linkages outside of the health sector and studies of specific relevance to the Australian context.

PSYCHOSIS STUDIES

Sixteen of the 119 studies concerned psychosis (Appendix 11) and 60% of these came from the UK. Approximately (75%) tested an intervention using a randomised, pre/post, or matched control design. This includes studies of first presentation psychosis and early intervention, studies where the population was described as having serious mental illness (SMI), chronic mental health conditions or mixed conditions with psychotic features. Most studies concerned the management of these conditions in general practice. Roughly half assessed a link worker model or ways of providing comprehensive care management to patients, including referral mechanisms for psychiatric support, liaison with associated health or welfare organisations, and monitoring and follow up, including shared-care registers and patient-held records.

The outcomes varied across these studies. Two studies of early intervention (Gavin 2008, Power 2007) assessed education for GPs to help them identify patients suffering from an initial and recent presentation of psychosis and link them as early as possible to a (specialist) mental health service. Power showed an increase in referral by GPs but no effect on duration of untreated psychosis.

Four studies concerned patients described as having SMI (Brown 2004, Druss 2001, Griswold 2008, Hull 2002). These examined integrated primary care and mental health via clinics, link workers, and care management following acute care in hospital. Little in the way of effectiveness is reported in these studies except anecdotal benefits of improved

communication within co-located services and increased referral to mental health services. Little benefit for patients in terms of symptom reduction or control was reported.

The studies involving patients with chronic mental health conditions (Bruce 1999, Byng 2004 and Horner 2005) assessed a link worker, a facilitated quality improvement program and a GP liaison worker respectively. The UK study described by Byng (Mental Health Link) was possibly the most comprehensive and used a combination of strategies including facilitated meetings between general practice and community mental health workers, a link worker, registers, databases, audits and recall systems and payments to GPs. The patients receiving this intervention had fewer psychiatric relapses ($P=0.22$) and the study reported improved review and recall as well as improved provider satisfaction.

Two studies (Meadows 2007, Rodenburg 2004) looked at the transfer of patients with semi-acute mental illness from a specialist mental health service to the care of GPs. The Meadows study in Victoria (Australia), was a pre/post evaluation of the CLIPP program involving consultation liaison by a psychiatrist, collaborative care and a clinical case register and reminder system to promote follow up of transferred patients. This study showed a modest decline in patient's clinical status at 12 months. A similar program conducted in New Zealand (Rodenburg 2004) involved joint governance arrangements, a primary care liaison worker, education and support for general practice staff, free GP consultations, and the development of interface protocols between primary and secondary care. In contrast this study showed that patients remained stable during the transfer period of 12 months.

A study which examined the use of a shared care register for patients with psychosis (Mc Donough 2003) showed poor results and an RCT which assessed the use of patient-held records (Lester 2003) had no significant effect on primary outcomes or on use of services.

NON-HEALTH SECTOR LINKAGE STUDIES

We found five studies in which a linkage was described with a service or community agency outside of the health sector. Generally however, these were poorly studied and provided little in the way of evidence towards this review (Appendix 12).

Two studies described a linkage with accommodation providers; one a link worker who sought to find accommodation for people in need of housing (Cook 2003), and the other an integrated service for homeless people with SMI (Morrissey 2002). The latter involved MoUs between agencies and co-location of services.

One study (Hunter 2008) examined a link worker from a Child and Adolescent Mental Health Service (CAMHS) who worked with staff in secondary education to raise awareness of mental health issues. This study reported increased awareness of available services and information, and strengthened communication between the services.

An RCT by Lester (2007) included a PC MHW, whose role included the development of a practice folder of local services including health and non-health. This was achieved by visiting each service to obtain in-depth information about what each service provided.

The final study from Australia (Sweeney 2003) explored the perceptions of community care and mental health professionals in a remote Western Australian location about collaboration between services, including a range of social services and mental health specific services. This study reported that the lack of after-hours mental health services can lead to an inappropriate use of other services such as police, and that better links between services were needed.

AUSTRALIAN STUDIES

The Australian studies were predominantly descriptive (surveys, questionnaires and audits) and over 60% measured attitudes, response or feedback from GPs (Appendix 13).

The linkage interventions assessed in the Australian studies were largely about collaborative arrangements between GPs and mental health services or GPs and psychiatrists including consultation liaison services, referral mechanisms and methods to improve communication between the two tiers.

A study by Morley (2007) examined the impact of different models of psychological service provision on patient outcomes under the Access to Allied Psychological Therapies (ATAPS). Projects were included if they had paired or pre/post data and a positive effect was shown over the 29 projects assessed. Pirkis (2006) also looked at the profiles of service delivery among 97 ATAPS projects. This study found that roughly the same number of allied health professionals were providing services from GPs' rooms under co-location arrangements as were providing services from their own rooms, and that direct referral was being used in 49/97 projects.

There was only one RCT among the Australian studies (Wade 2005). This was conducted in four South Australian public hospitals and included over 600 adult patients with cardiac disease and co-morbid depression. Patients in the intervention group received an in-patient psychiatric review followed by psychiatric advice provided to the GP either by multidisciplinary primary care case conference or one-to-one telephone advice. In this study, only screening combined with psychiatrist telephone advice to GPs was effective in reducing depression severity after cardiac admission.

QUESTION TWO

What is known about the factors that enable the development and sustainability of these strategies?

We extracted data from 31 papers that described the process factors that enabled the development and sustainability of service linkages. These included three qualitative papers from the IMPACT and PRISM-E studies with their outcome papers that were particularly informative (Blasinsky 2008, Kirchner 2004, Oishi 2003). A thematic analysis of these papers identified eight domains that are tabulated in Appendices 14 & 15.

- Partnership formation
- Clinician attribute and skills
- Client aspects
- Communication system
- Guidelines
- Feedback
- Organisational factors
- System factors

Although it is not possible in a narrative analysis to ascertain which factors are more crucial, it is possible to make comment on their contribution as enablers and barriers. The one common factor in the literature concerned partnership formation (22 papers). This is particularly relevant given the importance of collaborative primary health care centres in recent Australian policy (Super Clinics, Health One etc). Our evidence suggests that attention to partnership formation will be important to the development of these comprehensive, co-located services.

PARTNERSHIP FORMATION

Partnership formation included the following:

- An authorising environment where there was institutional support, leadership and change management support for linked mental health services (Blasinsky 2008, Byng 2005, Kirchner 2004, Rees 2004, Richards 2006).
- Joint development of the partnership service by mental health and primary care partner agencies (Byng 2004a, Endacott 2006, Kates 2002).
- Development of compatible goals for the partnership and a common understanding of the nature of the partnership and how it should function (Druss 2001, Fickel 2007).
- Clarification of partner roles and attention to the different role concerns of the partners (such as about expectations, expansion of tasks and referral processes) and supervision and mentoring of link staff. Role clarity issues were the most common aspect of partnership formation raised as an enabler in three papers and as a barrier in ten. This is described more fully below.

In addition, enablers to partnership formation also included:

- A *communication system* that involved a framework (care plan or guideline), a communication channel such as regular meetings, and a receptive communication culture such as an open door communication style and willingness to try out new ideas (Byng 2005, Kirchner 2004, Pirkis 2004).
- Well documented *guidelines*, such as crisis plans, referral protocols and follow-up (Allsop 1999, Blasinsky 2008, Chew-Graham 2007b, 2008, Pirkis 2004).
- Mechanisms to *feedback* evidence about outcomes to partners (Blasinsky 2008, Oishi 2003). Blasinsky (2008:725) reported in the IMPACT study that "the most important

factor, cited in four of the five sites, was the ability to document positive client outcomes from the research study”.

Describing the IMPACT trial, Oishi (2003) reported that role clarification processes enabled the identification of safe practice boundaries, which supported the integrity of the Depression Care Specialists (DCS) role, and enabled them to be incorporated into the team. The processes that facilitated this role clarification were weekly team meetings between the DCS, the primary care physician and the psychiatrist and regular peer support telephone conferences with other Depression Care Specialists to discuss their work. Frazer (2006) found similar benefits in a survey of 13 Primary Care Graduate Mental Health Workers (PC GMHW) in the UK, but also that the development of an Integrated Care Protocol was a key component of the role clarification. A Canadian evaluation of primary care counsellors (Kates 2002) found that regular meetings for mutual support were important, as was supervision of the link worker by a mental health specialist (in this case a psychiatrist), for discussion about cases and to make treatment recommendations. Kirchner (2004) reported similar findings about supervision in the PRISM-E trial.

Different expectations about roles were reported as barriers by Macdonald (2004) and Yaffe (2005). Macdonald interviewed 75 primary mental health workers (PMHW) in the UK and found that some had been left to design their own roles without guidance. They reported that they felt like “meat in the sandwich” between primary care staff who wanted them to take a direct clinical role and mental health staff who wanted them to take a consultation liaison role. PMHWs worked in three practice models, outreach, co-location or from a PMHW team. While there were benefits in all three, a problem with outreach was the double-edged “suspicion”, first from primary care providers who were concerned that the role of the PMHW would be to put pressure on them to keep clients for longer, and second from the Mental Health Team that the role of the PMHW would put pressure on them to accept more referrals. The co-location model improved informal team liaison and a PMHW team model provided opportunities to develop role protocols and peer support. Yaffe (2005) surveyed patients, family doctors and psychiatrists in a Canadian psychogeriatric outpatient clinic over 18 months. They found that clinicians disagreed in 40% of the cases about responsibility for treatment, with family physicians expecting the psychiatrist to provide short to long term care after referral, while psychiatrists considered referrals were only for an assessment. Furthermore, half of the patients said they did not know what to expect from the consultation with the psychiatrist.

Referral difficulties were role barriers reported by Bruce (1999), Chew Graham (2007b, 2008), Fickel (2007), Gavin (2008), Slade (2008) and Raine (2005). When PCPs referred large numbers of low severity clients to mental health teams this created volume problems for the team (Fickel 2007). The team labelled many PCP referrals as “inappropriate”, often without considering the PCP’s needs or referral threshold (Chew-Graham 2007b, 2008). Chew-Graham and Slade reported on the failure of a validated Threshold Assessment Grid (TAG) that was designed to aid referrals, but was subsequently used by only 25% of PCPs and few of the Mental Health Teams. They found it too simplistic and reductive, because of a lack of a clear referral process and because of tension about whether the role of the Mental Health Team was crisis-response, or to care for the long term mentally ill. PCPs wanted direct access to specialist psychiatrist knowledge and they felt that Mental Health Team triage hindered access and undermined the doctor-to-doctor relationship (Chew- Graham 2008, Raine 2005).

CLINICIAN ATTRIBUTES AND SKILLS

The next most commonly reported enabling factor was the attributes and skills of service providers. Studies found that linkages were enhanced when relevant staff had knowledge and skills in both mental health and primary care (Byng 2005, Kirchner 2004, Oishi 2003), when they had a flexible work style that helped them to fit in (Kates 2002, Kirchner 2004, Perkins 2004), and when relevant clinicians and managers considered that collaboration was worthwhile (Byng 2005). When considered with partnership formation, we conclude that

service providers with these attributes are helpful to the formation of linked services particularly when their workplace is receptive to change, when they have appropriate supervision and peer support and when their work is supported by a care plan or guidelines.

CLIENT CHARACTERISTICS

In addition to staff, there was some evidence that client characteristics could also be important. While only one paper specifically discussed clients as collaborators in care through educational and behavioural change strategies (Oishi 2003), many papers included these strategies in their intervention. Hence, processes which lead to more empowered and informed mental health service users could see clients as the "lynch-pins" around whom service collaborations could occur.

ORGANISATION AND SYSTEM FACTORS

Other factors that were found by some to be enablers or barriers included the following:

- *Organisational factors* were reported as both enablers and barriers. Blasinsky (2008) found that primary care practitioners in larger practices were more amenable to collaborative care. Hull (2002) found that those in practices of more than four clinicians made more referrals to community mental health teams and fewer referrals to inpatient and outpatient psychiatric services. While not an indicator of collaboration *per se*, Killaspy (1999) found in a prospective study of 32 inner London practices, that practice size made no difference to GP satisfaction with communication from psychiatrists.). Co-located accommodation was found to be an enabler, when Depression Care Specialists were located in the clinic for optimum team visibility and interaction (Oishi 2003), but a barrier when clinic accommodation for the Primary Mental Health Link Worker was inadequate (Macdonald 2004). Heideman (2007) found unclear organisational structure was a barrier to collaboration
- A lack of higher level *system integration* was reported as a barrier by Rees (2004), who found that an absence of resources for change management and team development led to team conflict.

FINDINGS FROM THE IMPACT AND PRISM-E TRIALS

Since two large, well researched trials from the USA have demonstrated clinical, organisational and economic effectiveness it is useful to report the process factors they attributed to success.

For PRISM-E, the process factors related to (1) staff attitudes and beliefs, (2) the clinic culture and (3) the presence of leadership for change (Kirchner 2004). Kirchner compared the culture in two clinics: one that had successfully integrated mental health and drug and alcohol services and one that had not. The "integrated clinic" had a more collaborative style (not just consultative), a commitment to regular team meetings and preparedness to accept change. Leadership in the other clinic had undergone change which was perceived as chaotic and overwhelming. In this clinic there was also an opinion leader who did not support integration and this led to "turf disputes".

For IMPACT the success factors were (1) a care coordinator with a clearly defined role in the multidisciplinary team, (2) with knowledge of both biological and psychological treatments relevant to mental health in primary care, (3) who helped the client make referral linkages, (4) who facilitated psychiatrist and PCP input at team meetings and who ensured that feedback about clients was communicated to them on an individual basis and (5) who was supported by a reliable tracking and feedback process to the team (Oishi 2003).

QUESTION THREE

What processes would assist managers to implement such strategies?

Evidence alone does not change services and so this section focuses on decision support to drive a change. By decision support, we mean the processes that may assist managers to implement the best practice linkage strategies described above. A large part of decision support is ensuring that those processes identified in question two are in place. We will not repeat the description of those processes here, but rather focus on what might help a manager to develop linked service arrangements. Our learning about this came from our key informant and reference group discussions (Appendices 16 and 17).

Our starting point is an understanding of the nature of mental illness and how this acts as a driver to service collaboration. Much mental illness is enduring or recurring and its treatment multi layered, involving specialist mental health services, primary health care and other services such as housing, welfare, education and employment. People with mental illness often experience a range of services and it is important to value their experience of these services. Hence, a driver, according to our key informants, is a shift in the policy value base in which client outcomes are deemed important, rather than demand management as the main basis for decision-making.

A second point concerns the use of evidence that is relevant to the policy value base and focus, in order to drive change in the first instance, and then to inform change progress over the long term. Evidence about gaps and opportunities can be a call to action. After a linkage problem is identified managers need clinical, organisational and economic evidence to determine which linkage strategies will be appropriate, what resources will be required, and whether the new strategy will be an improvement over current practice. Then, in the long term, feedback about results can be an indicator of progress about whether a linkage strategy is working and whether adjustments are needed.

Thirdly, informants pointed to the importance of "strong philosophical champions who are banging the drum all the time". These champions ensure that the issue (linked services in primary mental health care) gets on, and stays on the agenda. They may be consumer advocates as described in the previous section.

A fourth point concerns the importance of a shared vision and compatible goals between stakeholders in the linked service. Compatibility does not require that goals are identical but rather, that there is sufficient overlap to allow joint working and problem solving. A process for the joint development of this vision and these goals are required incorporating local leadership to facilitate but is not necessarily top-down.

The fifth point is the need to develop and empower staff who are willing to adopt a collaborative approach and who consider it appropriate to treat mental illness in primary care. Some countries have supported GPs to develop a special interest in mental health, to act as a bridge between primary and specialist services. Informants thought that securing these workers was important, but at times difficult, because the pro-collaboration worker is often "swimming against the tide" of pressures to stick to core business and manage demand. Institutional stigma was considered a barrier limiting the range of services that workers thought were appropriate in primary care. This can affect willingness to provide some forms of care, as one reference group member commented:

One of the important questions is whether there is a difference with partnerships for the mental health service from other conditions. There's a lot of talk about partnership in diabetes for example...we don't have GPs debating if they have a role in diabetes care and yet we have this discussion about whether GPs have a role in mental health care. One of the barriers is perhaps around the stigma attached to mental illness.

The policy options which follow are presented in the light of the evidence on change processes described above (Question 2) and these five drivers for change which represent the daily challenges for clinical leaders, policy makers and managers.

4. DISCUSSION

KEY FINDINGS & POLICY IMPLICATIONS

This review has been undertaken from a primary health care perspective for the reasons outlined in chapter one, namely the increasing focus on the role of primary care clinicians in collaborative mental health care. We excluded studies that did not include primary care practitioners or that took place exclusively in specialist settings. Our findings and proposals are therefore designed for mental health care in which primary care is an integral component of service delivery.

There was strong support from other systematic reviews (Bower 2006, Gilbody 2006) for collaborative care, albeit based on a number of large-scale American studies. Other studies are underway outside the US to test its applicability in other contexts such as the UK (Richards 2009). There has only been one trial conducted in Australia (Wade 2005). The evidence about what works in the managed care context in the USA and in the UK National Health Service has not been tested in the Australian national health insurance context (Medicare) with fee for service General Practice.

In relation to the effectiveness of linkage strategies (Question one), most studies assessed clinical outcomes (37) followed by organisational (25) and economic outcomes (16). Most of the evidence pertains to service linkages for adults with a high prevalence disorders (usually depression), which report clinical benefits, improvements in service delivery such as targeted referrals and client acceptance of treatment. Data on economic benefits is less conclusive, but three of the four studies that used the most effective combination of strategies, reported that costs were either lower, the same or acceptably higher given the additional clinical and organisational benefits.

Evidence about service links for the low prevalence disorders (e.g. schizophrenia) is less conclusive and we found virtually no evidence in the black literature about (?PMHC) service links outside of the health sector (welfare, housing, education, employment etc), which would be most important for the implementation of a recovery model. While there are evaluations of such linkages in program reports, these are not yet widely available or evaluated in the peer-reviewed literature.

There was little evidence to support the use of single strategies with only one study of care management reporting a statistically significant (clinical) result. Used in combination with other strategies those most often associated with significant positive outcomes were consultation-liaison, care management, enhanced communication and the use of protocols.

Our review provided strong support for combinations of strategies and we developed a model of "macro" strategies that had been tested in the literature: collaborative care (LW, CoL, CL, CM), guidelines (Prot, SC), communication systems (EC, ER ECS) and service agreements (MOU).

The strongest support was for those interventions that included one or more elements from the collaborative care, guideline and communications groups. These were associated with statistically significant positive clinical, organisational and economic outcomes. There was no evidence to support service agreements as either a single strategy or in combination with other strategies. Where studies assessed organisational outcomes it was assumed that these were associated with clinical benefits for the client, hence medication compliance (organisational) was understood as a precursor to recovery or improved function (clinical).

The "successful" studies were also the most sophisticated and complex, given the number of elements to be developed and implemented simultaneously. By definition therefore, these interventions were different to usual care.

In response to question two, our analysis indicates the following process factors are key service link enablers:

1. Support (authority & resources) at the system level for integration.
2. Organisational structure conducive to collaboration (practice size, staff accommodation etc).
3. Facilitation of joint involvement in partnership formation.
4. Recruitment, support and supervision of staff willing and skilled to work in primary care and mental health.
5. Communication systems such as regular meetings and the use of a common care plan.
6. Guidelines that document crisis plans, referral protocols and follow up arrangements.
7. Feedback evidence about outcomes to service partners.
8. Client involvement in care.

Most of the strategies identified in our review were part of funded trials and it is the nature of trials that interventions must be carefully developed and implemented consistently. This points to the importance of leadership and change management in the development and sustainability of collaborative services incorporating combinations of linkages.

Greater role ambiguity is inherent in collaborative work, particularly in mental health where a client's condition can change between acute, chronic and recovery phases. Hence attention is required through leadership and clinician problem solving to the clarification of roles. Findings from the literature and key informant interviews suggest that the linkage enabling process best able to deal with role issues, and generalisable in different contexts, is joint problem solving (Byng 2004a, 2005). This problem solving can occur between clinicians when they discuss client care and as they consider linked service models. Clinical problem solving occurs from the bottom up, but can be facilitated by skilled cross-sectoral leadership and a supportive authorising environment. The immediate gains from such clinically grounded discussions may be the reinforcement that is needed to motivate staff are to make a sustained effort to collaborate. The Fourth National Mental Health Plan (2009: 42) notes the inevitable role tensions about common challenges such as transporting clients with mental illness, access to inpatient care and management of people who are intoxicated, and makes the following point:

How such tensions are resolved will depend on the development of local solutions backed by good collaboration between sectors and recognition of roles, responsibilities and limitations. Consumers and carers should routinely be involved in such deliberations.

The ability to work in a collaborative problem-solving manner between primary care and mental health is a competency that has not been included in the traditional training of primary care providers or mental health staff. This attribute is noted in a recommendation of the Fourth National Mental Health Plan, that the National Mental Health Workforce Strategy includes the capacity of staff in primary care and mental health to work together as a key competency. This might be achieved through the leadership of "on-the-job" problem solving noted above, through the training of mental health staff in the development of networked community mental health services, and training in the bio-psycho-social aspects of mental illness. Our findings also support provisions for expert supervision or mentorship, as well as forums for mutual support for those staff undertaking linkage roles.

While we found very little evidence that linked clinical care was achieved by "top down" formal service agreements, these could be a component of regional joint planning. The draft Revised National Standards for Mental Health Services (pers comm) has proposed under standard eight (Integration) that mental health services should have processes to ensure interagency links. These are to include documented referral (communication), policies and procedures (guidelines); regular team leader and service-wide meetings; consumer's nominated primary health care provider linked to the mental health service; and an identified

care coordinator (collaboration) to ensure that the consumer and services are linked. From the primary care perspective, the Royal Australian College of General Practitioners (2007) "Standards for general practice" does not make specific reference to mental health, but states that a general practice needs to be able to demonstrate how it engages with other services and make referrals to health, community and disability services.

Our findings indicate that joint development of linked service models is important to ensure that the model meets the needs of both primary care and mental health providers. Since contexts differ, local joint planning must be flexible to account for differences between communities. A feature of the Australian system is that there is no overarching regional organisation charged with the health of the regional population and the health services provided. The Primary Health Care Organisations (PHCO) proposed under the draft Australian Primary Health Care Strategy (2009) could be an ideal organisational form to undertake this planning; however, they would need to hold planning responsibility for primary care, mental health and community organisations.

There were consistent findings from the two large trials (IMPACT and PRISM-E) and from our key informants that the feedback of evidence about outcomes is an important driver of change. Hence, the call for the development of mental health data collections for greater accountability under priority five of the Fourth National Mental Health Plan (2009) is timely. Such data could be reported through the *National Mental Health Reports*. Accountability is articulated at the level of policy (for government and administration) and delivery (for service providers). Such outcome data could be tested against the *National Standards for Mental Health Services* or the *National Mental Health Performance Benchmarking Framework*, but only if these are revised to cover the key links between mental health services, primary care services and the wider human services sectors. Such collection and reporting of data take resources, has opportunity costs and may require new collection mechanisms. If Australia is to have an evidence-based, responsive mental health system then accountability must be resourced, which according to the National Advisory Committee on Mental Health (NACMH) is currently under developed.

At a regional level, responsibility for the collection and reporting of linked service performance could be held by the proposed Primary Health Care Organisations mentioned above. The sort of indicators that could demonstrate an effectively linked system, proposed in the NACMH report and the Fourth National Mental Health Plan, could include:

- Rates of community follow up for people within the first seven days of discharge from hospital.
- Re-admission rates to hospitals and emergency departments within 28 days of discharge.
- Number of people accessing psychosocial rehabilitation programs.
- Proportion of people with a mental illness with a nominated general practitioner.
- Number of people with mental illness reporting stable housing.
- Participation rates of people with mental illness in education and employment.

Much of these data are either not currently collected, or not reported at regional or national levels. Hence, progress in the development of accountability is required across primary care, mental health and non-government services and this would be aided by common patient identifiers, electronic health records and patient enrolment with a primary care provider.

Our review has canvassed the potential role of the client as the "lynch-pin" around whom collaborative care can be provided. Since having a common goal is an enabler for partnership formation, it is the client and their needs that are the common denominator. The Fourth National Mental Health Plan (2009) and the draft Revised National Standards for Mental Health Services (2007) advocate a central role for the involvement of the client and if appropriate, their carer, in decision making about their own care. The involvement of client

and carer leaders is also suggested on planning, service delivery, evaluation and quality committees along with training to support them in representational and advocacy roles.

LIMITATIONS IMPOSED BY THE EVIDENCE

Applying the findings from this review to the Australian fee for service primary care system prompts consideration of how it differs from managed care in the USA and the UK National Health Service. There are arrangements in Australia, however, such as the Enhanced Primary Care Program and the Better Access to Psychiatrists, Psychologists and General Practitioners program, in which services are funded to ensure coordinated delivery. These developments may make overseas findings more applicable.

The sustainability of programs and outcomes beyond 12 months is still largely unknown. Almost all of the evidence concerns separately funded studies in which research expertise is provided, which is not usually available to services. Rigorous evaluation of whole of area or whole of population programs is needed to determine how successful initiatives can be implemented and sustained beyond short term research timeframes.

Most of the studies for which there is strong evidence have measured clinical, organisational or economic effectiveness of linked services (Question one), rather than studying the operation of the linkages *per se* (Question two). Effectiveness studies can be conducted using rigorous RCTs, whereas health services research about process often requires qualitative designs. While these qualitative designs provide descriptive and explanatory depth, the focus on local context does limit the transfer of findings to other settings.

This review has focused on the peer reviewed (black) literature. The broad nature of our questions (particularly question two) resulted in a large number of studies that could only be synthesised using a narrative approach. Attention should now be paid to reviewing the evidence from service evaluations that exist in reports not published in the black literature. Given the importance of the other sectors outside of health, further work could review the grey literature about what is known about links through accommodation support programs (Muir 2007) and about the operation of actual link services such as the Australian Government Personal Helpers and Mentors Program that are currently being evaluated.

5. POLICY OPTIONS

This review found that (1) service links do improve client and organisational outcomes and (2) the most effective models of linked services were those that used multiple strategies across a suite of collaborative care, guidelines and systems to improve communication. Our findings have led us to conclude that to embed linkages in primary mental health care we need to undertake the following actions:

- Have relevant institutions endorse the need for linked services in primary mental health care.
- Develop leadership in mental health and primary care to facilitate change.
- Have planning and accountability at a regional level, such as through regional Primary Health Care Organisations.
- Promote bottom up models of clinical collaboration.
- Build workforce capacity to meet competency standards in collaborative mental health care.
- Collect and report on data that indicates the benefits of integrated primary mental health services.
- Promote the involvement of consumers at the centre of care around which services collaborate.

These actions could be advanced in the following way:

1. Accreditation systems such as the draft Revised National Standards for Mental Health Services and the RACGP Standards for General Practice could clearly articulate the importance of service linkages between primary mental health care providers in order to achieve positive consumer and organisational outcomes. Based on the evidence, these linkages should include the combination of strategies described in this report.
2. The Australian Divisions of General Practice, the State Directors of Mental Health and the professional colleges in general practice, psychiatry, psychology and mental health nursing should articulate the leadership roles that are required to bring about change management for collaborative primary mental health care.
3. Relevant sections of the Australian Department of Health and Ageing (Health Reform Taskforce, Mental Health Reform Branch and the National Primary Health Care Secretariat) might convene discussions on the potential role and resourcing of Primary Health Care Organisations as the auspice body for regional primary mental health care planning and accountability.
4. The accreditation systems (mentioned in one above) should include performance indicators that describe the use of joint clinical case discussions between services in primary care, mental health and in the wider human service sector. These discussions could be facilitated by regional mental health leadership and would form a bottom up and ongoing process for program problem solving and role clarification.
5. These accreditation systems indicators should also include supervision, mentoring and peer support of mental health workers who provide linkage services, such as care coordination and consumer follow up.
6. The Royal Australian and New Zealand College of Psychiatrists, the Royal Australian College of General Practitioners, the Australian College of Mental Health Nurses and the Australian Psychology Association might articulate the attitude and skill competencies required for collaborative work in primary mental health care. Furthermore that these associations lobby the National Mental Health Workforce Strategy to ensure that these competencies are included in a national mental health workforce framework.
7. The indicators related to service coordination and collaboration that are described in the Fourth National Mental Health Plan, proposed in the draft Revised National Standards for Mental Health Services and advocated by the National Advisory Committee on Mental Health should be developed and implemented in a timely manner and reported in the annual National Mental Health Report.

8. The Mental Health Council of Australia or another relevant peak mental health organisation should be funded under the Fourth National Mental Health Plan to work with consumer organisations and with mental health and primary care services. This would be to promote the involvement of consumers and carers in mental health care planning for individuals as well as involvement on mental health planning, implementation and evaluation committees.

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7. APPENDICES

APPENDIX 1. KEY AUSTRALIAN POLICIES/DOCUMENTS

Document	Key points
<i>The National Mental Health Policy</i> (1992)	Outlined key mental health reform: promoted a shift from 'institutional care' to 'community care'. The <i>National Mental Health Strategy</i> was agreed in 1992 and comprised: the National Mental Health Policy; the First National Mental Health Plan; the Mental Health Statement of Rights and Responsibilities; and a funding agreement between the Commonwealth, the states and territories.
<i>The First National Health Plan</i> (1992)	Outlined priorities for reform for the period - 1992/93 - 1997/98 - including the need for close links between community mental health services and psychiatric inpatient services - noted should be integrated with other components of the specialised mental health service and have strong links with wider health service. Case management systems that facilitate continuity of care across service components according to individual need emphasised.
<i>The Second National Mental Health Plan</i> (1998)	Outlined priorities for reform for the period - 1998 – 2003 - reiterated the priorities of the First Plan including developments in partnerships in service reform. The Plan stated: "There is a need to formally entrench partnership arrangements at both the system and service levels through policies, procedures, protocols and funding" (1998:.29). A range of partners was identified and included: consumers, families and carers; GPs; private psychiatrists; the wider health sector; non-government and government agencies providing disability support; emergency services; other government services - the welfare sector, criminal and juvenile justice systems and drug/alcohol services; and the broader community including employers, service organisations and community leaders.
<i>The Third National Mental Health Plan</i> (2003)	Outlined priorities for reform for the period – 2003 – 2008. The Plan adopted a population health framework based on an understanding that the influences on mental health occur in the events and settings of everyday life. It noted that further effective linkages need to be formed with other sectors in order to achieve collaborative planning and to build capacity. This necessitates the need to take into account local needs and circumstances.
<i>National Mental Health Strategy</i> (2004)	Identified the need for a range of service provision across services - the need for development of mechanisms for joint planning and coordination of services; the development of links between mental health services, liaison, collaboration, secondary consultation and training; support and skill development across specialist mental health services, primary health services and other relevant organisations; and the increase in contact and joint learning between mental health service clinicians.
Mental Health Council of Australia (MHCA): <i>Not For Service</i> (2005) <i>Time for Service</i> (2006)	<i>Not for Service</i> - Recommends that new governance arrangements be developed to ensure collaboration between government, non-government and private sectors as well as the participation of consumers and carers. <i>Not For Service</i> – reports 12 years after the Burdekin Report was released people with mental illness still struggle to access services. Evidence cited for this includes: two-thirds of people with a mental illness do not receive any treatment in any 12 month period; and there is unprecedented pressure on all parts of the mental health system.
Council of Australian Government (COAG) <i>National Action Plan on Mental Health</i> (2006)	Outlined priorities for reform for the period – 2006 – 2011. Aim: to build a more connected system of health care and community supports for people with mental illness. The Plan emphasised the role of the non-government sector in the delivery of a range of community support services and notes that indicators suggest continued high levels of unmet need.

<p><i>The National Mental Health Report (2007)</i></p>	<p>Noted that integrated, whole-of-government strategies are needed and reflected on the previous 12 years. Development of longer term residential and disability support services continues to be uneven despite the original commitment that these are fundamental to a community oriented, integrated service system; and that all states and territories over recent years have experienced increased demand pressures for mental health care across the health sector, particularly for acute and emergency care.</p>
<p><i>The National Mental Health Policy (2008)</i></p>	<p>Identified the need for collaboration across a range of services - government and private sectors - non-government agencies including key areas of housing, employment, education, community and disability support to improve mental well-being. It noted that early identification and intervention requires clear access pathways and a coordinated approach. Early intervention involves a range of health and other sectors, carers, advocates - requires services accessible by well-supported referral pathways. The Policy states that:</p> <p><i>GPs and other primary care workers have been supported by the development of collaborative, multi-disciplinary models of care, new referral options and opportunities for secondary consultation...integration now needs to go further and cross clinical and non-clinical, primary and tertiary sectors in order to maintain and strengthen the appropriate mix of services (2008: 17-18).</i></p>
<p><i>National Primary Health Care Strategy Report (2009)</i></p>	<p>Aims to build on the actions established through the National Healthcare Agreement to improve levels of cooperation, coordination and integration of service delivery across Commonwealth, state and territory governments and to focus the primary health care system on meeting individual patient needs and working effectively within the broader social system. The need for better integration of the services provided across primary health care, including effective shared care arrangements between general practice, allied health and specialists is noted.</p>
<p><i>Fourth National Mental Health Plan (2009)</i></p>	<p>The Plan outlined a framework “within which to support a system of care that is able to intervene early and provide holistic integrated services across health and social domains...provides direction to governments regarding future funding priorities” (2009:7). Five priorities are outlined in the Plan: Priority 1 - Social inclusion and recovery; Priority 2 - Prevention and early intervention; Priority 3 - Service access, coordination and continuity of care; Priority 4 – Quality improvement and innovation; and Priority 5 - Accountability - measuring and reporting progress. Principles underlying the Fourth National Mental Health Plan include: respect for the rights and needs of consumers, carers and families; services delivered with a commitment to a recovery approach; social inclusion; recognition of social, cultural and geographic diversity and experience; recognition that the focus of care may be different across the life span; services delivered to support continuity and coordination of care; service equity across areas, communities and age groups; and consideration of the spectrum of mental health, mental illness and mental disorder.</p>
<p><i>National Health and Hospitals Reform Commission Final Report (2009)</i></p>	<p>Identifies recommendations in relation to supporting people living with mental illness through coordinated services and connecting care including: that every hospital-based mental health service should be linked with a multi-disciplinary community-based sub-acute service that supports ‘stepped’ prevention and recovery care; that each state and territory government provide those suffering from severe mental illness with stable housing linked to support services; increasing investment in social support services for people with chronic mental illness, particularly vocational rehabilitation and post-placement employment support; the establishment of Comprehensive Primary Health Care Centres and Services - providing a ‘one-stop shop’ approach so that patients can get access to an expanded range of services, with better coordinated referrals and networks of services (including good linkages with specialists, mental health services, family and child health services, community care services) and extended opening hours and encouraging better continuity and co-ordinated care.</p>

APPENDIX 2. SEARCH STRATEGY

Database: Ovid MEDLINE

Search Strategy:

-
- 1 exp Primary Health Care/
 - 2 exp Family Practice/
 - 3 (primary adj (care or medic\$ or practi\$)).tw.
 - 4 (general adj (practi\$ or physician\$)).tw.
 - 5 or/1-4
 - 6 exp Mental Health/
 - 7 primary mental health.mp.
 - 8 primary mental health care.mp.
 - 9 *mental health services/ or *community mental health services/ or *social work, psychiatric/
 - 10 (primary mental health adj (worker\$ or nurse\$ or clinic\$ or practi\$)).tw.
 - 11 (primary mental health adj (service\$ or counsel\$ or therap\$)).tw.
 - 12 (community based adj (mental health or clinic\$ or cent\$)).tw.
 - 13 or/6-12
 - 14 5 and 13
 - 15 exp "Referral and Consultation"/
 - 16 *cooperative behavior/
 - 17 exp "Delivery of Health Care, Integrated"/
 - 18 *Partnership Practice/
 - 19 *"Attitude of Health Personnel"/
 - 20 exp Consumer Satisfaction/
 - 21 *"outcome assessment (health care)"/ or *"process assessment (health care)"/
 - 22 (mental health service\$ adj (model\$ or program\$)).tw.
 - 23 (service adj (link\$ or integrat\$ or partner\$ or co-location\$)).tw.
 - 24 (collaborat\$ adj (link\$ or system\$ or model\$ or practi\$ or clinic\$ or care\$)).tw.
 - 25 (integrat\$ adj (care or system or mental or health or service\$ or model\$)).tw.
 - 26 (intersectoral adj (network\$ or collab\$ or link\$ or mental health)).tw.
 - 27 shared care.mp.
 - 28 good shepherd model.mp.
 - 29 or/15-28
 - 30 14 and 29
 - 31 limit 30 to (english language and humans and yr="1998 - 2009")

APPENDIX 3. DATA EXTRACTION FORM

**Data Extraction template
Primary mental health care linkages**

Person completing this form: Please select

Date assessed:

Lead author:

Year of publication:

Title:

Name of trial if relevant:

For all questions, please tick as many boxes that apply

1. Design and method	
Is the study:	
<input type="checkbox"/> Qualitative <input type="checkbox"/> Quantitative <input type="checkbox"/> Mixed methods	
What is the study design? <input type="checkbox"/> Systematic review with meta-analysis <input type="checkbox"/> Systematic review <input type="checkbox"/> RCT <input type="checkbox"/> Cohort study <input type="checkbox"/> Case control study <input type="checkbox"/> Non randomized experimental study (before and after study) <input type="checkbox"/> Descriptive study <input type="checkbox"/> Unclear	If the study was descriptive, is it a: <input type="checkbox"/> Questionnaire <input type="checkbox"/> Survey <input type="checkbox"/> Audit <input type="checkbox"/> Case Study <input type="checkbox"/> Other If other, please describe:
Did the study state its aims/objectives:	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
If yes, what were they?	
Methodology:	
Sample:	
Intervention:	
Control:	

2. Setting:		3. Country where the study was conducted	
<input type="checkbox"/> Rural and remote <input type="checkbox"/> Rural <input type="checkbox"/> Remote <input type="checkbox"/> Urban <input type="checkbox"/> Mixed <input type="checkbox"/> Not described		<input type="checkbox"/> Australia <input type="checkbox"/> New Zealand <input type="checkbox"/> Canada <input type="checkbox"/> USA <input type="checkbox"/> UK <input type="checkbox"/> European Community Specify	
4. Client Population			
Did the study include a client population? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<input type="checkbox"/> General adult <input type="checkbox"/> Elderly <input type="checkbox"/> Child/adolescent If the study included specific age ranges list these here		<input type="checkbox"/> Indigenous <input type="checkbox"/> Specific cultural group <input type="checkbox"/> Other (e.g. Socio-economic group, homeless etc) Please provide a description:	
5. Mental health issue under focus			
<input type="checkbox"/> Anxiety disorder <input type="checkbox"/> Depression <input type="checkbox"/> Other mood disorders <input type="checkbox"/> Schizophrenia and other psychotic disorders <input type="checkbox"/> Eating disorder <input type="checkbox"/> Dual diagnosis (mental health disorder and either drug and/or alcohol abuse) <input type="checkbox"/> Mental health disorder not otherwise categorized, emotional or behavioural problems		<input type="checkbox"/> Mixed psychiatric conditions (for use where participants with a range of conditions are included and the results are not reported according to each condition) <input type="checkbox"/> Dementia (with associated mental health disorder, emotional or behavioural problems) <input type="checkbox"/> Not specified <input type="checkbox"/> Other – Please specify	
Does the paper describe the severity of the mental health issue? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, was it: <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Acute episode <input type="checkbox"/> First episode <input type="checkbox"/> Chronic			

6a. Participants in the 1st part of the linkage

Type of discipline

- GP/primary care physician/family physician
- Medical specialist
 - Psychiatrist
 - Child psychiatrist
 - Geriatrician
 - Pediatrician
 - Other
- Psychologist
 - General
 - Clinical psychologist

- Nurse
 - Practice nurse
 - Generalist community nurse
 - Hospital nurse
 - Mental health nurse
 - Nurse practitioner
- Counsellor
- Social/welfare worker
- Mental health worker (other than above)
- Other. Please list

6b. Participants in the 2nd part of the linkage

Type of discipline

- GP/primary care physician/family physician
- Medical specialist
 - Psychiatrist
 - Child psychiatrist
 - Geriatrician
 - Pediatrician
 - Other
- Psychologist
 - General
 - Clinical psychologist

- Nurse
 - Practice nurse
 - Generalist community nurse
 - Hospital nurse
 - Mental health nurse
 - Nurse practitioner
- Counsellor
- Social/welfare worker
- Mental health worker (other than above)
- Other. Please list

7. Type of organisation

- Government Non-government Private Mixed Unclear

8. Type of agency

- Private practice
- Community health centre
- Mental health service
 - In-patient
 - Community
- Hospital based services
 - General in-patient
 - Outreach
 - Outpatient
 - Emergency Department
 - GP casualty located within a hospital

- Aged care team
- Residential aged care facility
- Housing service
- Welfare service
- Pharmacist
- Education service/school
- Health research facility
- Other. Please list

9. Description of the linkage

What type of linkage is being described?

- | | |
|--|---|
| <input type="checkbox"/> Referral between services
<input type="checkbox"/> Methods to improve case management/case conferencing
<input type="checkbox"/> Mental health link worker
<input type="checkbox"/> Mental health worker (nurse/psychologist) Located in primary care practice
<input type="checkbox"/> Co-location of services
<input type="checkbox"/> Care pathway
<input type="checkbox"/> Consultation liaison | <input type="checkbox"/> Audit/medical record review
<input type="checkbox"/> Service agreements or formal agreement
<input type="checkbox"/> Information on communication systems (e.g. telemedicine)
<input type="checkbox"/> Other. Please describe |
|--|---|

10. Please describe the major components of the linkage/s (examples might include: Informational/IT; case conferencing; joint care planning; supervision; training)

11. Is the linkage described in the context of a health care delivery model?

- Yes No

If yes, what model is described?

- | | |
|---|--|
| <input type="checkbox"/> Shared care model
<input type="checkbox"/> Collaborative care model
<input type="checkbox"/> Stepped care model
<input type="checkbox"/> Other. Please describe | <input type="checkbox"/> Good shepherd model
<input type="checkbox"/> Integrated care model |
|---|--|

12. Major outcomes being assessed

Effectiveness

- Clinical effectiveness (e.g. patient health gain)
 Organisational effectiveness (e.g. improved service provision)
 Economic/cost effectiveness
 Other

Please provide details

Satisfaction

- Provider satisfaction
 Patient/consumer satisfaction

Please provide details

Process

- Impact on communication between service providers
 Methods or factors which impact on improving linkages
 Barriers to achieving linkages
 Other

Please provide details

13. What were the major results reported by the study

14. What conclusions were made by the study

15. If the study lists other relevant references, please list these here

APPENDIX 4. TABLE OF INCLUDED STUDIES

First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
Adler 2004	To evaluate outcomes of a RCT of a pharmacist intervention for depressed patients in PC.	RCT - 533 patients (258= intervention, 249= control).	Boston, USA.	Major depression/ dysthymia. General adult 18+	CL/ EC/ Prot: Guided by a protocol which included: obtaining medication history; educating patients about depression; & facilitating communication with patient's PCP.
PROSPECT (Prevention of Suicide in Primary Care Elderly: Collaborative Trial) Alexopoulos 2005* Bruce 2004 Reynolds 2003	To compare time to 1 st remission from PC practices with a CM model v. UC & identify risk factors for non remission that could guide treatment planning & referral.	RCT - 215 patients with a 24-item Hamilton Depression Rating Scale score of 18 or greater.	20 practices in 3 regions: New York City, Philadelphia, and Pittsburgh, USA.	Major depression. Older patients 60 – 74 years.	CM/ CoL/ EC/ Prot: Care managers monitored psychopathology, treatment adherence, response & provided follow-up care.
Alsop 1999	To identify strategies to integrate MH & GP services.	63 Interviews with GPs & MH professionals.	North QLD. Australia.	General mental health/adult.	Context: Links (referral /feedback) between GP & integrated MH service.
Bauer 2006 a, 2006b*	To assess if a collaborative model for chronic care improves outcomes for bipolar disorder.	RCT - 330 participants were randomised (intervention n=166 and control n=164).	11 sites, USA.	Bipolar disorder, Veterans.	CM/ EC/Prot: Outpatient clinic consisting of a psychiatrist and a nurse care coordinator.
Beel 2008	GP perspectives about referral to psychologists.	Interviews with 12 GPs.	Perth, Western Australia.	General mental health/adult.	Context: Survey of GP opinions about referrals to psychologists.
Bower 2006	To assess the effectiveness/ cost effectiveness of counselling in PC by reviewing data in RCTs for patients considered suitable for	Systematic literature review (SR).	Various countries.	Psychological & psychosocial problems.	SR/ CoL: Counselling in the primary care setting.

First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
	counselling.				
Brown 2002	To examine FP experiences in caring for patients with SMI re a shared MHC model.	Interviews with 11 family practitioners (FPs).	Canada.	SMI.	Context: Interviews with FPs in relation to a shared MHC model.
Brown 2004	GPs' perceptions of care of patients with SMIs pre/ post of a link worker model.	Survey of 21 GPs	London, UK.	SMI.	CoL/LW: Link worker aligned with GP practices- liaise with GPs & practice staff.
Bruce 1999	To compare health outcomes of chronic mentally ill patients in GPs with a CPN, to a comparable group with no CPN.	Cohort study - Patients n=42 - intervention = 23; comparison = 19.	Aberdeen, Scotland.	Patients with chronic mental illness.	CoL/ CM/ LW: Link worker (CPN) - A community psychiatric nurse employed for 15 hours a week & co-located in GP practice.
Brucker 2003	To describe collaborative activities between MH therapists & medical healthcare providers in an integrated PC medical setting.	11 therapists completed a checklist & recorded when they had collaborative contact.	Upstate New York, USA.	Not specified.	EC: The purpose of collaboration recorded as well as who the collaboration was between.
Bush 2004	To examine prognostic factors & differential treatment effects among patients with major depression.	RCT - Patients randomised to collaborative care versus UC.	Western Washington State, USA.	Patients with major depression. Adults 18 – 80 yrs.	CL/ CoL/ EC/ Prot: CC included: physician & patient education; increased visits with PCP; advice to PCP re pharmacotherapy; monitoring of medication; & feedback to PCP.
Butler 2009	To describe models of integrated care, assess how integration of MH services into PC settings or PHC into specialty outpatient settings impacts patient outcomes, describe barriers to sustainable programs, use of health IT, & reimbursement structures of integrated care programs.	Systematic literature review (SR). RCTs and high quality quasi-experimental design studies were reviewed.	USA.	Not specified.	SR: Describes/assesses models of integrated care.

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First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
MENTAL HEALTH LINK Byng 2005 Byng 2004a, 2004b*	To develop an intervention for developing shared care for patients with mental illness, provide a case study of the development an intervention in PC.	Case study - 23 GP practices - included CMHWs, psychiatrists & experts with an interest in PMHC.	Southeast London, UK.	Patients with long-term mental illness.	EC/ LW/ CM: A linked specialist mental health worker planned the chronic disease management systems within the practice.
Cape 1998	To investigate the relationship between counselling in GP settings & use of outpatient psychiatry and clinical psychology services across a geographical area.	Clinical file audit of information on referrals from GPs to outpatient psychiatry and clinical psychology.	London Borough of Islington, UK.	Not specified.	CoL: Counsellor co-located in GP practice.
Capoccia 2004	To evaluate the impact of pharmacist interventions on the care and outcomes of patients with depression in a PC setting.	RCT- 71/74 patients enrolled in the study.	Washington, USA.	Depression.	CoL: Enhanced care via addition of a pharmacist in the PC clinic - provided follow-up in conjunction with the PCP and psychiatrist - weekly telephone calls for the first 4 weeks.
TAG (THRESHOLD ASSESSMENT GRID) Chew-Graham 2008 Chew-Graham 2007*	To explore the tensions across the primary-secondary interface when referral from PC is to a team and to inform service developments in other specialties.	Nested within the TAG RCT- Interviews - 35 GPs & 17 CMHTs. Observation of 10 allocation meetings.	Croydon, South London & Manchester, UK.	Not specified.	ER: Promotion of Community Mental Health Teams in the UK - to act as a gatekeeper in clients into the specialist mental health system.
PRIDE (Primary Care Intervention for Depression in the Elderly) Chew-Graham 2007	To investigate the feasibility of a collaborative care model in a primary care setting.	RCT- 105 people (53 = intervention, 52 = control) who scored 5+ on Geriatric Depression Scale plus Interviews - 20 patients from intervention group & 20 PCPs.	Manchester, UK.	Depression in older people, aged 65+	CL/ CM/ CoI/ LW/ Prot: CPN based in PC who liaised with PC professionals, acted as care coordinator with regular access to psychiatrist according to a defined protocol, review patients progress with psychiatrist every 4 weeks. Written report to the GP after initial assessment.

First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
Cole 2006	To evaluate whether multidisciplinary treatment of depression could be effective in reducing symptoms.	RCT – 157 Patients with depression randomly allocated to receive the intervention or UC.	Montreal, Canada.	Major depression, older people.	CL/ CM/ EC/ LW/ Prot: Intervention group received systematic treatment for 24 weeks: assessment & treatment by a psychiatrist; follow-up by the research nurse; & follow-up by the patient's FP.
Targeted Child Psychiatric Services (TCPS) program Connor 2006	To assess TCPS utilization characteristics over the first 18 months of operation.	Retrospective chart review of all PCP referrals to TCPS.	Massachusetts, USA.	Child and adolescents.	CL/ IC: Linkage is the on call beeper staffed by the Targeted Child Psychiatric Service.
Cook 2003	To investigate the feasibility of a PC based service for people with psychotic conditions.	37 clients - new referrals were assessed to establish baseline scores.	UK.	People with psychotic conditions.	CM/ EC/ ER/LW: Case management – collaboration with accommodation providers - finding & negotiating - adaptation of the social & physical environments.
Craven 2006	To investigate the impact of collaborative MH care with experimental methodologies, RCTs & intervention studies with outcome measures in PC setting.	Systematic literature review (SR).	Various countries.	Not specified.	SR: CC defined as care that involves providers from different specialties, disciplines or sectors working together to offer complementary services and mutual support.
Crawford 2001	To determine how PC personnel based in 2 practices view the role of CMHNs, their effectiveness and impact of the service.	Questionnaire sent to 54 staff in 2 PCPs with full time CMHNs.	South Staffordshire, UK.	Not specified.	CoL: Community mental health nurses co-located in primary care practices.
De Cruppe 2005	To examine the effects of intensive management of the referral process on patient care by establishing	RCT - 67 patients randomized into intervention (n = 33)	Germany.	Not specified.	CL/ EC/ Prot: Direct communication/consultation via telephone and written format

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First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
	direct contact with the PC provider following discharge.	and control groups (n = 34).			between the GP and the consultation-liaison service.
Dietrich 2004	To test the effectiveness of an evidence based model for management of depression in PC with support from QI resources that could be widely disseminated.	RCT – 224 = intervention and 181 = control - patients starting or changing treatment.	Multiple sites across 5 healthcare organisations, USA.	Major depression and/or dysthymia. Adults aged 18+	CL/ CM/ LW: Centrally based care manager providing telephone support for patients. Psychiatrists supervised the care managers through weekly telephone contact.
Dobscha 2006	To determine the effect of depression decision support for clinicians on clinical outcomes and processes of care.	RCT - 43 eligible PC clinicians, 375 patients with depression (Patient Health Questionnaire [PHQ-9] depression scores of 10 to 25 or Hopkins Symptom Checklist-20 [SCL-20] scores > 1.0).	USA.	Patients with depression in a Veterans Affairs (VA) primary care setting. General adult.	CL/ CM/ ER: Clinicians received depression education. The depression decision support team, consisted of a psychiatrist & nurse, provided 1 early patient educational contact & depression monitoring with feedback to clinicians over 12 months.
Drew 2003	Project report - aim to improve general HC of persons with psychosis.	Program evaluation - GPs & CMHS staff surveyed.	ACT, Australia.	56 persons with psychosis.	CM/ EC/ LW/ MOU: CMHW liaised with GPs, CMH staff - developed care plans, prepared progress reports.
Druss 2001	To evaluate an integrated model of primary medical care for a cohort of patients with serious mental disorders.	RCT - 120 individuals randomized to either integrated care initiative located in MH clinic (n=59) or UC through referral to VA general medicine clinic (n=61).	Male veterans	SMI.	CL/ CM/ CoL/ EC/ LW: Veterans in integrated care clinic received on-site PC & case management - emphasized preventive medical care, patient education, and close collaboration with MH providers to improve access to & continuity of care.
Emmanuel 2002	To evaluate a model of enhanced key-worker liaison with PC that could be applied without extra resources to a large number of general practices.	RCT - 84 patients newly referred to secondary care from participating practices.	London - North Westminster and North Kensington, UK.	Included referrals made to the adult or elderly mental health service. Various MH issues.	CL/EC/ LW: Written guidelines re enhancing liaison included: informing the PHC team about each patient contact; giving feedback to PHC team; use of a patient held shared

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First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
					care record; & review meetings.
Emmerson 2003	Development of psychiatric assessment & advisory service for GPs - Medicare funded.	Survey - 79 GPs.	Brisbane, QLD. Australia.	Mainly mood or anxiety disorder.	CL/ EC/ ER: 'Psych opinion' service, Royal Brisbane Hospital – assessment appointment – feedback to GP about treatment.
Endacott 2006	To evaluate eating disorder services in 2 regional cities.	Interviews, questionnaires & health service data.	Bendigo & Geelong, VIC. Australia.	Eating disorders.	CoL/ SC: Bendigo service - stepped CC model with psychiatrist & dietician. Geelong service co-located in PC setting.
Farrand 2007	To examine the impact of the graduate mental health worker (GMHW) role.	Interviews - 12 clients, 10 managers/ supervisors, 5 GPs.	4 counties in South-West England, UK.	Not specified.	CoL/ CM: Graduate Mental Health Role as defined by the NHS – case management – also received structured supervision.
Farrar 2001	To determine whether Health Care providers are satisfied with an integrated program of MHC.	Survey - FPs (n=78), counsellors (n=38), psychiatrists (n=13).	Hamilton, Ontario, Canada.	Not specified.	CL/ CoL: Each PC practice has an on-site mental health counsellor and a visiting psychiatrist.
Felker 2004	To describe the organization of the multidisciplinary MH PC team.	Service evaluated using referral rates.	Canada.	Not specified.	CoL/ EC/ ER: Clinical program provided in the PC clinic by a MH team - psychologist, psychology intern, psychiatry residents, clinical social workers, chaplain.
Fickel 2007	To describe the extent of collaboration and perceived barriers in selected outpatient clinics.	Interviews - 22 PC & MH clinical leaders from 10 outpatient facilities.	Multiple sites across 5 states, USA.	Depression.	Context: Referral, consultation and collaboration practices.
Fitzpatrick 2004* McCrone 2004	To determine the factors associated with receipt of different levels of shared care, the effect of shared care on patient outcomes and health service use.	Patient functioning assessed - GPs completed a questionnaire about patients' shared care	Inner London, UK.	349 patients with severe mental illness, aged between 16 and 64.	Context: Different levels of shared care and health service use.

First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
		arrangements.			
TEAM (Telemedicine Enhanced Antidepressant Management) Fortney 2006 Fortney 2007*	To evaluate a collaborative care model adapted for small rural clinics using telemedicine technologies.	RCT - Patients at intervention sites received SC model of treatment - up to 12 months. UC provided according to VA guidelines.	USA.	395 patients with major depressive disorder which could adequately be treated in PC.	CL/ CM/ EC/ SC/ IC: Use of telemedicine technologies - telephone, interactive video, electronic medical records, & internet - to facilitate collaboration between on-site PCPs & off-site depression care team.
Frazer 2006	To implement an integrated care pathway (ICP) for assessment and treatment of depression in GP surgeries and evaluate GP experience.	Questionnaire- 13 PC GMHWs & GPs to collaboratively assess & treat depressed patients.	2 Primary Care Trusts (6 practices) in Sheffield and Barnsley, UK.	Mild to moderate depression.	CM/ EC/ Prot: Development of an ICP with best practice NICE guidelines, clarification of GP & PC GMHW role, emphasis on the need for collaboration, includes SC logic.
DETECT - early intervention model Gavin 2008	To describe GPs' attitudes towards working within the catchment area of an early intervention service.	Interviews with 16 GPs.	Dublin, Ireland.	Young people.	ER: Responsive service to GP to ensure earliest possible initiation of treatment and optimize young person's engagement with the psychiatric service.
Gerdes 2001	To assess which organisational & provider variables are associated with measures of collaborative strength.	Survey of 72 PC sites - 175 (54%) were returned from 57 different sites.	Central Pennsylvania, USA.	Not specified.	Context: CC between services - eg consultation and referral practices Co-location of MH services situated within a 30 minute drive of the practice.
Gilbody 2006	To explore research into CC, to quantify the short and long term effectiveness of CC compared to standard care and understand mechanisms of action.	Systematic literature review (SR) and meta-analysis of RCTs that compared CC with usual PC.	Various.	Patients with depression.	SR: To be included, a study had to involve 2 of 3 components - a case manager, a primary care practitioner, and a mental health specialist.

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Grayer 2008	To evaluate the effectiveness of GP CMHWs with limited MH training for patients with psychosocial problems.	108 patients from 13 GPs referred to a GP CMHWs Community Link scheme completed questionnaires.	London, UK.	Patients with psychosocial problems.	EC/ ER/ LW: Referral to GP CMHW by members of PHC team, data about assessments and action communicated to referrer and documented in patient's records.
Griswold 2008	To gain insight about patients' experiences accessing PC & MHC and to better understand patients' responses & perceptions about care managers in the context of access to and satisfaction with PC.	RCT - patients randomized to CM v UC. Functional assessment at baseline, 6-months & 1-year. Interview conducted with participants at baseline & 1 year.	Patients seeking care in a psychiatric emergency department of an urban public hospital, USA.	175 patients with serious psychiatric problems.	CM/ ER: Care manager assisted with making PC appointments, attended these appointments, provided education to reinforce teaching from PC, and coordinated with MH peers to support connections with community mental health care.
Guck 2007	To compare no-show rates for the coordinated and colocated behavioural care models.	Coordinated group = 92 patients scheduled 385 sessions. Colocated group = 81 patients scheduled 343 sessions.	USA.	Anxiety, depression.	CoL: Co-location of PHC and psychology services and coordination of PHC and psychologist services where coordination implies patient referred to a different site.
Harkness 2002	To determine the direct and indirect effects of on-site MHWs delivering psychological therapy & psychosocial interventions in PC on the clinical behaviour of PCPs.	Systematic literature review (SR) - RCTs, controlled before/after studies and interrupted time series analyses of MHWs working alongside PCPs in PC settings.	Various. 42 studies included in review.	Issue not described.	SR/ CoL: Psychological therapy and psychosocial interventions provided by an on-site MHW as a separate and distinct activity and not solely part of normal primary care consultations.
Harmon 2000	Demographic characteristics of patients accessing integrated service.	Clinical audit plus GP satisfaction survey.	Port Stephens, NSW, Australia.	General mental health.	CM/ ER/ LW: MHNs – referred from GPs, provided clinical assessment, consultation & feedback to GPs re diagnosis & case management. Nurses supervised by a psychiatrist.

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Harris 2007	To evaluate the Aboriginal Mental Health Worker program.	Audit of 35 client records & 52 interviews with MHWs.	Remote communities – NT. Australia.	General mental health/adult.	CoL: GP mentoring Aboriginal MHW. Supported by GP visiting Aboriginal MHWs.
Hedrick 2003* Liu 2003	To compare CC for the treatment of depression in PC with consultation liaison (CL).	RCT - 354 patients randomised to CC or CL. (CC: n=168) and (CL: n=186).	General Internal Medicine Clinic (GIMC), Seattle VA Medical Center USA	Depression or dysthymia	CL/ CM/ EC/ Prot: Weekly team meetings (psychiatrist, social workers & psychologists) to develop treatment plans & conduct 6 & 12 week progress evaluation using VA guidelines. Team communicated with PCPs via electronic progress notes.
Heideman 2007	To describe a programme & determine effects of specific QI interventions on perceived barriers to collaboration between GPs & MH professionals.	Questionnaire - 1336 (49%) & 1358 (49%) GPs returned baseline and follow-up questionnaires respectively.	Netherlands.	Issue not specified.	Context: National Quality Improvement (QI) program which could include various components.
Hilty 2006	To propose a model of using telephone and e-mail consultations before or in place of video consultations.	3 case studies to explore use of secure email consultation to accelerate initiation of care.	Rural, USA.	ADHD, depression and anxiety – moderate to severe.	IC: PCP initiates secure email or telephone pre or post or instead of video conferenced specialist psychiatrist patient assessment.
Horner 2005	To describe a shared care programme - MH services & GPs & Clinical Liaison Officer (CLO).	Questionnaire re GP Clinical Liaison Officer - 56 patients, 13 GPs.	Sydney, NSW. Australia.	Chronic psychiatric disorders.	CM/ LW: GP CLO in GP setting – in multi disciplinary care planning meeting – develop individual management shared care plan.
Hull 2002	To examine whether the relationship between GPs and CMHTs affects the numbers and types of referrals.	A postal questionnaire survey – 161 GPs.	East London, UK.	Patients with severe and enduring conditions.	CL: Regular face-to-face contact with caseworkers, discussion, four to six times weekly.

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Hunter 2008	To describe the experiences of staff from CAMHS & secondary education services (SES) re introduction of a MHLW.	2 focus groups - one with 15 education staff and the other with 11 CAMHS workers.	UK.	Child and adolescent.	LW: Provision of MHLW to raise awareness of MH issues & services; provide MH info & teaching programme for CAMHS and SES.
Jajoura 2004	To determine the effectiveness of screening & treatment for depression among ambulatory indigent patients visiting resident physicians.	RCT - 61 patients (33 = intervention, 28 = UC) over 18 years of age not receiving treatment.	Ohio, USA.	Depression – patients either enrolled in Medicaid or had income below the poverty line.	CM: Nurse liaises between patients & MH agency re an appointment which provides a centralized assessment service including diagnoses & behavioural care. Case management for services also provided.
Kates 2002	To evaluate a specialized mental health service in the offices of FPs.	Describes the program and role of MHWs in PC - survey	87 FPs, 36 practices S. Ontario Canada.	Not specified	CL/ CoL: Mental health counsellors permanently working in a PC practice.
PATHWAYS Katon 2004	To determine whether enhancing quality of care for depression improves both depression and diabetes outcomes.	RCT - 329 patients with diabetes mellitus & comorbid major depression and/or dysthymia (intervention n=164, UC (n=165).	9 primary care clinics in Western Washington, USA.	Patients with major depression and diabetes.	CL/ LW/ Prot/ SC: Stepped-care depression treatment program provided by a depression clinical specialist nurse in collaboration with the PCP.
Katon 2001	To assess whether a relapse prevention intervention would improve adherence to anti depressant medication and improve depression outcomes in high-risk patients compared with UC.	RCT - 386 patients were randomized to a relapse prevention program (n=194) or UC (n=192).	4 large PC Clinics of Group Health Cooperative (HMO) of Puget Sound Washington, USA.	Major depression or dysthymia.	CM/ EC: Patient education + phone monitoring and follow up. Depression specialist reviewed monthly automated pharmacy data & alerted the PCP, phoned the patients when mailed feedback or automated data indicated they were symptomatic and/or had discontinued medication.
Katon 2002b* Lin 2000 Simon 2001 Walker 2000	To test long term effects of stepped CC intervention among persistently depressed PC patients including improvement in moderate and high	RCT - 228 depressed PC patients (intervention n=114 and UC n=114).	4 large PC Clinics of Group Health Cooperative (HMO) of Puget Sound	Depression. Adults aged 18 – 80 years.	CL/ CoL/ ER: Patients received educational material & sessions with a psychiatrist in the PC clinic. Psychiatrist reviewed patient's course

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	severity patients and the difference in costs of intervention and control groups over a longer follow up.		Washington.		of current depressive episode, bio-psychosocial history & assisted the PCP adjust the medication & provided feedback.
Katzelnick 2000	To determine the impact of offering a systematic PC-based depression management program (DMP) to depressed "high utilizes" not in active treatment.	RCT - 163 physician practices randomly assigned to the DMP (n = 82) or UC (n = 81).	Midwest, Northwest, and New England, USA.	Depression. Adults aged 25 – 63 years.	CL/ CM/ EC/ LW/ Prot: Principal elements of the DMP were: physician & patient education; antidepressant treatment; & treatment coordination.
Killaspy 1999	To investigate communication between GPs, patients & psychiatrists.	70 GPs interviewed.	London, UK.	General adult, issue not specified	Context: Referral from primary care to psychiatrist.
King 2000* Bower 2000 Ward 2000	To determine the clinical and cost-effectiveness of UC compared with 2 types of brief psychological therapy (non-directive counselling and CBT) in the management of depression and/or anxiety in PC.	RCT - Study looks at 1 of 11 sites in PRISM-E study: 2 rural VA CBOCs in the SE of USA where the clinical intervention was implemented.	VA clinics, rural SE of USA. Study looks at 1 of 11 sites in PRISM-E study.	Depression and/or anxiety, alcohol problems.	CoL/ EC/ ER/ Prot: Comparing 2 linked models of integrated care: co-location and enhanced referral (not co-located in the PC setting.)
Kisley 2006	To compare FPs' experiences managing patients with psychiatric disorders in settings with & without access to collaborative MH services.	Questionnaire with 101 FPs.	Nova Scotia, Canada.	Depression.	CL/ CoL/ MOU: Working arrangements are covered by MOUs between CC program. Each clinic - covers referral, document charting and admin support, co-located office space, educational programs.
Lester 2007* England2007	To explore the views of GPs, PC teams & patients on the value & development of the new role of PCMH workers in practice.	37 interviews involving 7 PCMH workers, 21 patients & 11 focus groups - 38 members of PC teams.	West Midlands, UK.	Not specified.	CoL/ LW: PCMH workers offer brief evidence-based interventions to patients, develop practice infrastructure and establish links with the wider MH community.
Lester 2003	To evaluate the effectiveness of a	RCT - 176 general	North Birmingham,	Patients with	EC: Patient held record - sections for

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	patient-held record for patients with schizophrenia receiving shared care.	practices & 201 patients with schizophrenia (ICD-10 classification F20) (100 intervention and 101 control).	UK.	schizophrenia.	personal/health details, appointments, medication, personal & emergency numbers, early warning symptoms, patient, carer & professional comments.
PRISM-E (Primary Care Research in Substance Abuse and Mental Health for Elderly) Levkoff 2003* Arean 2008 Ayalon 2007 Bartels 2004 Chen 2006 Gallo 2004 Kirchner 2004 Krahn 2006 Oslin 2006	To determine whether integrated MH services or ER to specialty MH clinics results in greater engagement in MH/SA abuse services by older primary care patients aged 65+.	PRISM-E study. 2,022 patients - n=1,390 with depression, n=70 with anxiety, n=414 at risk alcohol use, n=148 dual diagnosis.	Multiple sites, USA.	Anxiety, depression, at risk alcohol use, dual diagnosis. 65+ years.	CoL/ EC/ ER/ Prot: Comparing 2 linked models of integrated care: co-location and enhanced referral (not co-located in the PC setting.)
Lovell 2003	To describe a pilot of a fast-access MH self-help clinic in PC.	112 patients' notes examined re GP consults, psychotropic prescriptions, and MH referrals.	Manchester, UK.	Depression or anxiety.	CoL: Patients received individually tailored programmes of self-help supported by the therapist (mental health nurse).
Macdonald 2004	Aim - to explore the process of implementation of PMHC services.	75 interviews across PMHWs, managers & clinicians.	UK.	Child and adolescent.	CL/ CoL: 3 models of organisation: 1. Outreach from CAMHS; 2. Based in PC; 3. PMHWs working independently.
McDonough 2003	To investigate use of a Shared Care Register (SCR) with psychiatrist: to enhance GP involvement in SMI	Questionnaire- to rate study practice GPs & a matched sample of	London, UK.	Psychosis patients (n=45).	CL/ EC: Shared care register, liaison meetings - GPs and CMHT (psychiatrist medical) where register

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	patients & improve PC links with CMHT.	comparison GPs with no SCRs.			patients reviewed.
CLIPP Meadows 2007	CLIPP model – Consultation/ Liaison in PC Psychiatry Program.	62 patients transferred to GP care. Measures - HoNOS, LSP, RFS, SF-36.	Melbourne, VIC. Australia.	Major psychiatric disorders, mostly schizophrenia.	CL/ CM/ EC/ MOU: Consultation /liaison service by psychiatric consultants at GPs. Clinical case register used to actively promote follow-up for clients.
Mildred 2000	Collaboration between GPs & CAMHS.	Survey & interviews with GPs (114) & MHWs (14).	Melbourne, VIC. Australia.	CAMHS - General mental health.	EC: Care manager to develop standardised letters for communication, liaison with CAMHS and GPs.
Morley 2007	Evaluation - BOiMHC: Impact of different models.	29 projects (27%) included.	Various Australian sites.	Depression & anxiety.	CoL: Colocation of services.
ACCESS Morrissey 2002	To integrate service delivery systems for homeless persons with SMI.	RCT - 18 sites across 15 USA cities randomly allocated to intervention (9) & control (9).	18 sites, USA.	Homeless persons.	CoL/MoU: MH, substance abuse, PC, housing & social welfare services. Strategies to improve linkages - cross training, interagency agreements, management info system/client tacking system, joint funding.
Murphy 2002	To evaluate effects of reconfiguration on referrals from PC to MH services, admissions to the acute in-patient unit & emergency/ crisis contacts.	Retrospective cohort, 12 months before and 12 months after reconfiguration	Plymouth. UK.	Non urgent mental health conditions, general adult.	LW: CPN weekly visit - sees patients, talks to GPs. Resulting referrals to weekly allocation meeting.
Myers 2007	To examine the feasibility and sustainability of a tele psychiatry service at a children's hospital.	Using interactive video teleconference, psychiatrists provided care to patients of PCPs. 62 satisfaction surveys of PCPs.	Seattle, USA.	Children and adolescents living in 4 non metro sites.	IC: After completion of each session, the tele psychiatrist sent a note by fax summarizing findings – full report to the referring physician within 2 to 3 weeks.

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Nettleton 2000	Aim - to identify an efficient way to provide counselling in rural General Practices.	Interviews - 3 general practices with 14 GPs - 131 people referred to counselling.	Scottish Borders, UK.	Older adults.	CoL: Counsellor co-located in PC setting.
Neufeld 2007	To develop a model of tele-mental health service	Patients scheduled for video consultations completed the SF-12 V.2 before initial consultation.	10 rural sites in California, USA.	33 patients completed a follow-up administration of the same instrument 3-6 months after initial consultation.	CL/ CM/ ER/ IC/ Prot: Summary evaluations & brief written treatment recommendation faxed to rural providers, provided treatment options & algorithmic follow-up decision trees for rural providers.
Neira-Munoz 1998	To determine the effectiveness of PC MHW in assessing referrals & selecting agencies to refer to, determine the effectiveness of liaison clinics in managing children with mild to moderate MH problems, develop models of collaboration between the specialist worker and PC teams.	RCT - 16 GP practices randomly selected from 32 practices. 8 received the help of PC MHW - the remainder acted as a control group. 50 GPs took part in the nine-month pilot.	Portsmouth and South East Hampshire, UK.	Children aged 0-16 with mild to moderate mental health problems from intervention practices.	CL/ LW: Liaison clinic run by a PC MHW - provided expert support & advice to GPs, coordinated existing professional skills via an adapted liaison- attachment model. The worker's role was to organise & develop liaison clinics with members of the PC teams.
Oslin 2003	To explore the efficacy in a PC setting of a telephone-based disease management program for the acute management of depression and/or at-risk drinking.	RCT - Veterans (N = 97) with depression and/or at-risk drinking.	Philadelphia, USA.	Depression and/or at-risk drinking. Veterans aged 18+	CL/ CM/ EC: BHS - maintained telephone contact to develop a treatment plan, monitor treatment effectiveness & adverse effects, and assess/encourage treatment adherence, support & education.
Perkins 2005 Perkins 2006	Evaluation of the Mental Health Integration Project (MHIP) in remote far western NSW.	Survey - 10 GPs remote (59%), 5 regional towns (45%).	Remote Far Western NSW, Australia.	General mental health.	CL: Local resident MH team, GPs & other providers supported by specialist MH staff & visiting psychiatrists. Local GPs refer to MH team - controlled patient access to VMO psychiatrist re priorities for staff

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					support & patient assessment or care.
Pirkis 2004	Description of Partnership Project - linkages between public and private MH services.	Program evaluation - key informant interviews, billing data & Health Insurance Commission (HIC) data.	Melbourne, VIC. Australia.	General mental health.	CL/ EC/ MOU/ Prot: Linkage Unit - Expansion of psychiatrists' roles to include supervision /training, case conferencing and secondary consultation. Linkage Unit - a facilitating role only.
Pirkis 2006	ATAPS – To determine if particular models associated with differential levels of access.	Survey - data from 97 ATAPS projects (95%).	Various Australian sites.	General mental health.	CoL: Co-location of services
Lambeth Early Onset Crisis Assessment Team (LEOCAT) Power 2007	To evaluate the effectiveness of a GP education programme & direct referral access by the GP to an early detection assessment team in reducing delays in accessing treatment for first-episode psychosis patients.	RCT - 46 GP clusters randomly allocated to the intervention = 13 and UC groups = 13.	London – Lambeth, UK.	First-episode psychosis patients, 16 – 35 years.	EC/ ER: Follow up phone call reminders on the benefits of early detection and feedback about referred cases. Direct referral access to the Crisis Assessment Team.
Price 2000	To determine if UC or integrated care is associated with greater symptom remission, improved functional status, increased satisfaction with care.	Patient assessment done at enrollment and follow-up, data collected at 3 & 6 month intervals via interviews.	Colorado, USA.	137 patients with anxiety disorders.	CL/ EC: Psychologists & PCPs communicated regularly via voicemail or in joint sessions with the patient. Medication compliance, side effects, and the patient's progress in treatment discussed.
Raine 2005	To explore the attitudes of GPs to single-point-of-access referral & MH professionals.	Facilitated discussion, 6 focus groups.	UK.	Not specified.	Context: Generic referral whereby the GP refers to a specialist MH team via a single point of access.
Rees 2004	To investigate professionals' experiences/views of an Integrated Care Pathways (ICPs).	Interviews -3 CMHT leaders & 2 service managers plus	Scotland, UK.	Not specified	CM: Pathway included consultations, protocols for assessments, diagnostic procedures and expected outcomes.

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		interviews with members of 4 CMHTs.			
Richards 2006 Richards 2008*	To estimate an effect size for a UK-specific CC protocol and to determine whether cluster or patient randomization would be the most appropriate design for a Phase III trial.	RCT - 114 – 41= intervention, 38 = randomised control, 35 = cluster randomised control.	UK.	Severe to moderate depression.	CM/ EC: Multi-professional approach to patient care provided by a case manager working with the GP under weekly supervision of MH specialists. Structured management plan, enhanced inter professional communication - feedback to GPs via electronic record & personal contact.
Richardson 2009	To explore the feasibility of a CC program designed to improve treatment and outcomes.	40 participants assessed by DCM for 6 months & completed written self-report assessments at baseline, 3 & 6 months.	3 clinics in the Pacific Northwest, USA.	Depression – young people – 12 to 18 years seen in PC settings.	CM/ EC/ Prot: Intervention model was adapted from the IMPACT study. (See Unutzer 2002).
Rodenburg 2004	To describe the development of a PC service for MH consumers who had previously been cared for by a specialist service.	Interviews - HoNOS & LSP measures used – 163 participants.	Wellington, NZ.	Issue not specified – General adult.	CL/ CM/ LW/ MOU: a PC liaison worker - established within the specialist CMH service with a focus on supporting the consumer in the transfer from specialist care to PC.
Rollman 2005	To examine whether telephone-based CC for panic/anxiety disorders improves clinical & functional outcomes more than UC provided by PC physicians.	RCT - 191 adults with panic and/or generalized anxiety disorder – 116 = intervention, 75 = UC.	4 primary care practices in Pittsburgh.	Adults aged 18 to 64 years with panic and/or generalized anxiety disorder.	CL/ CM/ EC/ LW/ Prot: Care manager provided education, assessed preferences for guideline-based care, monitored treatment, informed physicians of patients' care preferences and progress via an electronic medical record system.
Roy-Byrne 2001* Katon 2002a	To evaluate the incremental cost-effectiveness & potential cost offset of a CC treatment program for PC patients with panic disorder (payer	RCT - 115 patients - intervention n=57, control n=58 - meeting DSM-IV criteria for	3 PC clinics in Seattle, Washington area, USA.	Panic disorder, 18 – 65 years. Patients with at least 1 panic attack in the past	CoL/ Prot: Patients had initial psychiatric visit, then prescribed a SSRI. At randomization, CC patients were also mailed an educational

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	perspective).	panic disorder.		month.	videotape and a pamphlet describing the nature of panic disorder.
Roy-Byrne 2005* Katon 2006	To describe the incremental cost-effectiveness of a combined CBT & pharmacotherapy intervention for patients with panic disorder v UC.	RCT - 232 primary-care patients meeting DSM-IV-R criteria for panic disorder, 18 – 70 yrs.	6 clinics Seattle, WA, San Diego, CA, and Los Angeles, CA. USA.	Panic disorder.	CL/ LW/ Prot: Intervention delivered by BHS - weekly supervision with a psychologist & a psychiatrist. BHS relayed recommended medication changes from psychiatrist to PCP.
Samy 2007	To identify a working model between rural & remote MHservices & local GPs -The GP Liaison Project.	Questionnaire (17 GPs) - at inception of Project - 3 & 5-year follow up.	Victoria – rural and remote MH services, Australia.	General mental health.	CL/ EC/ IC: Communication between MH services & GPs facilitated through regular meetings. Consultation psychiatrist visiting remote community MH centres 3X week.
Schafer 2009	To explore how GPs perceived the impacts of an on-site counselling service on their practice.	Questionnaire - 52 GPs. Interviews - 8 GPs from 3 practices (s sites).	South Essex, UK.	Conditions amenable to counselling.	CoL: Practice based, co-located counselling service.
Sharma 2001	To evaluate the impact of a model of a multi-disciplinary PMH Team (Integrated care).	472 patients seen in clinics held in GP practices.	Liverpool, UK.	Not specified.	CM/ CoL/ EC: Multi-disciplinary team meetings in PC setting, clinics held in GP practices, coordination of services provided by other agencies.
Shaw 2005	To present a content analysis of referral letters.	20 GP practices.	UK.	Not specified.	ER: Referral letters between GPs and psychiatrists and community mental health teams.
Simon 2004	To compare usual PC for depression with 2 intervention programs: telephone care management and telephone care management plus telephone psychotherapy.	RCT - 600 patients beginning antidepressant treatment systematically sampled from 7 group-model PC clinics.	Washington State, USA.	Depression.	CM/ EC/ Prot: Feedback to physicians plus care management by telephone.

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Simon 2000	To determine if feedback to physicians or feedback plus telephone care by case managers improve outcomes in patients treated for depression.	RCT - 613 patients with new prescriptions for antidepressants (221 = feedback only; 196 = feedback + CM; and 196 = usual care).	5 primary care clinics in Seattle, USA.	Depression.	CM/EC/ Prot: CM with follow up intervention between PCP, care manager & psychiatrist. Feedback only group - PCPs received detailed report on each patient at 8 & 16 weeks after initial prescription.
Simpson 2005	Evaluation of GP Psych Opinion program.	Survey of 13 GPs who had referred patients to the program & 96 who had not.	Brisbane, QLD. Australia.	General mental health.	CL/ EC/ ER: Expedited referral from GP to psychiatrist. GP received assessment & recommendations re diagnosis/ management & the option to discuss the case with the psychiatrist by phone.
Simpson 2003a* Simpson 2000 Corney 2003	To examine the effectiveness/cost effectiveness of short term counselling in GP settings for patients with chronic depression and/or anxiety.	RCT - practices that employed psychodynamic counsellors.	7 practices in North and South Derbyshire, UK.	Chronic depression and/or anxiety. Adults 18 – 70.	CoL/ Prot: Counsellor co-located in a GP practice. Protocol followed.
Slade 2008	To investigate whether introducing a standardized measure of MH problem severity (TAG) into referral process improved agreement between PC referrer & referred-to CMHTs re suitability of the referral for specialist MH services.	RCT - GP referrals from 73 practices (intervention n=36 and control n=37) to 11 CMHTs.	One borough of London (Croydon) and Manchester, UK.	Not specified.	ER: The TAG is a 1-page referrer-rated assessment of MH problem severity over 7 domains: intentional self-harm; unintentional self-harm; risk from others; risk to others; survival needs/disabilities; psychological needs/disabilities; & social needs/disabilities.
Smit 2005	To describe the contents and feasibility of the Depression Recurrence Prevention (DRP)-Program, a structured psycho-educational self-management intervention between patient,	RCT- 267 PC patients with a DSM-IV diagnosis of major depression - enhanced care - n = 195 or care as usual - n = 72.	Netherlands.	Major depression. Patients ages 18 – 70 years.	CM/ EC: The PCP provided psychiatrist with information about the patients' health & treatment status. The psychiatrist reported & discussed diagnostic findings & treatment advice with the PCP. A

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	prevention specialist and PCP.				copy of report also made available to the prevention specialist.
Sweeney 2003	Perceptions of community-care and MH workers about care of people with MH problems.	Interviews with representatives from government & non-government organisations (n=38).	Remote and Rural WA – Esperance.	General mental health. Not specified.	Context: Referral, access & CM between MH services & other community services - Aboriginal rehabilitation, justice, police, voluntary respite, range of social & MH services.
Swindle 2003	To examine the effectiveness of integrating generalist and specialist care.	268 patients (intervention n=134 and control n=134)	General medicine clinics in VA medical clinic, USA.	Veterans with major depression.	CL/ LW/ Prot: 9 MH CNS trained - decisions about therapies discussed with PCP - psychiatrist available for liaison if needed.
IMPACT (IMPROVING MOOD PROMOTING ACCESS TO COLLABORATIVE TREATMENT) Unutzer 2002* Arean 2005 Arean 2007 Blasinsky 2008 Gum 2006 Harpole 2005 Hegel 2005 Hunkelar 2006 Katon 2005 Levine 2005 Oishi 2003	To determine the effectiveness of the IMPACT CC management program for late-life depression.	IMPACT - 1801 patients aged 60+ with major depression (17%), dysthymia (30%) or both (53%). Patients randomly assigned to IMPACT intervention (n=906) or UC (n=895).	Multi site RCT (7 study sites over 5 states) USA.	Major depression, dysthymia or both. Patients aged 60 years or over.	CL/ CM/ LW/ Prot/ SC: Intervention - access for up to 12 months to a DCM (nurses or psychologists supervised by psychiatrist & PC expert), offered education, care management, support of antidepressant management by the patient's PCP or a brief psychotherapy for depression, Problem Solving Treatment in PC.
Vines 2004	To evaluate a CC model with GPs &	Data related to Clinical	Bathurst, &	Primarily depression	CoL/ EC: Patients referred by GP to

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	clinical psychologists.	Psychology - 9 group GPs. 276 GP patients= intervention & 198 = control.	Armidale -NSW, Ballarat – VIC & 2 practices in 2 rural & remote NSW, Australia.	and/or anxiety.	clinical psychologist (co-located with GP) supervised by senior clinical psychologist. Ongoing face-to-face discussion/consultation between GPs & clinical psychologists during course of treatment.
Vingilis 2007	To examine an existing shared care program.	Data gathered from central patient database. Focus groups and interviews – 79 FPs, 56 MHWs & 8 dieticians.	Hamilton, Ontario, Canada. 36 FP practices.	Not specified.	CL/ CoL/EC/ Prot: Integration program of specialised MH nutrition services – Co-located with FPs – MHWs - counsellors (social workers, psychiatric nurses), psychiatrists and dieticians.
Von Korff 1998	To estimate the treatment costs, cost-offset effects & cost-effectiveness of CC of depressive illness in primary care.	RCT - 370 patients randomized in two controlled trials (trial a n=217) and trial b (n=153).	Northgate Medical Center of Group Health Cooperative of Puget Sound, Seattle, USA.	Depression.	CL/ CoL/ EC: Patients were co-managed by the PCP & 1 of 3 board certified consulting psychiatrists with substantial experience in providing services in PC settings.
IDACC (Identifying Depression as a Co-morbid Condition) Wade 2005	To examine the effectiveness & practicality of different forms of communication between hospital psychiatric services & GPs.	RCT - 480 GPs nominated by 669 patients. Depression status assessed at 12 months.	4 major public hospitals (cardiology units) in Adelaide, South Australia.	Depression.	CL/ EC/ IC/ Prot: Consultation /liaison service for in-hospital psychiatric consult - rehab nurse notified-supervision from psychiatrist. GP phone case conference with psychiatric registrar & rehab nurse.
Warner 2000	To identify whether carrying a shared care booklet improves MH, service contact & patient satisfaction and to assess the pattern of use of patient-held records.	RCT - All patients who screened positive for depression during the study period before and after the intervention - 320 (2003) – 186= intervention, 134= control. 350 (2004) –	White River Junction, Vermont, USA.	Depression, Veterans.	CoL: Primary MH care clinic (PMHC) co-located in a PC clinic, working collaboratively with PC staff Advanced/ open access to MH providers - i.e. access via self referral or through PCP & use of standardised mental health assessment instruments.

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		197: intervention, 153: control.			
Watts 2007	Before-after evaluation of PMHC clinic co-located in a PC clinic of a VA Medical Centre with associated outreach clinics service as controls.	320 screened positive before (2003) - 186 in intervention, 134 in control clinics - 350 screened positive after (2004) - 197 in intervention, 153 in control.	Vermont, USA.	Depression.	CoL: Primary mental health care clinic (PMHC) co-located in a primary care clinic.
PARTNERS IN CARE Wells 2004 Wells 2005*	To assess how QI for depression affects health outcomes, quality of care, and health outcome disparities at 57-month follow-up.	RCT – involved 2 QI interventions compared with UC. 46 practices randomised into 3 arms.	Multiple sites, USA.	Depressed primary care patients.	CL/ CM/ EC/ ER/ Prot: 2 QI interventions - one intervention trained nurses to support medication management by PC providers & the other trained local therapists in CBT.
Westheimer 2008	To examine the experiences of PC providers in an Integrated Healthcare Model (IHM) between MH & PC in a university health centre.	Interviews with 10 PC providers.	Austin, Texas, USA.	General population, issue not specified.	CoL/ ER: Behavioural health and primary health co-located in University Health Services. Behavioural health providers (psychologists and social workers) work beside PHC providers.
White 2000	To evaluate the impact of counsellors in PC on referrals to MH services.	Questionnaire – 123 GP practices and assessment of 180 referrals - 76 (42.2%) from practices that employed a counsellor. and 104 (57.8%) from practices that did not.	Merton, Sutton & Wadsworth Health Authority, UK.	General population, issue not specified.	CoL: Counsellor co-located in primary care setting.
White 2004	To examine effectiveness of combining evidence-based	A sample of patients selected from all new	London, UK.	Not specified.	EC/ ER/ LW: A protocol for referral for GPs from practices with a LW to

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First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
	dissemination and implementation strategies to support a locally-developed written communication protocol for GPs and CMHTs.	link practice referrals (26 practices with a LW) - the GP's referral letter was also traced.			CMHTs. The study adopted a 'decision support system' in the form of laminated A4 desktop 'reminders' for GPs and CMHTs. CMHT LWs discussed the protocols at the practice meetings.
Winefield 2007	To evaluate a Better Outcomes of Mental Health Care Access to Allied Psychological Services Program for GP patients referred for high prevalence mental disorders.	GPs (n=26) undertook training to qualify as referrers & referred patients (n= 280) to psychological treatment.	South Australia.	High prevalence mental disorders - anxiety & depression.	CoL/ Prot: MH specialists delivered Focused Psychological Strategies (FPSs) at PC practices located in the community using the direct referral model. The Division employed psychologists & social workers with cognitive behaviour therapy (CBT) training.
Winiarski 2005	To report on the effectiveness of an HIV MH programme integrated with PC emphasizing cultural responsiveness.	Questionnaire - 61 GPs from 26 practices and 15 staff from the MH service.	South Bronx, USA.	Adult. General mental health.	CoL/ EC: Integrated medical and psychiatric care provided on-site at a medical clinic for HIV patients. Regular team meetings.
Wright 2006	Improving collaboration between community MH services & GPs.	Questionnaire -32 GPs & 11 HV (Hunter Valley) MHS staff.	Hunter Valley, NSW. Australia.	General mental health.	CM/ EC: Staff from HV MHS visited GPs in surgeries for case review meetings. Discussions re 'shared' cases, issues re MH assessments, access to the HV MHS & treatment strategies. GPs care plans & case conferencing under - Enhanced Primary Care (EPC) initiative.
Yaffe 2005	To explore aspects of the consultation process/referral process between FPs & geriatric psychiatrists.	An 18 month survey - in an out-patient psychogeriatric clinic – 67 patients.	Montreal, Canada.	Older people, 65+	CL/ EC: Referral from FP to psychiatric consultant - the psychiatrist completed a short questionnaire on clinical diagnosis, recommendations, drafted a written response to the GP.

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First Author/ Year	Study aim	Study type	Setting	Issue/client group	Linkage strategy
Yeung 2004	To investigate whether integrating psychiatry & PHC improves referral to and treatment - MH services	Referral records reviewed for 2000 & 1999- reviewed for comparison.	Chinese Americans Boston, USA.	General mental health.	CL/ CM/ CoL/ Prot: Training of the PCPs/nurse on cultural sensitivity - Primary care nurse as the "bridge" or care manager.
Younes 2008	GPs' opinions on the impact of the consultation-liaison system about referred patients to the collaborative system.	A retrospective study- 118 GPs surveyed and data on 181 patients who had been seen by the service.	South Yvelines, France.	Not specified.	CL/ CM/ EC/ ER: A specialist consultation center intended for GPs located in the biggest general hospital, less stigmatized than psychiatric hospitals.

* Primary Paper

APPENDIX 5. CLINICAL EFFECTIVENESS – SYSTEMATIC REVIEWS

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope
Bower 2006	Depression/Anxiety	BACP Accredited Counsellor located in PC (nurse, psychologist/ etc, GPs, HVs) offering a distinct and therapeutic intervention with individual clients involving face-to-face contact between patient and counsellor (includes different models such as non-directive counselling, psychodynamic counselling, cognitive-behavioural counselling).	Significantly greater clinical effectiveness in the counselling group compared with usual care in the short-term (1-6 mths) based on psychological symptom scores – 6/8 trials (standardised mean difference -0.28, 95% CI - 0.43 to -0.13, n = 772). No difference at 12 mths. No difference between patients receiving counselling and those receiving usual care in terms of overall social function at short, long or very long time-points.	Cochrane systematic review with meta-analysis. Included 8 RCTs -6 trials assessed clinical effectiveness outcomes based on psychological symptom scores -3 trials provided functional outcome scores using the same measure No trials standardized usual care and information about the therapeutic encounter between patient and GP is therefore unknown. It is possible that GPs were offering a similarly sympathetic, listening approach and that the interventions of counsellors and GPs were very similar raising issues of contamination.
Butler 2008	Depression and anxiety were the focus of the majority of studies. The remaining were single studies for somatizing disorders, Attention Deficit and Hyperactivity Disorder (ADHD), and one study of depression and alcohol-related disorders.	Models aimed at integration of mental health services into primary care settings or primary health care into specialty outpatient settings. This includes the use of consultation by a psychiatrist, nurses with behavioural health training, social workers, clinical psychologist and care managers) via co-location or specific processes to improve communication links between providers such as shared medical records etc. Also includes follow-up, stepped care and coordinated care.	Integrating MH into PC - The studies reviewed tended to show positive results for symptom severity, treatment response, and remission when compared to usual care. There were no clear patterns to suggest that outcomes improve as the levels of either provider integration or integrated process of care increase. Integrating PMHC into specialty care – The trials were consistent in reporting improvements in medical care, quality of care, and patient outcomes.	Health Technology Assessment using RCTs and high quality quasi-experimental study designs. - 33 trials examined the impact of integrating mental health specialists into PC but only depression disorder studies (N=25) were included in this data analysis, due to the limited number of articles representing other mental health disorders. - Only 3 studies examined the impact of integrating PMHC into specialty care. Although there is some evidence that, compared to usual care, integrated care improves some outcomes for persons with depression, the results are not consistent. The majority of the studies showed significant benefit with regard to treatment response

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope
				<p>and remission, but only one model (IMPACT) showed consistent benefits in terms of symptom severity</p> <p>Includes US studies only conducted 1950-2007.</p>
Craven 2006	Not specified	<p>Collaborative care was defined as care involving providers from different specialties, disciplines or sectors working together to offer complementary services and mutual support - could include better communication, closer personal contacts, sharing of clinical care, joint educational programs and/or point program and system planning.</p>	<p>Degree of collaboration does not in itself seem to determine clinical outcome.</p> <p>The pairing of collaboration and treatment guidelines appears to offer important benefits, over either intervention alone in patients with depressive disorders, with patients with more severe disorder responding better. These guidelines include decision support instruments such as clinical treatment guidelines.</p> <p>One of the most powerful predictors of positive clinical outcomes was the inclusion of <i>systematic follow-up</i> as a part of the study protocol. Follow up enabled treatment to be altered when patients were not responding and often led to a stepped approach. The length of follow-up may be critical as longer studies/ interventions can show increasing clinical benefit over time.</p> <p>Efforts to increase medication adherence through collaboration with other health professionals were a common component of many studies - but there was no clear direct relation between medication adherence and clinical outcomes.</p> <p>Enhanced patient education about mental</p>	<p>Systematic review of experimental methodologies, RCTs, and intervention studies with outcome measures in PHC setting.</p> <p>Included 38 studies 1985-2005</p> <p>Descriptive analysis only as variations in study methodology preclude formal meta-analysis. Small number of experimental studies with most focusing on a single diagnostic entity (depression).</p> <p>Questions about the strength of support for the recommendations.</p>

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope
			disorders and their treatment was a component of many studies with good outcomes.	
Gilbody 2006	Depression	Collaborative care defined as "a multifaceted intervention involving combinations of 3 distinct professionals working collaboratively within the primary care setting: a case manager, a primary care practitioner, and a mental health specialist". To be included a study had to involve 2 of the 3 components.	<p>Random effects meta-analysis showed that depression outcomes were improved at 6 months (SMD, 0.25; 95% confidence interval, 0.18-0.32), and evidence of longer-term benefit was found for up to 5 years (SMD, 0.15; 95% confidence interval, 0.001-0.31).</p> <p>When exploring determinants of effectiveness, effect size was directly related to medication compliance and to the professional background and method of supervision of case managers. The use of regular and planned supervision of the case manager, usually by a psychiatrist, was related to a more positive clinical outcome.</p> <p>The addition of brief psychotherapy did not substantially improve outcome, nor did increased numbers of sessions.</p> <p>All studies had a case manager, but several studies deviated from the CC model in that they did not have access to specialist input. These studies with lower fidelity showed a lower pooled effect size and were more heterogeneous although this difference was not significant.</p>	<p>Systematic review and cumulative meta-analysis of collaborative care versus usual care. Provides short term (6 mths) and longer term outcomes (12, 18 & 24 months & 5 years).</p> <p>The quality of usual care is not described in any detail in the studies included in this review.</p> <p>Included 37 studies 1996-2006. 11 studies provided longer term outcomes.</p> <p>Cumulative meta-analysis showed that sufficient evidence had emerged by 2000 to demonstrate the statistically significant benefit of collaborative care. However this can only be said with certainty in relation to the US. Collaborative care studies conducted outside of the US yielded non-significant results and were subject to a much larger degree of between-study heterogeneity compared with US studies.</p>

APPENDIX 6. CLINICAL EFFECTIVENESS – RANDOMISED CONTROLLED TRIALS

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>PROSPECT – Prevention of Suicide in Primary Care Elderly: Collaborative Trial</p> <p>Alexopoulos 2005* (4mth follow up – reports on only 215 pts)</p> <p>Bruce 2004 (Major outcomes paper)</p> <p>Reynolds 2003 (interim results paper)</p>	<p>Major depression</p> <p>598 patients 60yrs+</p>	<p>CM/CoL/EC/Prot/SC</p> <p>Depression Care Managers (DCM)(N=15) who used Agency for Health Care Policy and Research Guidelines to provide appropriately timed and targeted recommendations to physicians.</p> <p>DCMs monitored psychopathology, treatment adherence, response, and side effects and provided follow-up care at pre-determined intervals or when clinically necessary.</p> <p>Step 1 – SSRI (citalopram) Patients who refused drug treatment were offered the option to receive interpersonal psychotherapy by the DCM.</p> <p>DCMs have weekly supervision by academic psychiatrist.</p> <p>Physicians remained responsible for the patients' clinical care.</p>	<p>Overall results</p> <p>Rates of suicidal ideation declined faster in the intervention group and the difference peaked at 8 months. Intervention patients had a more favorable course of depression than control patients in both degree and symptom reduction.</p> <p>Compared to UC, patients in the PROSPECT intervention had a larger change in depression severity (change from baseline HDRS score)</p> <ul style="list-style-type: none"> - 4 months - change -3.5 P<0.001) - 8 months - change (-2.1 P <.001) - 12 months - change (-1.8 P=0.006) <p>When analysed by depression severity</p> <ul style="list-style-type: none"> - all depressed patients P= 0.01 - major depressed patients P= 0.006 - minor depressed patients (P =ns) <p>Patients receiving the PROSPECT intervention had a better response to depression treatment (50%+ reduction in HDRS score)</p> <ul style="list-style-type: none"> - 4 months 42.7% v 29.1% OR 2.7 	<p>Multisite RCT USA PROSPECT intervention (N=320) versus Usual Care (N=278)</p> <p>May 1999-August 2001 12mths follow-up</p> <p>Usual Care – PCPs notified in writing of the patients' depression diagnosis and contacted when suicide risk indicated. Physicians also received a videotape and printed material on geriatric depression and treatment guidelines.</p> <p>12.1% of participants in the intervention arm received interpersonal psychotherapy alone.</p> <p>Effects on depression were not significant with minor depression unless suicidal ideation was present.</p> <p>The remission rate with UC eventually reached the level achieved with the intervention</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
			<p>P<0.001 -8 months 46.2% v 35.5% OR 2.1 P<0.02 -12 months 52.1% v 42.0% OR 2.0 P< 0.02</p> <p>all depression P<0.003 major depression P<0.001 minor depression P=ns</p> <p>Patients receiving the PROSPECT intervention had a larger reduction in suicidal ideation</p> <ul style="list-style-type: none"> • 4 months - 12.9% v 3.0% OR 2.8 P= 0.01 • - 8 months OR 3.5 P= 0.003 • 12 months OR 2.1 P= ns 	
<p>Bauer 2006b*</p> <p>Bauer 2006a</p>	<p>Bipolar disorder</p> <p>330 participants from 11 VA sites</p>	<p>CM/EC/Prot</p> <p>Outpatient clinic "specialty team" consisting of a psychiatrist & nurse care coordinator.</p> <p>Three intervention components specified in detailed manual:</p> <ol style="list-style-type: none"> a) Patient self management via group psycho education. b) VA Bipolar clinical practice guidelines - based on treatment algorithm c) Nurse care coordinator for FU of missed appointments; liaison with other providers during admissions and ER visits and collaboration with 	<p>The intervention was associated with a significant reduction in weeks of an affective episode including reduction in weeks of manic episodes</p> <p>- 6.2 fewer weeks in an affective episode over three years compared with usual care (F=4.18 1, df 435 P=.041)</p> <p>- 4.5 fewer weeks of manic episodes (F=5.78 df 1, 423 P=.017)</p> <p>Overall social role dysfunction decreased significantly in the Bipolar Disorders Program compared with UC (F= 9.02 df 1,</p>	<p>RCT (intervention N=166 and UC N=164)</p> <p>Jan 1997- Dec 2000 UK 3 yrs follow-up</p> <p>Follow up data was only available for 306/330 participants.</p> <p>UC patients continued with their previous psychiatrist or were assigned one if new to the VA. Clinicians caring for I or UC pts received intake data according to the DSM-IV interview. There was no monitoring of usual care</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		MH and medical-surgical providers. Also facilitation of information flow to the psychiatrist by providing patient assessments, reminders for guideline-based monitoring, and tracking laboratory values.	552, P=.003) including work, parental, and extended-family roles, but not social and leisure or marital function.	
<p>Mental Health Link</p> <p>Byng 2004 (b)</p> <p>Byng 2004 (a)</p> <p>Byng 2005 (qualitative)</p>	Cluster of 23 General practices, associated CMH teams, and patients with long-term mental illness	<p>CM/EC/LW</p> <p>Mental Health Link - a facilitated QI program</p> <ul style="list-style-type: none"> - 3-4 facilitated joint working group meetings - shared care facilitated through a linked specialist MH worker - link worker - tool kit to assist setting up registers, databases, audits and systems of recall - payment 	Intervention patients had fewer psychiatric relapses than control patients (mean = 0.39 versus 0.71, respectively, P= 0.02)	<p>Cluster RCT stratified according to size and interest in mental health</p> <p>Mental Health Link (MHL) program (12 practices, N=184 pts) versus usual service provision (11 practices N=151 pts)</p> <p>UK Usual service provision not described</p> <p>Payments of approx £2000 (dependant on practice size) were made to the practices.</p>
<p>PRIDE (Primary Care Intervention for Depression in the Elderly)</p> <p>Chew-Graham 2007(a)</p>	<p>Depression</p> <p>105 patients 60yrs+</p>	<p>CL/CM/Col/LW/Prot</p> <p>Community psychiatric nurse (CPN) based in PC and responsible for:</p> <ul style="list-style-type: none"> a) liaison with PC professionals b) care coordination c) liaison with old age psychiatrist according to a defined protocol (review of patients progress every 4 	<p>The adjusted odds ratio of being 'depressed' in the intervention group compared with treatment as usual was 0.32 (95% CI = 0.11 to 0.93, P= 0.036).</p> <p>When referral to secondary care, declined follow up, and loss-to-follow up were included as adverse outcomes, the adjusted odds ratio</p>	<p>RCT Intervention (N=53) versus UC (N=52)</p> <p>UK 16 weeks follow-up</p> <p>UC included guidelines on diagnostic criteria, appropriate investigations and the PC management of depression in older</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>weeks). d) written report to the GP after initial assessment, at 4 weeks, 8 weeks and 12 weeks. Additional contact with psychiatrist and GP if needed.</p> <p>CPN provided patient self help education about depression, AD medication, a manualised self help intervention and sign-posting to other services. Involved 6 face-to-face and 5 telephone meetings over 12 weeks.</p>	<p>was 0.38 (95% CI = 0.15 to 0.97, $P = 0.042$).</p> <p>On the SCID intervention patients had a better outcome than UC patients ($P = 0.036$). The HSCL-20 was not significant ($P = 0.062$) and there was no evidence of benefit for the intervention group on the HAQ pain and disability measures.</p>	<p>people.</p>
De Cruppe 2005	<p>Psychomatic including somataform disorder, disturbances with psychiatric symptoms and adjustment disorder/stress reaction</p> <p>67 adult patients</p>	<p>CL/EC/Prot</p> <p>Consultation Liaison service for GPs via telephone and written format. GPs received both an oral and a written semi-standardised report from the consultant.</p> <p>a) oral contact consisted of a 10- min phone conversation within 1 week following the consultation. b) written contact consisted of a semi-structured letter within 2 weeks of the consultation.</p> <p>Both contained the psychiatric diagnoses, symptom-related psychosocial findings and therapy recommendations</p> <p>GPs also received the recommendation to hold regular (every 4-6 weeks) symptom-focused conversations with their patients</p>	<p>A significant difference was found for social functioning (GASF) with the CL group over the control (mean score=3.09 versus 2.52, $p = .013$).</p> <p>Only the course of depression at T3 showed a significant difference (ADS: $F=9$, $df=1$; $P=.004$), with a stronger reduction of depressive symptoms. Anxiety and complaints did not differ in the groups over time.</p> <p>At T2 and T3, the differences in depression (ADS), complaints (B-L) and anxiety symptoms (STAI-X1) were no longer significant, although the patients who engaged in therapy still showed slightly higher values than patients without therapy.</p>	<p>RCT comparing CL (N= 33) with no CL (N=34)</p> <p>Germany 3.5yrs follow-up -T2 (6mths) -T3 (3.5yrs)</p> <p>In the control group only the referring ward doctor was informed of the consultation findings.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		integrating psychosocial aspects, or what is typically referred to in Germany as psychosomatic primary care.		
Dietrich 2004	Major depression and/or dysthymia 405 patients 18yrs+	<p>CL/CM/LW</p> <p>Centrally based care manager (CM) providing telephone support for patients (one week after initial visit, and monthly as needed until remission). Roles include:</p> <ul style="list-style-type: none"> a) assessment and monitoring using screening tool b) supporting self management to overcome barriers to adherence to the protocol (including exercise or social engagement) c) provision of reports from screening and monitoring to the PCP <p>Psychiatrists employed by the organisations supervised the CM through weekly telephone contact. The psychiatrist could suggest management changes either through the CM or by direct contact with the PCP who could also contact the psychiatrists for informal telephone advice.</p> <p>Training was provided to the CMs (4-8 hours); psychiatrists (1 hour) and intervention PCPs (1-2 hour educational program that addressed the diagnosis of depression,</p>	<p>Intervention patients had better scores at 6 months</p> <ul style="list-style-type: none"> - mean severity of depression (Hopkins Symptom Checklist) 0.97 versus 1.09 P= 0.03 - response 59.9% versus 46.6% P=0.02 - remission 37.3% versus 26.7% P=0.014 	<p>Cluster RCT of care managers (N=224) versus UC (N=181)</p> <p>Feb 2002 - Feb 2003 USA 6mths follow-up</p> <p>Clinicians in the practices allocated to UC took part in a 45-60 minute program on diagnosis of depression and assessment of suicidal thoughts.</p> <p>Most CMs had backgrounds in PC or MH nursing.</p> <p>Log books completed by the CMs indicated that the mean time for each telephone call was 20mins. The psychiatrists had infrequent contact with the clinicians (< 5% of patients). The clinicians reported negligible time demands from the model</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		assessment of suicidal thoughts, response to management on the basis of responses to the questionnaire, and modification of management to achieve remission). Staff in the intervention practices received a 45 minute course on the intervention and enrollment procedures.		
Druss 2001	<p>Serious mental illness</p> <p>120 adult VA patients</p>	<p>CL/CM/CoL/EC/LW</p> <p>Veterans in IC received on-site PC and case management emphasising close collaboration with MH providers to improve access to, & continuity of care.</p> <p>Nurse practitioner (supervised by a FP) main provider of medical care. The RN (not the NP) provided education & liaison with MH providers & case management. The FP liaised with physicians in the psychiatry & medical services.</p> <p>Clinic staff emphasized patient education, preventive services, and close contact with mental health care providers - e-mail, phone & face-to-face discussion.</p> <p>LW liaised with each of 3 MH teams, attended weekly team meetings. MH care providers notified re patients' medical status.</p>	<p>IC patients had a significantly greater improvement in physical health as measured by the physical component summary score of the 36-Item Short-Form Health Survey than patients assigned to the general medicine clinic (4.7 points versus -0.3 points, P<.001)</p> <p>There was no difference in mental health status scores</p>	<p>RCT</p> <p>Integrated care (IC) clinic (N=59) versus UC (N=61).</p> <p>USA</p> <p>12mths follow-up</p> <p>Patients in UC were referred to the VA general medicine clinic, located in a building adjacent to the MH clinic. A referral form was sent and verbal contact was made with the clinic administrator.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
Emmanuel 2002	<p>Mixed psychiatric diagnosis</p> <p>84 patients 16yrs+</p>	<p>CL/EC/LW</p> <p>Key worker liaison - written guidelines re enhancing liaison during the 6 month study period. These included:</p> <p>a) informing the PHC team about each patient contact - giving face-to-face or verbal feedback to the PC team(PCT) (at least two occasions) - discussing the possible use of a patient held shared care record - facilitating involvement of relevant PCT members in review meetings - reviewing patients at the GP's surgery and liaising with PCT</p> <p>b) Key workers reminded of responsibility by letter each 2 mths.</p> <p>c) All key workers (I and C) were asked to record all patient contacts and any liaison activities.</p>	<p>There was a significant difference between groups for the social functioning score ($p=0.05$), with increased liaison improving the social functioning of patients (a difference of 3.1 indicating a noticeable difference in functioning, i.e. one which would be observable to others.</p>	<p>RCT Enhanced key worker liaison (N=35) versus UC (N=49)</p> <p>Patients newly referred to secondary care from participating practices – only 11(I) and 23 (C) followed up</p> <p>January 1997-October 1997 UK 6mths follow-up</p> <p>Key workers of patients in the control group informed that their patient was involved in study assessments but asked to continue their normal form of liaison with primary care.</p>
<p>TEAM (Telemedicine Enhanced Antidepressant Management)</p> <p>Fortney 2007*</p> <p>Fortney 2006</p>	<p>Major Depression</p> <p>395 adult patients</p>	<p>CL/CM/EC/SC/IC</p> <p>A stepped-care (SC) model of depression treatment for up to 12 months. Treatment intensity was increased for patients failing to respond to lower levels of care by involving a greater number of intervention personnel with increasing mental health expertise. The TEAM</p>	<p>Intervention patients were more likely to respond by 6 months ($OR=2.0, p=.02$), and remit by 12 months ($OR=2.4, p=.02$).</p> <p>Intervention patients reported larger gains in mental health status and health-related quality of life, and reported higher satisfaction.</p>	<p>RCT TEAM intervention (N=177) versus UC (N=218)</p> <p>2003-2004 USA 12mths follow-up</p> <p>UC according to VA guidelines - annual screens for depression, follow-up, clinical reminder system for information and</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>intervention uses telemedicine technologies (e.g. telephone, interactive video, electronic medical records, and internet) to facilitate the collaboration between the on-site PCPs and the off-site depression care team.</p> <p>The intervention involved 5 types of providers: 1) PCPs located at CBOCs 2) consult tele-psychiatrists located at parent VAMCs 3) an off-site depression nurse care manager (RN) 4) an off-site clinical pharmacist (PharmD) 5) an off-site supervising psychiatrist.</p> <p>The consult-tele-psychiatrist accepted consultations or referrals from PCPs. The supervising psychiatrist provided clinical supervision to the care manager and clinical pharmacist via weekly face-to-face meetings.</p>		<p>decision aids to PCPs and automatically generated a progress notes with screening/assessment results and a checklist-generated treatment plan including antidepressant therapy</p>
Griswold 2008	<p>Serious psychiatric problems (acute)</p> <p>175 adult patients</p>	<p>CM/ER</p> <p>Use of a Care Manager (CM) for patients after presentation to in-patient psychiatric care. The CM was utilised to assist with making PC appointments, attending these appointments, providing education to reinforce teaching from PC, and</p>	<p>At 6 months intervention patients had significantly better</p> <ul style="list-style-type: none"> - physical function (SF- 36 physical component summary score: F1,33 = 5.55, P = .03) - mental function (SF-36 mental component summary score: F1,33 = 5.03, P = .03). 	<p>RCT Care Manager (N=28) versus UC (N=28)</p> <p>2002- 2006 USA 12mths follow-up</p> <p>UC not described</p>

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Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		coordination with MH peers to support connections with community MH care.	At 1 year however, the differences were no longer significant, although there was an overall trend toward functional improvement over the course of the study for the intervention group.	Analysis based on 56 patients only who completed baseline and 12mth FU assessments
Hedrick 2003 Liu 2003 (cost effectiveness)	Depression and/or dysthymia 354 adult patients	CL/CM/EC/Prot The Collaborative Care (CC) team consisted of a clinical psychologist, psychiatrist, social workers and a psychology technician who met weekly to develop treatment plans and to conduct a 6 and 12 week progress evaluation for each patient. The team used VA guidelines to initiate depression treatment. The team communicated with PC providers via electronic progress notes allowing for communication and prompt notes. Pharmacy records were also tracked. If prescriptions were not written in a timely matter, the team contacted the PC provider, or if they couldn't be contacted, the psychiatrist wrote the prescription and followed the patient up.	CC produced significantly greater improvement than CL a) Depressive symptomatology from baseline to 3 months - SCL-20 scores decreased 0.34 in the CC group versus 0.14 in the CL group (P<0.25 adjusting for baseline) b) Disability at 3 months (Sheenan) (mean change of 0.72, 95% CI - 1.26- -0.18) c) MCS (general health status) compared to CL at 3 months (mean change of 3.35, 95% CI 0.79-5.71) and at 9 months (3.49, 95% CI 0.70-6.28) in unadjusted analysis. Differences in depressive symptomatology and disability were lost at month 9	RCT Collaborative Care (N=168) versus Consultation Liaison (N=186) January 1998- March 1999 USA 9mth follow-up Consultation Liaison (CL) was the comparator. In the CL group, the PC provider was responsible for initiating treatment for depression symptoms and coordinating the patients overall care with consultation from, or referral to a specialist as deemed necessary.
Jajoura 2004	Depression 61 indigent adult patients 18yrs+	CM RN who screens patients, advises resident physicians re a positive screen and provides a protocol re confirmation of diagnosis, ruling out	Symptom severity (measured with BDI) demonstrated that the intervention was successful in reducing symptoms relative to usual care (difference = 4.9 BDI points, P= .05, 95% CI -9.8	RCT Intervention (N=33) versus UC (N=28) USA 12mths follow-up

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>physical conditions, medications, or other primary psychiatric diagnoses; provides education and encourages behavioral therapy through an appointment to the local public MH agency (Nova Behavioral Health).</p> <p>The nurse liaises between the patients and Nova re an appointment. Case management for services from other agencies is also provided when needed.</p>	<p>to-0.005 effect size = -0.41).</p> <p>BDI differences between intervention and control groups were similar at the 6- and 12-month measures.</p> <p>During the 12-month follow-up, 70% of intervention patients were treated for depression (of these, 91% with antidepressants), while 15% of usual care patients were treated with antidepressants for depression. Another 18% of the usual care group had depression noted, but no treatment was identified. Quality of life and costs were also measured, but differences between the groups were not significant in this regard.</p>	<p>The patients in the UC were provided the results of the screen by the screening nurse before their visit with the resident, and advised to seek care for their symptoms.</p>
Katzelnick 2000	<p>Depression</p> <p>410 patients 25-63yrs</p>	<p>CL/CM/EC/LW/Prot</p> <p>The principal elements of the depression management program (DMP) were physician education, patient education, antidepressant treatment, and treatment coordination</p> <p>PCPs were advised to follow a specific pharmacotherapy algorithm, but were allowed to adjust treatment according to individual clinical need. PC treatment was supported by an ongoing program of monitoring,</p>	<p>Depression severity (HAM-D) scores were significantly greater in the intervention group at 6 weeks (P =.04), 3 months (P =.02), 6 months (P<.001), and 12 months (P<.001).</p> <p>At 12 months, DMP intervention patients were more improved than UC patients on the mental health, social functioning, and general health perceptions scales of the SF-20 (P<.05 for all).</p>	<p>RCT DMP practices (82 practices; N=218) versus UC (81 practices; N=189)</p> <p>USA 12mth follow-up</p> <p>UC patients could self-refer to any specialty services normally available but no additional monitoring, case management, or psychiatric liaison services were provided</p> <p>The coordinators all had bachelor's or master's degrees and at least some clinical mental health experience</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>feedback, and as-needed specialty psychiatric consultation.</p> <p>DMP patient prescription refills and office visits were reviewed to identify unplanned treatment discontinuation and treatment coordinators contacted DMP patients for telephone monitoring of treatment adherence; treatment response.</p> <p>Study psychiatrists had ongoing contact with all intervention group PCP via periodic case reviews and as needed telephone consultation. A psychiatric consultation visit was strongly encouraged for all DMP patients not responding to treatment by 10 weeks and for patients with more complicated depression (eg, major psychiatric comorbidity or past treatment failures).</p>		
<p>PRISM-E (Primary Care Research in Substance Abuse and Mental Health for Elderly)</p> <p>Levkoff 2004*</p> <p>Arean 2008 (Ethnic minorities)</p> <p>Ayalon 2004 (Ethnic black)</p>	<p>Depression, anxiety, at-risk drinking, comorbid MH/SA disorders</p> <p>2,022 patients 65 yrs+</p>	<p>CoL/EC/ER/Prot</p> <p>Comparison of 2 linked models</p> <p>1. Integrated Care Model (IC) Co-location of MH and SA specialists with PC practices - PCPs have active role in treatment. No distinction in signage of MH or SA services.</p> <p>Model includes: assessment, care planning, counselling, case management, psychotherapy and</p>	<p>Overall results</p> <p>Depression severity declined in both models (changes in CES-D scores) with a trend toward greater reduction in ESR (7.8 points) compared with IC (6.6 points). This was due to the statistically significant reduction in depression severity for the sub-group with major depression in the ESR model versus the IC model.</p> <p>Mental functioning improved by 5</p>	<p>Multisite RCT USA</p> <p>On-site integrated care (IC) (N=999) versus off-site enhanced specialty referral (ESR) (N=1023).</p> <p>March 2000 - March 2002 6mths follow-up</p> <p>Sites had integrated model operating for a min 6 months.</p> <p>About 75 percent of the decline in CES-D</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Bartells 2004 (level of patient engagement)</p> <p>Chen 2006 (Patient satisfaction)</p> <p>Gallo 2004 (Practitioner satisfaction)</p> <p>Kirchner 2004 (Critical implementation factors (Qual))</p> <p>Krahn 2006 (6mth outcomes)</p> <p>Oslin 2006 (effect on drinking patterns)</p>		<p>pharmacological treatment.</p> <p>Services provided by licensed mental health specialists – psychiatrist, psychologist, clinical social worker or nurse with MH/SA training) who have verbal or written communication re evaluation and treatment plan.</p> <p>Appointment with the MH/SA worker available within 2-4 weeks after the PCP provider visit.</p> <p>2. Enhanced Speciality Referral (ESR) Model Referral to separately located mental health & substance abuse specialist service within 2-4 weeks after the PCP appointment. Clear referral process from PCP to MH/SA specialist.</p> <p>Model includes: appointment with speciality mental health system designated by the primary care clinic; coordinated follow up and notification if first appointment missed; transport and emergency consults.</p> <p>Service provided by licensed providers (psychiatrists, psychologists, clinical social workers, nurses or case managers with MH/SA training).</p>	<p>points on the MCS over time, but it did not differ between the ESR and IC groups.</p> <p>6mth FU For the sub-group with major depression ESR resulted in significantly greater decline in depression severity compared with IC (change in CES-D score) mean difference in score=2.8, (95% CI 1.0 to 4.5) P=.003).</p>	<p>scores occurred in the first 3mths of the study, but differences did not become statistically significant until the 6mth follow-up point.</p> <p>Patients in the IC group were more likely to be treated by MH clinicians who were not physicians (426 participants, or 60%), whereas patients in the ESR group were more likely to be treated by psychiatrists (299 participants, or 60%).</p> <p>There were no treatment effects for any of the clinical outcomes; whites and older minorities in both integrated and referral groups failed to show clinically significant improvement in symptoms and physical functioning at 6 months.</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
Oslin 2003	<p>Depression and/or at-risk drinking</p> <p>97 patients VA 18yrs+</p>	<p>CL/CM/EC</p> <p>Behaviour Health Specialist (BHS) - all RNs (N = 4) with at least 1 year of previous experience in clinical settings with patients with behavioral health problems</p> <p>The BHS provided regular scheduled telephone contact to develop a treatment plan, to monitor treatment effectiveness and adverse effects, assess and encourage treatment adherence, and offer support and education.</p> <p>The PC clinician maintained final decision-making authority for each patient. The BHS made specific recommendations for further medical management to assist in differential diagnosis or management</p> <p>The BHSs met weekly with a psychiatrist to review each treatment plan.</p>	<p>- Overall, a greater proportion of subjects randomized to TDM experienced a response to treatment compared with UC (39.1% vs. 17.6%) (Wald = 5.27; 1 df; OR = 0.33) (95% CI: 0.13-0.85) (P= 0.022)</p> <p>Examination of subjects by diagnostic group demonstrated similar effects on response</p> <p>a) depression - 44.1% achieved remission in the TDM arm compared with 20.5% in UC (Wald = 4.54; 1 df; OR = 0.34) (95% CI: 0.12-0.92) (p = 0.033)</p> <p>b) depression severity - HDRS, the patients treated using TDM had significantly greater improvement in symptoms compared with UC (β = 3.78) (CI: 0.32, 7.52) (p = 0.048) .</p>	<p>RCT telephone disease management (TDM) (N=46) program or UC (N=51)</p> <p>USA 4mths follow-up</p> <p>UC included yearly screening for depression and/or alcohol problems and appropriate referral, formulation of a treatment plan to be performed in PC, or consultation from behavioral health. Providers were also educated on existing treatment guidelines, and encouraged to refer patients to the behavioral health clinic.</p>
Rollman 2005	<p>Panic and/or GAD</p> <p>191 patients 18-64yrs</p>	<p>CL/CM/EC/LW/Prot</p> <p>Telephone-based care management (CM) intervention provided by non-mental health professionals.</p> <p>Care manager (CM) provided assessment, psycho education,</p>	<p>At 12mths the CM patients reported</p> <ul style="list-style-type: none"> - reduced anxiety (ES 0.33-0.38; 95% CI, 0.04 to 0.67; P<.02) - reduced depressive symptoms (ES, 0.35; 95% CI, 0.25-0.46; P= .03) - improved MH-related quality of 	<p>RCT CM intervention (N=116 versus UC (N=75)</p> <p>July 2000 to April 2002. USA 12mths follow-up</p> <p>UC patients were informed of their anxiety</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>assessed preferences for guideline-based care, monitored treatment responses, and informed physicians of their patients' care preferences and progress via an electronic medical record system . CMs also referred to community health specialists</p> <p>CMs made telephone calls at regular intervals (not defined) to patients to promote adherence with treatment and assess clinical response.</p> <p>CMs had weekly case management supervision with academic mental health specialists - specialists gave treatment advice (medication and dose) for the care manager to relay to the PCP - these recommendations forwarded to the PCP via the EMR.</p>	<p>life (ES, 0.39; 95% CI, 0.10 to 0.68; P=.01)</p> <p>- larger improvements relative to baseline in hours worked per week (5.7; 95% CI, 0.1 to 11.3; P =.05) and fewer work days absent in the past month (-2.6; 95% CI, - 4.8 to -0.3; P =.03)</p> <p>CM patients were less likely to report 2+ visits to and emergency dept (11.2% v 23% P=- 0.03</p> <p>More CM patients than UC patients remained working at 12-month follow-up (94% vs 79% [15% absolute difference, 0.7%-28.6%]; P = .04).</p>	<p>condition and provided with a disorder-specific brochure. No other additional information was provided to them or their PCP.</p>
<p>Roy-Byrne 2001*</p> <p>Katon 2002 (a) (cost effectiveness)</p>	<p>Panic Disorder</p> <p>115 patients</p> <p>18-65yrs</p>	<p>CL/CM/CoL/Prot</p> <p>Collaborative care (CC) intervention</p> <p>Patients received educational videotapes and pamphlets; pharmacotherapy with the SSRI paroxetine; 2 psychiatrist visits and 2 telephone calls in the first 8 weeks; and up to 5 telephone calls between 3 and 12 months' follow-up.</p> <p>A schedule of extended care included</p>	<p>Analysis revealed a significant treatment group time interaction for the PDSS total score, ASI, SF-36 Role Function, and CES-D scales.</p> <p>Although CC patients scored lower at all time points, on the PDSS, the difference was only significant at 6 months (F1,83=9.31; P=.003).</p> <p>In contrast, for the ASI total score, the CC group scored significantly</p>	<p>RCT</p> <p>CC intervention (N=57) versus UC (N=58)</p> <p>USA</p> <p>12mth follow-up</p> <p>UC patients received care from their PCP in the clinic, who received the results of the initial diagnostic telephone assessment. Patients in the UC group could also be referred to university or community MH practitioners.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>(1-hour psychiatric visit during week 1; 10- to 15-minute telephone call, week 2; 30-minute visit, week 4; telephone call between weeks 6 and 8). Selected patients were occasionally seen for extra sessions.</p> <p>The PCP received a typed consultation note after each psychiatric visit. Between months 3 and 12, psychiatrists attempted to telephone patients 5 times at equal intervals to reinforce the importance of medication adherence. The psychiatrist throughout the course of this study made all medication adjustments.</p>	<p>lower than the UC group at 3mths (F1,90=5.32; P=.002), 6-month (F1,80=11.10; P<.001), and 12-month follow-ups (F1,82=4.60; P=.035).</p> <p>Similarly, for the CES-D, the CC group had significantly decreased depression severity at all follow-up assessments.</p> <p>For SF-36 role functioning, the CC group only showed significantly greater improvements at 12 months (F1,81=6.16; P=.015).</p> <p>In all the outcomes with significant time group interactions, the rate of change was significantly greater for the CC group compared with the UC group from baseline to 6 months but not from 6 months to 1 year.</p>	
<p>Roy –Byrne 2005*</p> <p>Katon 2006 (Cost effectiveness)</p>	<p>Panic Disorder</p> <p>232 patients</p> <p>18-70yrs</p>	<p>CL/CM/EC/Prot</p> <p>The intervention consisted of a combination of up to 6 sessions (across 12 weeks) of CBT modified for the PC setting, with up to 6 follow-up telephone contacts during the next 9 months, and algorithm-based pharmacotherapy provided by the PC physician with guidance from a psychiatrist. Behavioral health specialists (BHS) the majority inexperienced in CBT for panic</p>	<p>The combined cognitive-behavioral and pharmaco-therapeutic intervention resulted in sustained and gradually increasing improvement relative to UC</p> <p>Remission Significantly higher - proportion of subjects remitted at 3mths, (20% vs 12% 95% CI 0.08 (0.002 to 0.16),P= 0.04); 12 mths, (29% vs 16% 95%CI 0.13 (0.06 to 0.21) p< 0.001)</p>	<p>RCT</p> <p>Intervention (N=119) or UC (N=113)</p> <p>March 2000 -March 2002</p> <p>USA</p> <p>12mths follow-up</p> <p>UC patients received treatment as usual from their PCP, who received the results of the diagnostic interview. Treatment could involve pharmacologic treatment by the PCP and/or referral to a MH professional.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		disorder, were trained to deliver the CBT and coordinated overall care, including pharmacotherapy.	<p>Severity Lower depression scores at all points - 12mths 18.64 v 22.39 95%CI -3.75 (-7.51 to 0.07) P=0.05</p> <p>Response - 3mths, (46% vs 27% 95% CI 0.19 (0.11 to 0.27) p< 0.001) - 12mths, (63% vs 38% 95% CI 0.24 (0.17 to 0.32) p<0.001)</p> <p>Disability Significantly greater improvements in WHO Disability Scale: - 3mths (10.07 v 11.39 95% CI -1.32 (-2.46 to -0.14) P=0.02 - 12mths (9.63 v 11.33 95%CI -1.70 (-3.00 to -0.40) P= 0.01) and SF12 MH functioning: - 3mths (43.58 v 39.83 95%CI 3.75 (1.02 to 6.68) P= 0.01 - 6mths (43.76 v 40.69 95%CI 3.08 (0.65 to 5.60) P=0.01</p>	
Simon 2000	Depression 613 adult patients	CM/EC/Prot a) Feedback only (a detailed report to PCP that included data on antidepressant dosage, repeat prescriptions, number of follow-up visits, and limited treatment recommendations based on a computerized algorithm.	After adjustment for age, sex, chronic disease score, and baseline depression score, depression score at follow up was significantly lower in the care management group than in the UC group ($t = 2.59$, $P = 0.008$). The mean score in the feedback	RCT Feedback only (N=221), feedback +care management (N=196) or UC (N=196) USA 6mths follow-up UC - "no services other than standard ones

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>b) Feedback plus care management, which comprised a 5-minute introductory telephone call from the case manager and two 10- to 15-minute telephone assessments at 8 and 16 weeks. Physicians also received feedback reports from care managers after each assessment.</p>	<p>only group did not differ from that in the UC group ($t = 0.22$, $P = 0.82$).</p> <p>The adjusted mean depression score at six months was 0.83 in the care management group compared with 0.98 (95% confidence interval for difference 0.02 to 0.27) in the usual care group.</p> <p>The care management group had a significantly higher probability of showing a 50% decrease in depression scores on the symptom checklist, a customary measure of treatment response (odds ratio 2.22, 1.31 to 3.75), and a significantly lower probability of persistent major depression at follow up (0.45, 0.24 to 0.86; fig 3).</p> <p>The feedback only intervention had no significant effect on either probability of treatment response (1.12, 0.73 to 1.73) or probability of major depression at follow up (0.89, 0.55 to 1.46).</p>	<p>were provided to the patients or doctors"</p>
Simon 2004	<p>Depression</p> <p>600 adult patients</p>	<p>CM/EC/Prot</p> <p>a) UC + telephone care management including at least 3 outreach calls, feedback to the treating physician, and care co-ordination</p>	<p>The telephone psychotherapy group showed significantly lower mean depression scores during follow-up ($X^2 1=5.94$, $P=.02$) with an increasing difference from 6 weeks to 6 months ($P<.001$).</p>	<p>RCT</p> <p>UC+ telephone care management (N=207), UC +care management integrated with a structured 8-session cognitive-behavioral psychotherapy program delivered by telephone (N=198) and UC</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>b) UC + telephone care management integrated with a structured 8-session cognitive-behavioral psychotherapy program delivered by telephone.</p> <p>Care managers (CMs) were MH clinicians with bachelor's or master's degrees and at least 1 year of experience in depression assessment (including telephone assessment and triage). Additional training for this study included 6 hours of didactic instruction and role-play. CMs received approximately 30 minutes of supervision each week from a psychiatrist and psychologist.</p> <p>CMs used scripted phone discussions.</p> <p>8-session structured psychotherapy program delivered by telephone - feedback to PCP via a structured report of each contact including a summary of the clinical assessment and computer-generated recommendations regarding medication adjustment.</p>	<p>Patients assigned to telephone psychotherapy were significantly more likely to experience a 50% improvement in SCL depression score than were usual care patients (P=.005).</p>	<p>(N=195).</p> <p>November 2000-May 2002 USA 6mth follow-up UC not described</p>
<p>IMPACT (Improving mood promoting access to collaborative treatment) Unutzer 2002*</p>	<p>Major depression and/or dysthymia 1801 patients 60yrs+</p>	<p>CL/CoL/CM/LW/Prot/SC Depression care manager (DCM) for up to 12 mths (nurses or psychologists with special study related training for role of Depression Care Specialist (DCS).</p>	<p>Overall results At all three follow-up times, IMPACT patients fared significantly better than controls on every outcome, except overall functional impairment at 24 mths. The greatest differences were at 12</p>	<p>Multisite RCT IMPACT intervention (n=906) - usual care (n=895) July 1991- August 2001 USA 24mths Follow-up</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Arean 2005 (Effectiveness for ethnic minorities)</p> <p>Arean 2007 (Effectiveness by income level)</p> <p>Blasinsky 2006 (Barriers and facilitators to sustainability (Qual))</p> <p>Gum 2006 (Treatment preferences)</p> <p>Harpole 2005 (Comorbid medical illnesses)</p> <p>Hegel 2005 (Cormorbid panic disorder and PTSD)</p> <p>Hunkelar 2006 (Long term outcomes 24mths)</p> <p>Katon 2005 (Cost effectiveness)</p> <p>Levine 2005 (Physician satisfaction)</p> <p>Oishi 2003 (How integration was achieved and how to translate into the real world (Qual))</p>		<p>Supervised by psychiatrist and PC expert</p> <p>Role/responsibilities: Initial assessment, education to patients, coordinate care; provide medical care; provide behavioral health care (PST) and relapse prevention plan. Discusses with IMPACT team at weekly meeting. FU patients for 12 mths, every 14 days by phone or person in acute stage. support AD management and monitor (PHQ 9)</p> <p>DCS works with patient and PCP to agreed treatment plan according to recommended algorithm. Where no improvement - discussion with IMPACT team and step 2 treatment – augment or change meds, change to psychotherapy, or consultation with psychiatrist and other treatments considered.</p> <p>Patient education includes 20 minute video, and encouraged to see DCS a pc clinic (initial visit)</p>	<p>mths with differences in use of counselling or specialty mental health care observed during the intervention disappearing after the first year. Thus, significantly higher rates of depression treatment at 18 and 24 mths were accounted for entirely by pharmacotherapy.</p> <p>12mths FU 45% of intervention patients had 50% or greater reduction in depression symptoms from baseline compared with 19% of usual care participants (OR 3.45 P<0.001)</p> <p>Long-term FU IMPACT patients had significantly lower SCL-20 depression scores at each follow up. Even a year after the intervention ended, a significant difference in SCL-20 scores remained (0.23, t = 6.42, P< 0.0001). The NNT is 4 at 12mths, 6 at 18mths, and 9 at 24mths.</p>	<p>Usual care included any primary care or specialty mental health care service available to them in usual care. After 12 mths, all study participants continued with their regular PC practitioners as usual.</p> <p>Intervention effects were similar between minorities and whites, various income levels and those with co-morbid anxiety and physical conditions. The latter were significantly more depressed at baseline but this was not a predictor of response to the IMPACT intervention. Those with PTSD required 12mths of intervention to show significant depression treatment effects over PTSD patients receiving UC.</p>
Identifying Depression as a Co-morbid Condition (IDACC)	Cardiac disease and co-morbid depression	CL/EC/IC/Prot Inpatient psychiatric review, followed	At 12 months only the telephone call by the psychiatrist led to a significant reduction in the	RCT Intervention (N=331) versus UC (N=338)

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Study</p> <p>Wade 2005</p>	<p>669 patients 18-84yrs</p>	<p>by either: a) telephone case conferencing between specialist hospital staff and GPs to provide patient-specific information about the patient's depression and its management b) telephone advice to GP from the psychiatrist c) GP educational material</p>	<p>proportion of patients with moderate to severe depression (CES-D\geq27), 19% v 35% (RR 0.55, CI 0.34-0.86, NNT 7 (4-24).</p>	<p>August 2000 - December 2001. Australia 12mths follow-up</p> <p>IDACC used the Enhanced Primary Care (EPC) program introduced by the Australian government to reimburse GPs for participating in multidisciplinary case conferencing</p>
<p>Partners in Care trial (PIC)</p> <p>Wells 2005*</p> <p>Wells 2004 (subgroup with sub-threshold depression)</p>	<p>Depression and/or dysthymia</p> <p>1346 adult patients from 43 practices (managed care organizations)</p>	<p>CL/CM/EC/ER/Prot</p> <p>Basic QI model plus 1 of 2 interventions</p> <p>QI program involves a) intervention implementation training ; b) training for depression nurse specialists (DNSs) and primary care providers (PCP) including lectures, seminars, and/or academic detailing; c) patient screening for depression; d) initial assessment, patient activation, and education by DNS - PCP and patient provided with the assessment - DNS documents and implements the depression care plan (including either medications, psychotherapy, or watchful waiting instructions) after patient's visit to primary care physician; d) periodic review of intervention processes - calls every 1 or 2 months by study investigators to primary care expert leaders and DNS</p>	<p>Relative to UC, QI-therapy lowered the adjusted rate of probable depressive disorder at follow-up by 7.4 percentage points (95% CI 0.1 to 14.6 percentage points) and QI-meds lowered the rate by 5.7 percentage points (95% CI -0.5 to 11.9 percentage points), with QI-therapy significant at P=.05. Pooling QI-meds and QI-therapy vs UC yields a 6.6-percentage point difference (95% CI, 0.4 to 12.8 percentage points, t42=2.08; P=.04).</p> <p>Participation in QI-therapy lowered the adjusted rate of probable disorder among African Americans and Latinos but had little effect among whites; the interaction is significant at P=.04. Results were qualitatively similar for QI-meds but were not statistically significant.</p>	<p>Multisite RCT USA 2 QI interventions (QI Meds (12 practices N=424; and QI therapy (15 practices N=489) compared with UC (16 practices N=433)</p> <p>June 1996 - February 1997. 6mths follow-up</p> <p>3 clusters based on specialty mix, patient socioeconomic and demographic factors, and having mental health specialists on-site.</p> <p>The effect of each QI intervention on the MCS12 score was small and non-significant. The reductions in unmet need were also not statistically significant</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>1. QI Meds a) DNS case management - Follow-up assessments of symptoms and side effects at intervals after initial assessment - Discharge from case management at 6 months (half of patients randomized to regular case management) or 12 months (half of patients randomized to relapse prevention) b) Mental health specialist collaboration with primary care - Supervision of DNSs by psychiatrist expert leaders</p> <p>2) QI Therapy a) Enhanced patient access to psychotherapy-appropriate patients complete 8 to 12 weeks of CBT with a study psychologist and active case management by psychotherapists b) Mental health specialist collaboration with primary care - Psychotherapist returns care plan forms to PCP after assessment and returns treatment completion form to PCP when patient leaves therapy c) Enhanced quality and uniformity of psychotherapy - 2-day training session and weekly follow-up taped session reviews for CBT</p>		

*Primary Paper

APPENDIX 7. ORGANISATIONAL EFFECTIVENESS – SYSTEMATIC REVIEWS

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope/ overall conclusions
Butler 2008	Depression and anxiety were the focus of the majority of studies. The remaining were single studies for somatizing disorders, Attention Deficit and Hyperactivity Disorder (ADHD), and one study of depression and alcohol-related disorders.	Models aimed at integration of mental health services into primary care settings or primary health care into specialty outpatient settings. This includes the use of consultation by a psychiatrist, nurses with behavioural health training, social workers, clinical psychologist and care managers) via co-location or specific processes to improve communication links between providers such as shared medical records etc	Minimum use of IT Key elements of programs that have been successfully implemented and sustained in large health systems include the VA models which have active support at all levels and special funding	Health Technology Assessment using RCTs and high quality quasi-experimental study designs. - 33 trials examined the impact of integrating mental health specialists into PC but only depression disorder studies (N=25) were included in this data analysis, due to the limited number of articles representing other mental health disorders. - 3 studies examined the impact of integrating PMHC into specialty care. Includes US studies only conducted 1950-2007.
Harkness 2002	Not specified	a) Onsite MH workers (in PC practice) providing psychological therapy and psychosocial interventions as a separate activity and not solely part of normal primary care consultations; b) the MHW was employed by or attached to the PCP organisation and worked on-site. Does not include the MHW providing additional behaviour change interventions directly to the PCP or psychological therapy and psychosocial	There was evidence that MHWs caused significant reductions in PCP consultations (SMD -0.17, 95% CI -0.30 to -0.05), psychotropic prescribing (RR 0.67, 95% CI 0.56 to 0.79), prescribing costs (SMD -0.22, 95% CI -0.38 to -0.07), and rates of mental health referral (RR 0.13, 95% CI 0.09 to 0.20) for the patients they were seeing. In controlled before and after studies, the addition of MHWs to a practice did not affect prescribing behaviour towards the wider practice population and there was	Cochrane systematic review and met-analysis of RCTs, controlled before and after studies, and interrupted time series analyses of MHWs working alongside PCPs in primary care settings. Included 42 studies – direct effects (10 consultation rates; 13 psychotropic prescribing rates; 7 MH referral) – Indirect effects (1 consultation costs; 1 psychotropic drug costs; cost of referrals) Small effect size for the analysis of PCP consultation rates and the likelihood of the PCP prescribing psychotropic medication and the overall costs of psychotropic prescribing. The pooled analyses suggested that referral to a MHW reduced the likelihood of the PCP referring to another MHW off site. Although significant, the effects included in this analysis were

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope/ overall conclusions
		interventions as part of a wider quality improvement intervention.	no consistent pattern to the impact on referrals in the wider patient population.	highly heterogenous.

APPENDIX 8. ORGANISATIONAL EFFECTIVENESS- RANDOMISED CONTROLLED TRIALS

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Adler 2004</p>	<p>Major depression and/or dysthymia</p> <p>533 patients 18yrs +</p>	<p>CL/EC/Prot</p> <p>Five doctoral level clinical pharmacists were trained to administer a protocol based on clinical pharmacy principles and AHCPR guidelines emphasising: a) a thorough medication history b) assessment of medication regimen for drug-related problems (side effects or interactions), c) monitoring drug efficacy and toxicity, d) educating patients about depression and ADs, e) encouraging patients to start and maintain AD therapy, and e) facilitating communication with a patient's PCP (medication history provided using a standard computerized template transmitted to PCPs and incorporated into the patient's medical record).</p> <p>Pharmacists' time with the PCPs averaged 15 min per patient over 6 months.</p> <p>Patient contact included a minimum of 9 times over 18 months (at 2, 4, 6, 8, and 12 weeks, also at 6, 9, 12, and 18 months).</p> <p>A senior psychiatrist, provided weekly clinical supervision for problematic</p>	<p>The I group had more patients on ADs at 3 and 6 months than the UC group</p> <p>- 3 months, 60.6% vs.48.9%, P=.024</p> <p>- 6 months, 57.5% vs. 46.2% adjusted, P=.025</p>	<p>RCT Intervention (N=258) versus UC (N=249)</p> <p>USA 6mths follow-up</p> <p>PCPs who saw pts in the UC group received the results of the depression screening</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		clinical issues (suicidal thoughts, complex family situations coexisting with the case).		
<p>Mental Health Link</p> <p>Byng 2004 (b)*</p> <p>Byng 2004 (a)</p> <p>Byng 2005 (qualitative)</p>	<p>Cluster of 23 General practices, associated CMH teams, and patients with long-term mental illness</p>	<p>CM/EC/LW</p> <p>Mental Health Link - a facilitated QI program</p> <ul style="list-style-type: none"> - 3-4 facilitated joint working group meetings - shared care facilitated through a linked specialist MH worker - link worker - tool kit to assist setting up registers, databases, audits and systems of recall - payment 	<p>Active link working in intervention practices increased (from one to five practices) and declined in control practices (from six to four). Control practices recorded more long-term mental illness registers at the beginning, which declined (from seven to four), whereas intervention practices showed an increase (from five to ten).</p> <p>There were also improvements in systematic review and recall (from 0- to seven) for I practices; these were intermittent in three, discontinued in two and sustained in only two practices. There were few changes in other areas such as carers groups and training. The 'practice development score', the number of improvements in key areas per practice, was significantly better for the intervention practices (control mean = 2.9 versus intervention mean = 0.7, Mann-Witney, P = 0.003).</p>	<p>Cluster randomized RCT stratified according to size and interest in mental health</p> <p>Mental Health Link (MHL) program (12 practices, N=184 pts) versus usual service provision (11 practices N=151 pts)</p> <p>UK</p> <p>Usual service provision not described</p> <p>Payments of about £2000 (dependant on practice size) were made to the practices.</p>

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<p>Bauer 2006b*</p> <p>Bauer 2006a</p>	<p>Bipolar disorder</p> <p>330 participants from 11 VA sites</p>	<p>CM/EC/Prot</p> <p>Outpatient clinic "specialty team" consisting of a psychiatrist & nurse care coordinator.</p> <p>Three intervention components specified in detailed manual:</p> <p>a) Patient self management via group psycho education.</p> <p>b) VA Bipolar clinical practice guidelines - based on treatment algorithm</p> <p>c) Nurse care coordinator for FU of missed appointments; liaison with other providers during admissions and ER visits and collaboration with MH and medical-surgical providers. Also facilitation of information flow to the psychiatrist by providing patient assessments, reminders for guideline-based monitoring, and tracking laboratory values.</p>	<p>Hospitalization rates paralleled clinical improvements although there was no difference in overall number of hospital days.</p> <p>There were no differences between treatment arms in year 1, but the proportion psychiatrically hospitalized in year 2 tended to be lower in the intervention than for usual care (35 percent compared with 47 percent; Fisher's exact $p=.05$), with a near-significant difference in year 3 (28 percent compared with 38 percent; $p=.08$).</p> <p>Similarly, rates of hospitalization for any reason tended to be lower among patients in the intervention group in year 2 (44 percent compared with 53 percent; $p=.10$) and in year 3 (34 percent compared with 48 percent; $p=.02$)</p>	<p>RCT (intervention N=166 and UC N=164)</p> <p>Jan 1997- Dec 2000</p> <p>UK</p> <p>3yrs follow-up</p> <p>Follow up data was only available for 306/330 participants.</p> <p>UC patients continued with their previous psychiatrist or were assigned one if new to the VA. Clinicians caring for I or UC pts received intake data according to the DSM-IV interview. There was no monitoring of usual care</p>
<p>Dietrich 2004</p>	<p>Major depression and/or dysthymia</p> <p>405 patients</p> <p>18yrs+</p>	<p>CL/CM/LW</p> <p>Centrally based care manager (CM) providing telephone support for patients (one week after initial visit, and monthly as needed until remission). Roles include:</p> <p>a) assessment and monitoring using screening tool</p>	<p>Compared with the UC clinicians the intervention clinicians</p> <ul style="list-style-type: none"> - more often asked patients about suicidal thoughts (88 v 69% $P < 0.0001$) - offered educational materials (71 v 40% $p < 0.0001$) - assisted in setting self management goals (31 v 19 	<p>Cluster RCT of care managers (N=224) versus UC (N=181)</p> <p>Feb 2002 - Feb 2003</p> <p>USA</p> <p>6mths follow-up</p> <p>Clinicians in the practices allocated to UC took part in a 45-60 minute program on</p>

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		<p>b) supporting self management to overcome barriers to adherence to the protocol (including exercise or social engagement) c) provision of reports from screening and monitoring to the PCP</p> <p>Psychiatrists employed by the organisations supervised the CM through weekly telephone contact. The psychiatrist could suggest management changes either through the CM or by direct contact with the PCP who could also contact the psychiatrists for informal telephone advice.</p> <p>Training was provided to the CMs (4-8 hours); psychiatrists (1 hour) and intervention PCPs (1-2 hour educational program that addressed the diagnosis of depression, assessment of suicidal thoughts, response to management on the basis of responses to the questionnaire, and modification of management to achieve remission). Staff in the intervention practices received a 45 minute course on the intervention and enrollment procedures.</p>	<p>P<0.007)</p> <p>Intervention patients also received at 6 months</p> <ul style="list-style-type: none"> - more than 1 follow up contact visits (65 v 51% P< 0.01) - more that 1 telephone contact (59 v 3% P<0.0001) <p>The patterns of management (drugs alone, counselling alone, or both) did not differ significantly.</p>	<p>diagnosis of depression and assessment of suicidal thoughts.</p> <p>Most CMs had backgrounds in PC or MH nursing.</p> <p>Log books completed by the CMs indicated that the mean time for each telephone call was 20mins. The psychiatrists had infrequent contact with the clinicians (< 5% of patients). The clinicians reported negligible time demands from the model</p>
Dobscha 2006	Depression 375 adult patients	CL/CM/ER Depression decision support team	At 12 months, intervention patients were more likely to have; - at least 1 MH specialty	Cluster RCT Depression decision report (N=189) versus UC (186)

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		<p>(psychiatrist and nurse (Depression Care Manager (DCM)), provided 1 early patient educational contact and depression monitoring with feedback to clinicians over 12 months.</p> <p>The DCM</p> <p>a) provided patient education (information, adherence to treatment etc) within 1-2 weeks via telephone. Patients were also invited to attend a 2-hour group depression education program led by DCM or a depression education class offered by the MH team.</p> <p>b) Compiled screening results and treatment recommendations into a treatment progress report. The report was mailed to each intervention clinician for all of their enrolled patients quarterly.</p> <p>The depression decision support team</p> <p>a) met weekly and reviewed PHQ-9 scores and medication and appointment data from the medical records. The team reviewed each intervention patient record at least monthly.</p> <p>b) where PCPs did not respond to screening results or when patients' depression did not adequately improve, the depression decision support team reviewed records again and contacted PCPs to discuss</p>	<p>appointment (41.1% vs. 27.2%; P = 0.025)</p> <p>- received any antidepressant (79.3% vs. 69.3%; P = 0.041)</p> <p>- received antidepressants for 90 days or more (76.2% vs. 61.6%; P=0.008)</p> <p>Compared with those in the UC group, patients in the intervention group were more likely to attend at least 1 mental health specialty appointment (41.1% vs. 27.2%; P =0.025).</p>	<p>July 2002 - October 2003 USA 12mths follow-up</p> <p>UC clinicians received notifications of baseline depression screening. They had access to all initial and follow-up screening via medical records), but did not receive notifications, reminders, or recommendations from the depression decision support team. UC clinicians and their patients also had access to MH services, including on-site MH teams.</p>

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		<p>treatment strategies or to offer consultation. c) facilitated referral for ongoing MH care</p> <p>Psychiatric consultation available if deemed necessary by team and PCP</p>		
Druss 2001	<p>Serious mental illness</p> <p>120 adult VA patients</p>	<p>CL/CM/CoL/EC/LW</p> <p>Veterans in IC received on-site PC and case management emphasising close collaboration with MH providers to improve access to, & continuity of care.</p> <p>Nurse practitioner (supervised by a FP) main provider of medical care. The RN (not the NP) provided education & liaison with MH providers & case management. The FP liaised with physicians in the psychiatry & medical services.</p> <p>Clinic staff emphasized patient education, preventive services, and close contact with mental health care providers - e-mail, phone & face-to-face discussion. LW liaised with each of 3 MH teams, attended weekly team meetings. MH care providers notified re patients' medical status.</p>	<p>Patients treated in the IC clinic were significantly more likely:</p> <ul style="list-style-type: none"> - to have a PC visit in the year after referral (91.5% vs 72.1%; P=.006) - less likely to have an emergency department visit during the year after referral (11.9% vs 26.2%; P=.04). - to received 15 of the 17 preventive measures outlined in clinical practice guidelines across areas of coordination, physical examination, laboratory testing, vaccination & education. 	<p>RCT Integrated care (IC) initiative (N=59) versus UC (N=61).</p> <p>USA 12mths follow-up</p> <p>Patients in UC were referred to the VA general medicine clinic, located in a building adjacent to the MH clinic. A referral form was sent and verbal contact was made with the clinic administrator.</p>

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<p>TEAM (Telemedicine Enhanced Antidepressant Management)</p> <p>Fortney 2007*</p> <p>Fortney 2006</p>	<p>Major depression</p> <p>395 adult patients</p>	<p>CL/CM/EC/SC/IC</p> <p>A stepped-care (SC) model of depression treatment for up to 12 months. Treatment intensity was increased for patients failing to respond to lower levels of care by involving a greater number of intervention personnel with increasing mental health expertise. The TEAM intervention uses telemedicine technologies (e.g. telephone, interactive video, electronic medical records, and internet) to facilitate the collaboration between the on-site PCPs and the off-site depression care team.</p> <p>The intervention involved 5 types of providers:</p> <ol style="list-style-type: none"> 1) PCPs located at CBOCs 2) consult tele-psychiatrists located at parent VAMCs 3) an off-site depression nurse care manager (RN) 4) an off-site clinical pharmacist (PharmD) 5) an off-site supervising psychiatrist. <p>The consult-tele-psychiatrist accepted consultations or referrals from PCPs. The supervising psychiatrist</p>	<p>Multivariate analyses indicated that intervention patients were more likely to be adherent at both 6 (OR =2.1, p=.04) and 12 months (OR=2.7,P=.01).</p>	<p>RCT</p> <p>TEAM intervention (N=177) versus UC (N=218)</p> <p>2003-2004</p> <p>USA</p> <p>12mths follow-up</p> <p>UC according to VA guidelines - annual screens for depression, follow-up, clinical reminder system for information and decision aids to PCPs and automatically generated a progress notes with screening/assessment results and a checklist-generated treatment plan including antidepressant therapy</p>

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		provided clinical supervision to the care manager and clinical pharmacist via weekly face-to-face meetings.		
Hedrick 2003 Liu 2003 (cost effectiveness)	Depression and/or dysthymia 354 adult patients	<p>CL/CM/EC/Prot</p> <p>The Collaborative Care (CC) team consisted of a clinical psychologist, psychiatrist, social workers and a psychology technician who met weekly to develop treatment plans and to conduct a 6 and 12 week progress evaluation for each patient.</p> <p>The team used VA guidelines to initiate depression treatment. The team communicated with PC providers via electronic progress notes allowing for communication and prompt notes. Pharmacy records were also tracked. If prescriptions were not written in a timely matter, the team contacted the PC provider, or if they couldn't be contacted, the psychiatrist wrote the prescription and followed the patient up.</p>	A total of 80% of CC patients received prescriptions for antidepressants during the 9 month treatment trial versus 62% for CL care (P<.0001). Of the patients who were on antidepressants however, the adequacy of the therapy was not significantly different between the two groups.	<p>RCT Collaborative Care (N=168) versus Consultation Liaison (N=186)</p> <p>January 1998- March 1999 USA 9mth follow-up</p> <p>Consultation Liaison (CL) was the comparator. In the CL group, the PC provider was responsible for initiating treatment for depression symptoms and coordinating the patients overall care with consultation from, or referral to a specialist as deemed necessary.</p>
Katzelnick 2000	Depression 410 patients 25-63yrs	<p>CL/CM/EC/LW/Prot</p> <p>The principal elements of the depression management program (DMP) were physician education, patient education, antidepressant treatment, and treatment coordination</p>	<p>Based on an intent-to-treat analysis, at least 3 antidepressant prescriptions were filled in the first 6 months by 151 (69.3%) of 218 of DMP patients vs 35 (18.5%) of 189 in UC (P<.001).</p> <p>Mean visit counts in DMP increased</p>	<p>RCT DMP practices (82 practices; N=218) versus UC (81 practices; N=189)</p> <p>USA 12mth follow-up</p> <p>UC patients could self-refer to any specialty</p>

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		<p>PCPs were advised to follow a specific pharmacotherapy algorithm, but were allowed to adjust treatment according to individual clinical need.</p> <p>PC treatment was supported by an ongoing program of monitoring, feedback, and as-needed specialty psychiatric consultation.</p> <p>DMP patient prescription refills and office visits were reviewed to identify unplanned treatment discontinuation and treatment coordinators contacted DMP patients for telephone monitoring of treatment adherence; treatment response.</p> <p>Study psychiatrists had ongoing contact with all intervention group PCP via periodic case reviews and as needed telephone consultation. A psychiatric consultation visit was strongly encouraged for all DMP patients not responding to treatment by 10 weeks and for patients with more complicated depression (eg, major psychiatric comorbidity or past treatment failures).</p>	<p>in the year after randomization by 1.6 visits (18.4 to 19.9 visits), 0.5 of which was attributable to a single case. Mean visit counts in UC decreased by 2.0 visits (19.4 to 17.4 visits). The change in visits did differ significantly between groups (P = .02).</p> <p>Comparing the year before randomization with the year after randomization, mean inpatient admissions in the DMP group increased by 0.04 (0.23 to 0.27 admissions) and mean inpatient admissions in the UC group decreased by 0.08 (0.26 to 0.18 admissions). The change in inpatient admissions between groups was not significantly different (P = .09).</p>	<p>services normally available to health plan members, no additional monitoring, case management, or psychiatric liaison services were provided</p> <p>The coordinators all had bachelor's or master's degrees and at least some clinical mental health experience</p>
<p>Katon 2002(b)*</p> <p>Katon 2001 (relapse prevention)</p>	<p>Depression</p> <p>228 patients 18-80yrs</p>	<p>CL/CoL/EC/ER</p> <p>Collaborative care (CC) program including:</p>	<p>For patients in the relapse prevention study –</p> <p>Intervention patients were</p>	<p>RCT</p> <p>Collaborative care intervention (N=114) versus usual care (N=114)</p>

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<p>Lin 2000 (interim results)</p> <p>Simon 2001 (feedback V feedback + telephone care by case managers)</p> <p>Walker 2000 (sub-groups based on severity and co-morbid conditions)</p>		<p>a) Patient educational/activation material (book and videotape) regarding effective management of depression developed by the study</p> <p>b) 2-4 consultation visits with a liaison psychiatrist practicing in the primary care clinic</p> <p>c) Algorithm-based adjustment of antidepressant pharmacotherapy</p> <p>d) As-needed referral to psychosocial treatment or community resources</p> <p>e) Ongoing monitoring of adherence to medication regimen.</p> <p>During this period of CC, most patients alternated follow-up visits with the liaison psychiatrist and PCP. After 3-4 months, responsibility for ongoing depression care was transferred back to the PCP (with specialty mental health services available as in usual care). Liaison psychiatrists continued to monitor treatment adherence and provide as-needed consultation to the PCP.</p>	<p>significantly more likely to refill antidepressant medication prescriptions than UC patients during the 1-year follow-up (adjusted odds ratio for I: control, 1.91; 95% CI, 1.37-2.65; P<.001).</p> <p>Intervention patients were also more likely to receive adequate dosage of antidepressant treatment compared with UC patients during the 1-year follow-up period (adjusted odds ratio for I: control, 2.08; 95% CI, 1.41-3.06; P<.001).</p>	<p>USA</p> <p>28mths follow-up</p> <p>Usual care was provided by the PCP and included prescription of an AD medication, 2 to 4 visits over the first 6 months of treatment, and an option to refer to GHC mental health services.</p>
<p>PRISM-E (Primary Care Research in Substance Abuse and Mental Health for Elderly)</p> <p>Levkoff 2004*</p> <p>Arean 2008 (Ethnic</p>	<p>Depression, anxiety, at-risk drinking, comorbid MH/SA disorders</p> <p>2,022 patients</p> <p>65 yrs+</p>	<p>CoL/EC/ER/Prot</p> <p>Comparison of 2 linked models</p> <p>1. Integrated Care Model (IC)</p> <p>Co-location of MH and SA specialists with PC practices - PCPs have active role in treatment. No distinction in signage of MH or SA services.</p>	<p>Greater rate of treatment engagement (no of visits) in the IC model (71%) versus 48% in the ESR model.</p> <p>- at least one MH visit - 71% v 48.8% OR=2.57, 95% CI=2.14-3.08</p> <p>- 2 or more visits 53.6% v 30.4% P<0.001).</p>	<p>Multisite RCT</p> <p>On-site integrated care (N=999) or off-site enhanced specialty referral (N=1023).</p> <p>March 2000 - March 2002</p> <p>USA</p> <p>6mths follow-up</p> <p>Sites had integrated model operating for a</p>

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<p>minorities)</p> <p>Ayalon 2004 (Ethnic black)</p> <p>Bartells 2004 (level of patient engagement)</p> <p>Chen 2006 (Patient satisfaction)</p> <p>Gallo 2004 (Practitioner satisfaction)</p> <p>Kirchner 2004 (Critical implementation factors (Qual))</p> <p>Krahn 2006 (6mth outcomes)</p> <p>Oslin 2006 (effect on drinking patterns)</p>		<p>Model includes: assessment, care planning, counselling, case management, psychotherapy and pharmacological treatment.</p> <p>Services provided by licensed mental health specialists – psychiatrist, psychologist, clinical social worker or nurse with MH/SA training) who have verbal or written communication re evaluation and treatment plan.</p> <p>Appointment with the MH/SA worker available within 2-4 weeks after the PC provider visit.</p> <p>2. Enhanced Speciality Referral (ESR) Model Referral to separately located specialist mental health & substance abuse service within 2-4 weeks after the PCP appointment. Clear referral process from PCP to MH/SA specialist.</p> <p>Model includes: appointment with speciality mental health system designated by the primary care clinic; coordinated follow up and notification if first appointment missed; transport and emergency consults.</p> <p>Service provided by licensed providers (psychiatrists,</p>	<p>- number of visits - mean 3.04 v 1.91 P</= 0.001.</p> <p>- time to first visit to MH (0-14 days) - 37.4% v 15.4% P<0.001 (but no diff beyond 14 days)</p> <p>Rates of engagement progressively decreased with greater distance between PC and MH/SA services for the whole sample (P< 0.001) and also the sub-set of ESR sites (P=0.02). The lowest rate of engagement (44.2%) was found for patients referred for MH/SA services 1-10 miles from PC.</p> <p>Rates of engagement were also higher overall in the IC group (mean 3.04 v 1.91 P</=0.001) and by diagnostic category</p> <p>- depression 3.50 v 2.2 P</= 0.001 (greater differential rate for those with milder depression)</p> <p>- at risk alcohol 1.42 v 0.78 P= 0.005 (greater differential rate for those categorised "problem drinking")</p> <p>- dual diagnosis 3.95 v 1.84 P= 0.001</p> <p>- active suicidal ideation (83% v 54%)</p> <p>Assignment to the IC model was associated with an increased likelihood of treatment engagement</p>	<p>min 6 months.</p> <p>Rates of engagement were higher in the IC model for all demographic sub-groups (gender, age, ethnicity, marital, education, living and employment status)</p>

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		psychologists, clinical social workers, nurses or case managers with MH/SA training).	when symptom severity was controlled for. Also more severe depression and severe problem drinking were predictive of engagement.	
<p>Lambeth Early Onset (LEO) Crisis Assessment Team (CAT) Study</p> <p>Power 2007</p>	<p>First episode of psychosis</p> <p>113 patients 16-35yrs</p>	<p>EC/ER</p> <p>One lunch time training session provided by the LEO CAT staff to intervention practices covering early detection (10 minute video & 15 minute talk about the LEO CAT team; leaflets on the Service) and follow up phone calls on the benefits of early intervention as well as feedback phone calls re individual cases referred.</p> <p>All intervention practices were provided direct access to the LEO CAT for referrals of suspected first time psychosis.</p>	<p>Referral rates – - significantly more intervention GP patients referred directly to MH service (86.1% v 65.7% p<0.05)</p> <p>Use of A& E Depts - significantly more control group patients referred by A&E Depts to MHS (47.6% v 12% p<0.05)</p> <p>Delay in receiving care Delay in pathway to care (Long delays over 6 weeks between contact with GP and assessment by MHS) – LEO CAT group significantly less likely to experience long delays in being seen by MH service 13.9% vs 37.1% P<0.05) and greater than 3 month delay in starting medication (5.9% v 27.3% P<0.05).</p>	<p>Cluster RCT LEO CAT intervention (practices N=23; patients N=50) versus UC (practices N=23; patients N=63)</p> <p>June 2003- August 2005 UK</p> <p>UC practices did not receive any formal training or leaflets apart from standard health information circulars. They were encouraged to refer suspected new cases of psychosis to the standard assessment and treatment teams. Once their assessment was completed then first episode cases were referred to LEO CAT.</p>
Smit 2005	<p>Depression</p> <p>267 patients 18-70yrs</p>	<p>CM/EC</p> <p>Depression Recurrence Prevention Program</p> <p>a) DRP program</p>	<p>Overall, 92 % (179 / 195) of the enhanced care patients attended all three individual face-to-face sessions with a prevention specialist. Participation in this phase of the DRP-Program was highest among patients</p>	<p>RCT DRP (N =112), DRP + CP (N=39), DRP + CBT (N=44) and UC (N= 72).</p> <p>EEC - Netherlands 12mth follow-up</p>

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		<p>b) DRP + PC (psychiatric consultation - one 1-hour visit with one of two available psychiatrists prior to the DRP-intervention. The PCP provided the psychiatrist with information about the patients' health and treatment status. Afterwards, the psychiatrist reported and discussed his diagnostic findings and treatment advice with the PCP. A copy of this report was also made available to the prevention specialist.</p> <p>c) DRP +CBT - 12 individual weekly one-hour sessions of CBT treatment, tailored to PC, a clinical psychologist /psychotherapist. The DRP-Program started after the final CBT session. The CBT-therapist informed the prevention specialist about the main themes that the CBT had addressed and the progress achieved.</p>	<p>randomized to the DRP-Program only (96 %; 108/112) and in those assigned to the combination with a psychiatric evaluation (97%; 38/39). In the group where DRP followed CBT, compliance was significantly lower than in the other two DRP conditions, with 75% (33 / 44) of the patients attending all three sessions ($X^2 = 23.97$; d.f. = 2; $P < 0.0001$).</p> <p>The contrast in AD use between CBT plus DRP patients and those in the other three treatment groups was statistically significant at the three month FU - - CBT+DRP vs CAU: $X^2 = 5.08$; df=1; $P = 0.02$; CBT+DRP vs DRP: $X^2 = 4.80$; df = 1; $P = 0.03$; - CBT+DRP vs PC+ DRP: $X^2 = 4.27$; df=1; $P = 0.04$.</p>	<p>UC patients received the care that the PCP deemed fitting. In most cases, this included a combination of AD medication and counselling during regular visits. PCPs were free to refer patients to specialized MH agencies including PC psychologists, who run private practices and are popular referrals for Dutch PCPs.</p>
<p>IMPACT (Improving mood promoting access to collaborative treatment)</p> <p>Unutzer 2002*</p> <p>Arean 2005 (Effectiveness for ethnic minorities)</p> <p>Arean 2007 (Effectiveness by income level)</p>	<p>Major depression and/or dysthymia</p> <p>1801 patients 60yrs+</p>	<p>CL/CoL/CM/LW/Prot/SC</p> <p>Depression care manager (DCM) for up to 12 mths (nurses or psychologists with special study related training for role of Depression Care Specialist (DCS). Supervised by psychiatrist and PC expert</p> <p>Role/responsibilities: Initial assessment, education to</p>	<p>A significantly higher proportion of IMPACT patients reported taking any antidepressant medication at each follow-up</p> <ul style="list-style-type: none"> - 12 mths 18.46 (95% CI 13.52 to 23.40) $P < 0.0001$ - 18 mths 14.74 (95% CI 9.58 to 19.89) $P < 0.0001$ - 24 mths 13.91(95% CI 8.69 to 19.14) $P < 0.0001$ <p>12 months showed highest percent</p>	<p>Multisite RCT</p> <p>IMPACT intervention (n=906) - usual care (n=895)</p> <p>July 1991- August 2001</p> <p>USA</p> <p>24mths Follow-up</p> <p>Usual care included any primary care or specialty mental health care service available to them in usual care. After</p>

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<p>Blasinsky 2006 (Barriers and facilitators to sustainability (Qual))</p> <p>Gum 2006 (Treatment preferences)</p> <p>Harpole 2005 (Co-morbid medical illnesses)</p> <p>Hegel 2005 (Co-morbid panic and PTSD)</p> <p>Hunkelar 2006 (Long term outcomes 24mths)</p> <p>Katon 2005 (Cost effectiveness)</p> <p>Levine 2005 (Physician satisfaction)</p> <p>Oishi 2003 (How integration was achieved and how to translate into the real world (Qual))</p>		<p>patients, coordinate care; provide medical care; provide behavioral health care (PST) and relapse prevention plan.</p> <p>Discusses with IMPACT team at weekly meeting. FU patients for 12 mths, every 14 days by phone or person in acute stage. support AD management and monitor (PHQ 9)</p> <p>DCS works with patient and PCP to agreed treatment plan according to recommended algorithm. Where no improvement - discussion with IMPACT team and step 2 treatment – augment or change meds, change to psychotherapy, or consultation with psychiatrist and other treatments considered.</p> <p>Patient education includes 20 minute video, and encouraged to see DCS a pc clinic (initial visit)</p>	<p>using antidepressants in intervention (66%)</p> <p>A significantly higher proportion of IMPACT patients reported using any specialty mental health visits or psychotherapy</p> <p>- 12 mths 28.18 (95% CI 23.79 to 32.57) P<0.0001</p> <p>12 months showed highest percent using mental health in intervention (44%)</p> <p>A significantly higher proportion of IMPACT patients reported using any depression treatment</p> <p>- 12 mths 25.69 (95% CI (21.03 to 30.35) P <0.0001</p> <p>- 18 mths 15.19 (95% CI 10.07 to 20.31) P<0.0001</p> <p>- 24 mths 13.78 (95% CI 8.55 to 19.00) P<0.0001</p> <p>12 months showed highest percent using any treatment in intervention (78%)</p> <p>IMPACT patients reported significantly greater confidence in managing their depression (self efficacy) at 24 mths (P<.0001)</p>	<p>12mths, all study participants continued with their regular PC practitioners as usual.</p>
<p>Partners in Care trial (PIC)</p> <p>Wells 2005*</p>	<p>Depression and/or dysthymia</p> <p>1346 patients from 43</p>	<p>CL/CM/EC/ER/Prot</p> <p>Basic QI model plus 1 of 2 interventions</p>	<p>QI meds reported significantly more use of any antidepressant compared to usual care</p> <p>- 6 months PIC-Meds P=.001</p>	<p>Multisite RCT</p> <p>2 QI interventions (QI Meds (12 practices N=424; and QI therapy (15 practices N=489) compared with UC (16 practices</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
Wells 2004 (subgroup with sub-threshold depression)	practices (managed care organizations)	<p>QI program involves a) intervention implementation training ; b) training for depression nurse specialists (DNSs) and primary care providers (PCP) including lectures, seminars, and/or academic detailing; c) patient screening for depression; d) initial assessment, patient activation, and education by DNS - PCP and patient provided with the assessment - DNS documents and implements the depression care plan (including either medications, psychotherapy, or watchful waiting instructions) after patient's visit to primary care physician; d) periodic review of intervention processes - calls every 1 or 2 months by study investigators to primary care expert leaders and DNS</p> <p>1. QI Meds a) DNS case management - Follow-up assessments of symptoms and side effects at intervals after initial assessment - Discharge from case management at 6 months (half of patients randomized to regular case management) or 12 months (half of patients randomized to relapse prevention) b) Mental health specialist collaboration with primary care - Supervision of DNSs by psychiatrist expert leaders</p>	<p>- 12 months PIC-Meds P=.003</p> <p>This was also significantly greater than PIC-Therapy at 6, 12, and 24 months.</p>	<p>N=433)</p> <p>June 1996 - February 1997 USA 6mths follow-up</p> <p>UC not described</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>2) QI Therapy a) Enhanced patient access to psychotherapy-appropriate patients complete 8 to 12 weeks of CBT with a study psychologist and active case management by psychotherapists b) Mental health specialist collaboration with primary care - Psychotherapist returns care plan forms to PCP after assessment and returns treatment completion form to PCP when patient leaves therapy c) Enhanced quality and uniformity of psychotherapy - 2-day training session and weekly follow-up taped session reviews for CBT</p>		

* Primary paper

APPENDIX 9. ECONOMIC EFFECTIVENESS – SYSTEMATIC REVIEWS

Study	Clinical issue	Link Strategy	Significant Outcomes	Scope
Bower 2006	Depression/Anxiety	BACP Accredited Counsellor in PC (nurse, psychologist/ etc, GPs, HVs) offering therapeutic interventions with individual clients involving face-to-face contact between patient and counsellor (included different models such as non-directive counselling, psychodynamic counselling, cognitive-behavioural counselling)	There was some evidence that the overall costs of counselling and usual care were similar.	<p>Cochrane systematic review.</p> <p>The method used and the results provided by each study in relation to economic analysis are reported descriptively for 7/8 trials.</p> <p>This review also reported cost effectiveness, based on individual patient data meta-analysis of 4 trials (Harvey 1998, Friedli 1997, King 2000 and Simpson 2000), using net mean benefit statistics and cost effectiveness acceptability curves from the previous version of this review (Bower 2000).</p> <p>The analysis of economic outcomes was complicated by the range of different analytic techniques used, ranging from simple analyses of health service utilisation through to net mean benefit calculations and cost effectiveness acceptability curves preventing any pooling of data.</p>

APPENDIX 10. ECONOMIC EFFECTIVENESS – RANDOMISED CONTROLLED TRIALS

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Bauer 2006b*</p> <p>Bauer 2006a</p>	<p>Bipolar disorder</p> <p>330 participants from 11 VA sites</p>	<p>CM/EC/Prot</p> <p>Outpatient clinic "specialty team" consisting of a psychiatrist & nurse care coordinator.</p> <p>Three intervention components specified in detailed manual: a) Patient self management via group psycho education. b) VA Bipolar clinical practice guidelines - based on treatment algorithm c) Nurse care coordinator for FU of missed appointments; liaison with other providers during admissions and ER visits and collaboration with MH and medical-surgical providers. Also facilitation of information flow to the psychiatrist by providing patient assessments, reminders for guideline-based monitoring, and tracking laboratory values.</p>	<p>Mean intervention three-year costs were \$61,398 (CI=\$52,037 to \$71,787) compared with \$64,379 (CI=\$55,031 to \$73,695) in costs for UC.</p>	<p>RCT (intervention N=166 and UC N=164)</p> <p>Jan 1997- Dec 2000 UK 3yrs follow-up</p> <p>Follow up data was only available for 306/330 participants.</p> <p>UC patients continued with their previous psychiatrist or were assigned one if new to the VA. Clinicians caring for I or UC pts received intake data according to the DSM-IV interview. There was no monitoring of usual care</p>
<p>Mental Health Link</p> <p>Byng 2004 (b)*</p> <p>Byng 2004 (a)</p> <p>Byng 2005 (qualitative)</p>	<p>Cluster of 23 General practices, associated CMH teams, and patients with long-term mental illness</p>	<p>CM/EC/LW</p> <p>Mental Health Link - a facilitated QI program</p> <p>- 3-4 facilitated joint working group meetings</p>	<p>The direct development costs per patient with psychosis (assuming 15 patients with chronic psychosis per 2000 registered in this predominantly inner-city setting) for practices in the Mental Health Link implementation</p>	<p>Cluster randomized RCT stratified according to size and interest in mental health</p> <p>Mental Health Link (MHL) program (12 practices, N=184 pts) versus usual service provision (11 practices N=151 pts)</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>-shared care facilitated through a linked specialist MH worker - link worker</p> <p>- tool kit to assist setting up registers, databases, audits and systems of recall</p> <p>- payment</p>	<p>group ranged from £46 to £347 (mean = £176, standard deviation = £95); these were, on average, £63 higher per patient than development costs reported by the control practices and associated community mental health teams.</p> <p>At baseline there was a significant difference in inpatient costs (which were higher for the control group) and controlling for this meant that the inpatient costs difference at follow-up was not significant. Medication costs were significantly higher for the intervention group at baseline whereas this was reversed at follow-up.</p>	<p>UK</p> <p>Usual service provision not described</p> <p>Payments of about £2000 (dependant on practice size) were made to the practices.</p>
Druss 2001	<p>Serious mental illness</p> <p>120 adult VA patients</p>	<p>CL/CM/CoL/EC/LW</p> <p>Veterans in IC received on-site PC and case management emphasising close collaboration with MH providers to improve access to, & continuity of care.</p> <p>Nurse practitioner (supervised by a FP) main provider of medical care. The RN (not the NP) provided education & liaison with MH providers & case management. The FP liaised with physicians in the psychiatry & medical services.</p> <p>Clinic staff emphasized patient</p>	<p>There were no significant differences between the 2 groups in total health care costs</p>	<p>RCT</p> <p>Integrated care (IC) initiative (N=59) versus UC (N=61).</p> <p>USA</p> <p>12mths follow-up</p> <p>Patients in UC were referred to the VA general medicine clinic, located in a building adjacent to the MH clinic. A referral form was sent and verbal contact was made with the clinic administrator.</p> <p>Costs calculated by multiplying the number of units of each type of service by the mean unit costs for those services.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>education, preventive services, and close contact with mental health care providers - e-mail, phone & face-to-face discussion.</p> <p>LW liaised with each of 3 MH teams, attended weekly team meetings. MH care providers notified re patients' medical status.</p>		
Emmanuel 2002	84 patients 16yrs+	<p>CL/EC/LW</p> <p>Key worker liaison - written guidelines re enhancing liaison during the 6 month study period. These included:</p> <ul style="list-style-type: none"> a) informing the PHC team about each patient contact - giving face-to-face or verbal feedback to the PC team(PCT) (at least two occasions) - discussing the possible use of a patient held shared care record - facilitating involvement of relevant PCT members in review meetings - reviewing patients at the GP's surgery and liaising with PCT <p>Key workers reminded of responsibility by letter each 2 mths. All key workers (I and C) were asked to record all patient contacts and any liaison activities.</p>	<p>Costs were somewhat more expensive for enhanced liaison - The mean cost of care was £473 (95% CI; -535 to 1480) higher in the liaison group.</p>	<p>RCT of enhanced key worker liaison (N=35) versus UC (N=49)</p> <p>Patients newly referred to secondary care from participating practices – only 11(I) and 23 (C) followed up</p> <p>January 1997-October 1997 UK 6mths follow-up</p> <p>Key workers of patients in the control group informed that their patient was involved in study assessments but asked to continue their normal form of liaison with primary care.</p>
Hedrick 2003* Liu 2003 (cost	Depression and/or dysthymia	<p>CL/CM/EC/Prot</p> <p>The Collaborative Care (CC) team</p>	<p>The costs of depression treatment were approx. \$160 higher for CC.</p>	<p>RCT Collaborative Care (N=168) versus Consultation Liaison (N=186)</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
effectiveness)	354 adult patients	<p>consisted of a clinical psychologist, psychiatrist, social workers and a psychology technician who met weekly to develop treatment plans and to conduct a 6 and 12 week progress evaluation for each patient.</p> <p>The team used VA guidelines to initiate depression treatment. The team communicated with PC providers via electronic progress notes allowing for communication and prompt notes. Pharmacy records were also tracked. If prescriptions were not written in a timely matter, the team contacted the PC provider, or if they couldn't be contacted, the psychiatrist wrote the prescription and followed the patient up.</p>	<p>Estimated costs for MH specialty visits was greater for the CL group than for the CC group (\$174 vs \$86).</p> <p>Greater differences between the 2 groups were found in broader categories of costs (a \$615 difference in outpatient costs & \$1,257 difference in total cost). CIs increased as the cost category broadened, reducing the precision of the latter cost estimates. On average, the adjusted incremental cost of CC was \$237 for depression treatment costs (CI=\$70 to \$404) and \$519 for total outpatient costs (CI=\$47 to \$519).</p> <p>For total cost, the adjusted incremental cost was considerably smaller (\$169). For total outpatient cost & total cost, a finding of cost offset (negative incremental cost) could not be concluded. When only depression treatment costs were considered, the additional cost per depression-free day was approx. \$24.</p> <p>On the basis of cost effectiveness ratios for depression treatment costs, total outpatient costs & total cost, a finding of absolute cost savings (negative incremental cost per depression-free day), could not</p>	<p>January 1998- March 1999 USA 9mth follow-up</p> <p>Consultation Liaison (CL) was the comparator. In the CL group, the PC provider was responsible for initiating treatment for depression symptoms and coordinating the patients overall care with consultation from, or referral to a specialist as deemed necessary.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
			<p>be concluded because their CIs included zero. The wide CIs reflect the uncertainty in estimates of both incremental effectiveness and incremental cost. CL was found to have both greater effectiveness and lower cost only 34 times in 1,000 bootstrap replications, indicating a 3.4 percent probability that consult-liaison care would be dominant over CC. Results show a 96.6 % probability that CC intervention would be associated with both increased cost and increased effectiveness.</p>	
<p>Jajoura 2004</p>	<p>Depression</p> <p>61 indigent adult patients 18yrs+</p>	<p>CM</p> <p>RN who screens patients, advises resident physicians re a positive screen and provides a protocol re confirmation of diagnosis, ruling out physical conditions, medications, or other primary psychiatric diagnoses; provides education and encourages behavioral therapy through an appointment to the local public MH agency (Nova Behavioral Health).</p> <p>The nurse liaises between the patients and Nova re an appointment. Case management for services from other agencies is also provided when needed.</p>	<p>Costs in the first 6 months were slightly higher, but lower from 6 to 12 months. These differences were not significant, and the confidence intervals around cost statistics during the second 6 months suggested a wide range of possibilities, from the intervention costing more to a substantial cost reduction.</p>	<p>RCT Intervention (N=33) versus UC (N=28)</p> <p>USA 12mths follow-up</p> <p>The patients in the UC were provided the results of the screen by the screening nurse before their visit with the resident, and advised to seek care for their symptoms.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>Katon 2002(b)*</p> <p>Katon 2001 (relapse prevention)</p> <p>Lin 2000 (interim results)</p> <p>Simon 2001 (feedback V feedback + telephone care by case managers)</p> <p>Walker 2000 (sub-groups based on severity and co-morbid conditions)</p>	<p>Depression</p> <p>228 patients 18-80yrs</p>	<p>CL/CoL/EC/ER</p> <p>Collaborative care (CC) program including:</p> <p>a) Patient educational/activation material (book and videotape) regarding effective management of depression developed by the study</p> <p>b) 2-4 consultation visits with a liaison psychiatrist practicing in the primary care clinic</p> <p>c) Algorithm-based adjustment of antidepressant pharmacotherapy</p> <p>d) As-needed referral to psychosocial treatment or community resources</p> <p>e) Ongoing monitoring of adherence to medication regimen.</p> <p>During this period of CC, most patients alternated follow-up visits with the liaison psychiatrist and PCP. After 3-4 months, responsibility for ongoing depression care was transferred back to the PCP (with specialty mental health services available as in usual care). Liaison psychiatrists continued to monitor treatment adherence and provide as-needed consultation to the PCP.</p>	<p>The mean incremental cost of depression treatment was \$357. Additional costs for collaborative care patients were concentrated in two categories: antidepressant prescriptions and outpatient visits. The depression treatment costs were approximately \$340 greater for the collaborative care group.</p>	<p>RCT</p> <p>Collaborative care intervention (N=114) versus usual care (N=114)</p> <p>USA</p> <p>28mths follow-up</p> <p>Usual care was provided by the PCP and included prescription of an antidepressant medication, 2 to 4 visits over the first 6 months of treatment, and an option to refer to GHC mental health services.</p>
<p>King 2000</p>	<p>Depression and/or anxiety</p> <p>464 patients</p>	<p>CoL</p> <p>The interventions consisted of brief psychological therapy:</p> <ul style="list-style-type: none"> - Non-directive counselling was 	<p>There were no significant differences in direct costs, production losses, or societal costs between the three treatments at either four or 12 months.</p>	<p>RCT</p> <p>Non directive counseling, CBT and UC</p> <p>Of the 464 patients 197 were randomised between the three treatments, 137 chose a specific treatment, and 130 were</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>provided by counsellors who were qualified for accreditation by the BAC - CBT provided by clinical psychologists who were qualified for accreditation by the British Association for Behavioural and Cognitive psychotherapies.</p> <p>Patients were offered six sessions initially, with a maximum of 12. Appointments were usually provided on a weekly basis at the surgery and lasted about 50 minutes.</p>		<p>randomised between the psychological therapies only.</p> <p>Feb 1996 - Nov 1997 UK</p> <p>Participants allocated to psychological therapy were free to see their GP as usual, but doctors were asked to refrain from routinely prescribing ADs for these patients</p> <p>Participants allocated to psychological therapy were free to see their GP as usual</p>
Lester 2007	<p>New or ongoing common mental health problems.</p> <p>19 practices & 368 patients 18- 65yrs</p>	<p>CM/CoL</p> <p>Primary care mental health worker (PCMHW) – Psychology graduates with study specific 12 week training and 3 week practice based induction Co-located in PC</p> <ul style="list-style-type: none"> - provide brief psych interventions such as CBT. - liaise over management with the PC team. - develop resources for the intervention practices (audit, mental illness register, initiatives to increase the involvement of patients and carers and a local service resource folder) - onward referral to the voluntary sector and support for self-help, and mental health promotion. - liaison with primary care team 	<p>The control group incurred a total annual cost of £502.77, while the intervention group had a total cost of £578.36. The difference in mean costs was £75.59 (95% CI = 132.65 to 392.60).</p> <p>Although the intervention group appeared to have higher costs, the 95% CI indicates a large range of plausible values for differences in cost, and shows that the difference in scores is not significant.</p> <p>Analyses of sub-costs indicated no significant difference between the 2 treatment groups for costs of PC consultations, non MH consultations in secondary care, MH consultations in secondary care, drug costs, and inpatient stays.</p>	<p>Cluster RCT Access to a MHW versus (8 practices; 180 patients)no access to a MH worker (8 practices; 188 patients).</p> <p>Feb 2003- Nov 2004. UK 12mth follow-up</p> <p>Substantial loss to FU – Not ITT analysis N= 142 Intervention N= 140 Control</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>members, statutory and non-statutory sector services, and specialised services for patients who are managed in PC</p> <p>Clinical supervision provided 1 hour per week from a psychologist in the local mental health trust</p>	<p>Differences in costs between the 2 groups were relatively small for PC visits, non-MH referrals, MH referrals & drug costs.</p>	
<p>Roy-Byrne 2001*</p> <p>Katon 2002 (a) (cost effectiveness)</p>	<p>Panic Disorder</p> <p>115 patients 18-65yrs</p>	<p>CL/CM/CoL/Prot</p> <p>Collaborative care (CC) intervention</p> <p>Patients received educational videotapes and pamphlets; pharmacotherapy with the SSRI paroxetine; 2 psychiatrist visits and 2 telephone calls in the first 8 weeks; and up to 5 telephone calls between 3 and 12 months' follow-up.</p> <p>A schedule of extended care included (1-hour psychiatric visit during week 1; 10- to 15-minute telephone call, week 2; 30-minute visit, week 4; telephone call between weeks 6 and 8). Selected patients were occasionally seen for extra sessions.</p> <p>The PCP received a typed consultation note after each psychiatric visit. Between months 3 and 12, psychiatrists attempted to telephone patients 5 times at equal intervals to reinforce the importance</p>	<p>The incremental MH cost of the CC intervention was \$205 (95% CI, -\$135 to \$501), with the additional MH costs of the intervention explained by expenditures for AD medication and outpatient mental health visits.</p> <p>Total outpatient cost was \$325 (95% CI, -\$1460 to \$448) less for the CC than for the UC group. The incremental cost-effectiveness ratio for total ambulatory cost was -\$4 (95% CI, -\$23 to \$14) per anxiety-free day.</p>	<p>RCT CC intervention (N=57) versus UC (N=58)</p> <p>USA 12mth follow-up</p> <p>UC patients received care from their PCP in the clinic, who received the results of the initial diagnostic telephone assessment. Patients in the UC group could also be referred to university or community MH practitioners.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		of medication adherence. The psychiatrist throughout the course of this study made all medication adjustments.		
Roy –Byrne 2005* Katon 2006 (Cost effectiveness)	Panic Disorder 232 patients 18-70yrs	CL/CM/EC/Prot The intervention consisted of a combination of up to 6 sessions (across 12 weeks) of CBT modified for the PC setting, with up to 6 follow-up telephone contacts during the next 9 months, and algorithm-based pharmacotherapy provided by the PC physician with guidance from a psychiatrist. Behavioral health specialists (BHS) the majority inexperienced in CBT for panic disorder, were trained to deliver the CBT and coordinated overall care, including pharmacotherapy.	Total incremental out-patient costs were \$492 higher (95% CI \$236-747) in intervention versus UC care patients with a cost per additional AFD of \$8.40 (95% CI \$2.80-14.0) and a cost per QALY ranging from \$14 158 (95% CI \$6791-21 496) to \$24 776 (95% CI \$11 885-37 618). The cost per QALY estimate is well within the range of other commonly accepted medical interventions such as statin use and treatment of hypertension.	RCT Intervention (N=119) or UC (N=113) March 2000 -March 2002 USA 12mths follow-up UC patients received treatment as usual from their PCP, who received the results of the diagnostic interview. Treatment could involve pharmacologic treatment by the PCP and/or referral to a MH professional.
Simon 2000	Depression 613 adult patients	CM/EC/Prot a) Feedback only (a detailed report to PCP that included data on antidepressant dosage, repeat prescriptions, number of follow-up visits, and limited treatment recommendations based on a computerized algorithm. b) Feedback plus care management, which comprised a 5-minute introductory telephone call from the case manager and two 10- to 15-	After adjustment for age, sex, chronic disease score, and baseline depression score, mean incremental costs were \$22 (£13.75) (95% confidence interval - \$27 (£16.9) to \$71 (£44.38)) for feedback only and \$83 (£51.88) (\$32 (£20) to \$134 (£83.75)) for care management. Although the costs for total health services seemed higher in the care management group, this difference was attributable to one patient with	RCT Feedback only (N=221), feedback +care management (N=196) or UC (N=196) USA 6mths follow-up UC - "no services other than standard ones were provided to the patients or doctors" Primary economic analyses considered only treatment costs for outpatient depression (AD prescriptions, visits for MH, and visits to

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		minute telephone assessments at 8 and 16 weeks. Physicians also received feedback reports from care managers after each assessment.	costs of \$120 000 (£75 000). Analyses that exclude this single outlier or analyses of log transformed costs (less sensitive to extreme observations) showed no difference in costs for total health services among the three groups. As expected from data on number of follow up visits, costs for time in treatment did not differ by treatment assignment.	PC with depression diagnoses). Costs of care management were estimated from the care managers' time logs and actual labour and overhead costs. Secondary analyses examined costs for both total health services and time in treatment. Estimates for average hourly wage of the patients treated for depression (\$15.95 (£9.97)) and average time spent attending an outpatient visit (2.7 hours) were taken from a previous study of depression treatment in primary care.
Simpson 2003 (a)* Simpson 2000 (12mth data) Corney 2003 (cost effectiveness)	Depression, anxiety & other MH symptoms 145 patients	CoL/Prot Counsellors (N=6) located in PC (BAC accredited, experience working in PC and regular supervision) Health Authority recommended 6-12 sessions each lasting 50 min (Freudian psychodynamic model) – sessions taped to ensure adherence to stated approach.	Increased PC costs related only to the additional costs associated with the use of counsellors at 6 months only - Intervention = £318 v £161 per patient p<0.001	RCT Practice counsellor in addition to GP care (N=73) versus UC (N=72) UK 12mth follow-up Both the experimental and control group received routine GP treatment – UC patients were not to be referred to counselling
(Threshold Assessment Grid (TAG)) Slade 2008	GP referrals from 73 practices	ER TAG is a one-page referrer-rated assessment of mental health problem severity over 7 domains: (i) intentional self-harm; (ii) unintentional self-harm; (iii) risk from others; (iv) risk to others; (v) survival needs/disabilities; (vi) psychological needs/disabilities; and (vii) social needs/disabilities)	The cost of using the TAG was estimated using information on the material costs of producing and distributing the instrument and staff time spent completing and reading it. The difference after adjusting for differences in baseline contacts & time between referral and audit was statistically significant. These rates	Multisite cluster RCT TAG (N=36 practices) versus control (N=37 practices) UK All GPs working in 'control group' practices were asked to continue with their usual referral practice: either a referral letter (Croydon) or use of an existing referral form (Manchester).

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>The referral rating form was completed for all CMHT referrals from GPs & discussed in team meeting, i.e. solely on the basis of GP referral information and before the patient was contacted. Local arrangements made to ensure that it was also completed for emergency referrals processed by the CMHT outside of the team meeting.</p>	<p>extrapolated over a 1-year period result in an extra cost of £42 pa for the intervention group.</p>	<p>Uptake by GPs poor (25%) of intervention GPs</p> <p>Costs data collected included: (i) the number of GP contacts for referred patients (6 months prior to referral and for the period since referral) and (ii) AD and atypical antipsychotic prescribing costs incurred at primary and secondary care (6 months before and after the study started)</p>
<p>IMPACT (Improving mood promoting access to collaborative treatment)</p> <p>Unutzer 2002*</p> <p>Arean 2005 (Effectiveness for ethnic minorities)</p> <p>Arean 2007 (Effectiveness by income level)</p> <p>Blasinsky 2006 (Barriers and facilitators to sustainability (Qual))</p> <p>Gum 2006 (Treatment preferences)</p> <p>Harpole 2005 (Comorbid medical illnesses)</p> <p>Hegel 2005 (Cormorbid</p>	<p>Major depression and/or dysthymia</p> <p>1801 patients 60yrs+</p>	<p>CL/CM/LW/Prot/SC</p> <p>Depression care manager (DCM) for up to 12 mths (nurses or psychologists with special study related training for role of Depression Care Specialist (DCS). Supervised by psychiatrist and PC expert</p> <p>Role/responsibilities: Assessment, education for patients, coordinates care; provide medical care; provide behavioral health care (PST) and relapse prevention plan. Discusses with IMPCT team at weekly meeting. FU patients for 12 mths, every 14 days by phone or person in acute stage. support AD management and monitor (PHQ 9)</p> <p>DCS works with patient and PCP to agreed treatment plan according to recommended</p>	<p>The average cost of the IMPACT intervention program was \$591.</p> <p>Relative to usual care, intervention patients experienced 107 (95% CI 86 to 128) more depression-free days over 24 months. Total outpatient costs were \$295 (95% CI, -\$525 to \$1115) higher during this period.</p> <p>The incremental outpatient cost per depression-free day was \$2.76 (95% CI, -\$4.95 to \$10.47) and incremental outpatient costs per quality-adjusted life year ranged from \$2519 (95% CI, -\$4517 to \$9554) to \$5037 (95% CI, -\$9034 to \$19 108).</p> <p>Results of a bootstrap analysis suggested a 25% probability that the IMPACT intervention was "dominant" (ie, lower costs</p>	<p>Multisite RCT IMPACT intervention (n=906) - usual care (n=895)</p> <p>July 1991- August 2001 USA 24mths Follow-up</p> <p>Usual care included any primary care or specialty mental health care service available to them in usual care. After 12 mths, all study participants continued with their regular PC practitioners as usual.</p> <p>All care managers and team psychiatrists free of charge to patient</p>

Study/relevant papers (first author)	Clinical issue/population	Link Strategy	Significant Outcomes	Scope/overall conclusions
<p>panic and PTSD)</p> <p>Hunkelar 2006 (Long term outcomes 24mths)</p> <p>Katon 2005 (Cost effectiveness)</p> <p>Levine 2005 (Physician satisfaction)</p> <p>Oishi 2003 (How integration was achieved and how to translate into the real world (Qual))</p>		<p>algorithm. Where no improvement - discussion with IMPACT team and step 2 treatment – augment or change meds, change to psychotherapy, or consultation with psychiatrist and other treatments considered.</p> <p>Patient education includes 20 minute video, and encouraged to see DCS a pc clinic (initial visit)</p>	<p>and greater effectiveness).</p> <p>Antidepressant prescription costs were \$416 higher among intervention participants compared with usual care, but costs of specialty mental health care were approximately \$85 lower in intervention patients.</p> <p>Total mental health costs (intervention program, specialty mental health, and antidepressants) were approximately \$921 higher over the 2-year period. Other medication costs however were \$126 lower and other outpatient costs were \$501 lower in intervention patients, suggesting substantial cost-offset effects on non-mental health-related ambulatory care services.</p>	
<p>Von Korff 1998</p>	<p>Depression 370 adult patients</p>	<p>CL/CoL/EC</p> <p>Trial A - consulting psychiatrists provided enhanced management of pharmacotherapy and brief psycho-educational interventions to enhance adherence.</p> <p>Patients co-managed by PCP and a consulting psychiatrist. The 2 psychiatric visits occurred in PCP. As needed CC patients received a 3rd or 4th psychiatric visit. When severe side</p>	<p>Follow-up and cost data were available for 332 (89.7%).</p> <p>Relative to UC, the added cost of AD medications was modest, except among patients with minor depression in the first randomised trial. The cost of CC did not differ markedly between the 1st & 2nd studies, ranging from \$1045 to \$1337.</p> <p>Under UC, costs of managing</p>	<p>RCTs x2</p> <p>Trial A - (N=217) Trial B – (N=153)</p> <p>USA 12mth follow-up</p> <p>UC not described</p> <p>For major depression, the average cost per patient successfully treated (50% reduction in SCL 90 depression score) was \$1797</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
		<p>effects/ treatment resistance, psychiatrist worked with the patient & PCP to review medication regimen. Using automated pharmacy data, the psychiatrist continued to monitor patient adherence to medication regimen - notified PCP if lapse in medication use identified.</p> <p>Trial B - collaborative care was implemented through brief CBT and enhanced patient education. Consulting psychologists provided brief psychotherapy supplemented by educational materials and enhanced pharmacotherapy management.</p> <p>Patients co managed by the PCP & consulting psychologist. Psychologists consulted regularly with a psychiatrist re medication management - provided feedback re medications to the patient & PCP. Brief psychotherapy in PC setting was guided by treatment manual. The psychologists also initiated telephone contact with study patients 2, 4, 12, and 24 weeks after completion of direct contact phase of treatment.</p>	<p>depression for 1 year were estimated to be approx \$900 for patients with major depression and between \$500 and \$700 for patients with minor depression.</p> <p>In both studies, costs of specialty MH services were lower among patients with major depression who received CC than among those who received UC. This cost offset in specialty MH service costs was not observed among patients with minor depression in either the 1st or 2nd study.</p> <p>For the 1st and 2nd study randomized trials combined, the costs of specialty MH services were significantly lower among patients with major depression assigned to CC than among those assigned to UC (\$123 vs. \$317; t = 2.25; p = .027). Because of this cost offset in specialty MH service use, the added cost of providing CC for patients with major depression was less than it would have been otherwise. The added cost of CC was estimated to be \$487 in the 1st trial and \$264 in the 2nd trial. Because there was not an offsetting reduction in the utilization of specialty MH services among patients with minor depression in either the 1st or the</p>	<p>(consultation model) and \$1697 (brief therapy model) for Collaborative Care, whereas it was \$1941 and \$2170 for Usual Care in the 2 studies, respectively.</p> <p>For minor depression, the cost per case successfully treated was \$2163 for the consultation model and \$1567 for the brief therapy model of Collaborative Care compared with \$968 and \$994 for Usual Care of minor depression.</p>

Study/relevant papers (first author)	Clinical issue/ population	Link Strategy	Significant Outcomes	Scope/overall conclusions
			<p>2nd trial, the additional cost of providing CC was greater for patients with minor depression in both the 1st and the 2nd trials (\$641 and \$520, respectively). In both studies, the costs of ambulatory medical care services (excluding MH services) did not show a significant cost-offset effect for either patients with major depression or those with minor depression.</p>	

* Primary paper

APPENDIX 11. PSYCHOSIS STUDIES

First author/ year	Study design/method	Population/setting	Linkage	Outcome
Brown 2004	Pre/post survey assessing the effectiveness of a link-worker model	21 GPs caring for patients with serious mental illness (SMI). General practice and community, UK	CoL/LW - Community MH (link worker) aligned with GP practices co-ordinated care of patients with SMI. Twice weekly visits to the practice/practice meetings. Liaison over cases prior to written referral. Included clinics in the GP surgery offering short-term (up to 3 sessions) advice to patients and as a resource base regarding available services.	GPs with a link worker significantly more satisfied. Good communication and geographical co-terminosity crucial features in successful working across the primary and secondary interface. GPs became less willing to share care with the psychiatrist/CMHT over the 2 year period. Reasons for which are not clear.
Bruce 1999	Cohort study with matched control to assess health outcomes of chronic mentally ill patients, registered with a general practice who employed a 'dedicated' part-time CPN	42 adult patients – with long-term mental illness resettled from a psychiatric hospital to community hostels General practice and community, UK	CoL/CM/LW - Link worker – community CPN with 15 hours a week to resettled mentally ill patients being cared for by the GP practice post resettlement from hospital. Conducted psychiatric consultations and follow-up in the general practice rather than the psychiatric hospital.	No differences found between groups. The main beneficiary of the CPN was the GPs and hostel staff rather than the service users, who had similar quality of life scores.
Byng 2004 Mental health link	Cluster RCT To determine the effects of a facilitated QI program designed to improve communication between the teams and systems of care within general practice.	23 General practices, associated CMH teams, and patients with long-term mental illness General practice, UK	CM/EC/LW - Mental Health Link - a facilitated QI program - 3-4 facilitated joint working group meetings - shared care facilitated through a linked specialist MH worker - link worker - tool kit to assist setting up registers, databases, audits and systems of recall - payment to GPs	There were no significant differences in patients' perception of their unmet need, satisfaction or general health. Intervention patients had fewer psychiatric relapses than control patients but there were no differences in documented processes of care. Intervention practitioners were more satisfied and services improved significantly for intervention practices. There was an additional mean direct cost of £63 per patient with long-term mental illness for the intervention compared with the control.

First author/ year	Study design/method	Population/setting	Linkage	Outcome
Cook 2003	Pre/post intervention survey of all patients seen over 12 months by one expanded GP & OT service	37 clients, 18yrs+ Schizophrenia or schizotypal and delusional disorders or affective disorders with psychotic symptoms General Practice UK	CM/EC/ER/LW -Expanded GP role - register of patients with SMI - pt held records - case review meetings to co-ordinate care, support & staff training held in practice - regular reviews of mutual patients by GP and visiting psychiatrist - Care management by OT including accommodation and referral to community services, financial assistance - psychological support for pts and carers.	Excellent rates of engagement. The annual cost to the NHS of adding comprehensive MH care was estimated at £1584 per person per year (at 1997-98 prices), Occupational therapy combined with care management may be an effective treatment for people who have psychotic disorders and impaired social functioning.
Drew 2003	Pre/post assessments of key elements of care received by participants from GPs. MH Service staff were also surveyed on completion of the project.	56 adult clients Psychosis General practice and community MH, ACT Australia	CM/EC/LW/MOU - Employment of a liaison nurse by the CMHT and per capita payments to GPs for providing cost free service to persons with psychosis.	Liaison nurse role important (perhaps with a financial inducement for GPs). The qualifications of the worker are critical for the program's success. Key service elements 1. Employment of the liaison nurse with the right qualifications 2. Formal service agreement 3. Quarterly payment to GPs
Druss 2001	RCT to evaluate an integrated model of primary medical care for a cohort of patients with serious mental disorders.	120 VA patients with serious mental illness (SMI) Primary care, USA	CL/CM/CoL/EC/LW - The integrated care clinic (ICC) involved adjoining mental health and primary care clinics on-site primary care and case management that emphasized preventive medical care, patient education, and close collaboration with mental health providers to improve access to and continuity of care.	Patients treated in the ICC were significantly more likely to have made a PC visit and had a greater mean number of PC visits than those in usual care. They were more likely to have received 15 of the 17 preventive measures outlined in clinical practice guidelines. Patients assigned to the ICC had a significantly greater improvement in health as measured by the physical component summary score of the 36-Item Short-Form Health Survey. There were no significant differences between the 2 groups in any of the measures of mental health symptoms or in total health care costs.

First author/ year	Study design/method	Population/setting	Linkage	Outcome
Fitzpatrick 2004	Cohort study to determine the factors associated with receipt of different levels of shared care, and the effect of shared care on patient outcomes and health service use.	349 patients with ICD-10 diagnosis of psychosis, affective disorder, personality disorder or severe neurosis 16-64yrs General practice and community, UK	CONTX - A range of shared care, which varied between active involvement of primary and secondary services with good communication, to low or no shared care, where patients were managed almost entirely by their GP or within secondary care.	High shared care had limited value for patients in terms of improved patient functioning over one year, however increased clinical functioning and the subtle change in social functioning may reflect important improvements. Receipt of shared care may be an example of the inverse care law, where patients who experience worse mental health functioning do not receive higher levels of care.
Gavin 2008	Semi-structured interviews with GPs to describe attitudes towards working within the catchment area of an early intervention service.	16 GPs Early intervention for psychosis General practice and community, UK	ER - Responsive service to GP to ensure earliest possible initiation of treatment and optimize young person's engagement with the psychiatric service. The functions of DETECT include: - education of GPs aimed at reducing duration of untreated psychosis - rapid comprehensive assessment of all suspected cases of psychosis and a specialist intervention program of CBT, family education and recovery.	Dominant themes were: - The value of rapid assessments - quick access. - Importance of communication between mental health services and primary care. - Stigma - reduces stigma when treated in PMHC. Barriers included: - Need for highly flexible service provision - as can be a struggle to get patients there. - Challenges of managing psychosis in primary care - often involves long consultation.
Griswold 2008	RCT assessing the effectiveness of a care manager for patients after presentation to in-patient psychiatric care	175 adult patients with serious psychiatric problems seeking care in a psychiatric emergency department of an urban public hospital Primary care, USA	CM/ER - Use of a 'care manager' (CM) for patients after presentation to in-patient psychiatric care. The CM assisted with making and attending PC appointments, and coordinating with mental health peers to support connections with community MH care.	Better physical and mental function in intervention group at 6mths but differences had disappeared at 1yr. care management is effective in helping patients access primary care after a psychiatric crisis.

First author/ year	Study design/method	Population/setting	Linkage	Outcome
Horner 2005	Descriptive study and GP questionnaire	56 adult patients with chronic psychiatric conditions General practice, Australia	CM/LW - GP Clinical Liaison Officer (GPCLO). Multi disciplinary care planning meeting and individual management plan.	Outcomes suggest that patients' mental health is not compromised and may be enhanced by transfer to general practitioners within the shared care model. Indicators of mental health outcomes (Health of the Nation Outcome Scale and Life Skills Profile scores) show improved patient symptomatology and functioning in most cases.
Hull 2002	Descriptive – postal questionnaire to practice managers to examine whether the style of relationship between general practices and CMHTs in east London affects the numbers and types of referrals to CMHTs	161 general practices supporting patients with serious mental illness in the community. General practice and community, UK	CL - Consultation-liaison relationship - regular face-to-face contact with casework discussion, four to six times weekly.	Where good working relationships (a consultation– liaison style) exist between CMHTs and general practice, there are greater numbers of referrals requiring both long and short-term work by CMHTs. Two-stage multivariate models explained 47% of the referral variation between practices. Where primary care-based psychologists work with practices there are greater numbers of CMHT referrals, but less use of psychiatric services.
Lester 2003	Cluster RCT assessing the effectiveness of a patient held record	176 general practices and 201 adult patients with schizophrenia (ICD-10) General practice and community, UK	EC - Patient-held record used as a linkage between GPs and consultants	Over 60% of patients still had the patient held record at 12mths. The record was regularly used by their key-worker. However the patient-held record had no significant effect on primary outcomes or on use of services. A higher symptom score was associated with not using the patient-held record.
Meadows 2007 CLIPP	Pre/post evaluation of the CLIPP program – transfer of patients from specialist community care to GP care	62 adult patients with a range of major psychiatric disorders, most commonly schizophrenia, General practice and	CL/CM/EC/MOU - Consultation, liaison, and education service provided by psychiatric consultants at participating general practices. The second component of this model involves transferring selected patients from community MH services into GP - based	Between transfer into shared care and 12-month follow-up, there was some decline in group clinical status as measured by decreased mean scores on the RFS, LSP, and SF-36 mental component, with some increase in total HoNOS symptom scores. The changes were generally modest in scale.

First author/ year	Study design/method	Population/setting	Linkage	Outcome
		community, Vic, Australia	collaborative care. In the final component a clinical case register and reminder system managed by the specialist services is used to actively promote follow-up for transferred clients.	Initial deterioration may reflect selection bias - of those who were transferred at a clinical high point - or it may reflect adjustment to the less intense treatment in PC compared to CMHT care.
McDonough 2003	Cohort study with matched control - GP questionnaire to investigate whether using a shared care register (SCR) would (i) enhance GP involvement in severe mental illness (SMI) patients and (ii) improve PC links with the community MH team (CMHT).	45 adult patients with psychosis General practice and community, UK	CL/EC - Shared care register, Liaison meetings GPs and CMHT (psychiatrist medical) where register patients reviewed.	The only benefit to accrue from the SCR was the GP who attended the liaison meeting. The SCR patients were less of a challenge than before, preparing for the Liaison meeting was not worth the cost and the model was NOT usable in routine practice.
Power 2007	Cluster RCT to evaluate a GP education program and direct referral access by the GP to an early detection assessment team (LEOCAT) in reducing delays in accessing treatment for first-episode psychosis patients.	46 GP clusters with patients 16-35yrs presenting to the local MH service with a first episode of psychosis. General practice and community, UK	EC/ER - Education by LEO CAT staff to intervention GPs in early detection involving 10 minute video & 15 minute talk about the LEO CAT team as well as leaflets on the Lambeth Early Onset Service and follow up phone calls on the benefits of early intervention and feedback phone calls to do with individual cases referred.	Significantly more intervention group GPs (86.1% v.65.7%) referred their patients directly to MH services and fewer patients experienced long delays in receiving treatment. However, their overall duration of untreated psychosis (DUP) was unaffected.
Rodenburg 2004	Pre/post service evaluation of a PC service for a population of mental health consumers who had previously been cared	163 adult consumers with a (DSM) Axis 1 diagnosis, Depression, Mood disorder with psychotic component,	CL/CM/LW/MOU - The main structural features of the program were joint governance arrangements (at both strategic and local level); a new specialist team staff role (the primary	Consumers reported no deterioration in their clinical condition while under the care of GPs, and they were largely satisfied with GP care. Consumers' LSP scores were stable after entry to the program. GPs were initially ambivalent about the program, but were more supportive

First author/ year	Study design/method	Population/setting	Linkage	Outcome
	for by a specialist service.	PTSD, anxiety, dementia, Personality disorder, Schizophrenia and other psychotic disorders General practice, NZ	care liaison worker); education and support for general practice staff; free GP consultations; and new interface protocols between primary and secondary care.	after 12 months had elapsed. The education provided to general practitioners, nurses, and receptionists was strongly welcomed.

APPENDIX 12. LINKAGE WITH A NON-HEALTH SERVICE OR COMMUNITY AGENCY

First author/ year	Aim	Linkage strategy (non-health)	Outcome/s as relates to non-health
Cook (2003)	To investigate the feasibility of a PC based service for people with psychotic conditions not in contact with secondary care based CMHT.	CM/ EC/ ER/LW Case management – included collaboration with accommodation providers - finding & negotiating suitable accommodation - adaptation of the social & physical environments.	Results suggested a range of social outcomes with especially good results for improved social functioning and decreased social problems.
Hunter (2008) Education service/school – LW to address communication/ understanding between MH and education services.	To describe the experiences of staff from CAMHS and secondary education services (SES) on the introduction of a MHLW - to enhance the effectiveness of the interface between PC and specialist CAMHS services.	LW Education service/school - The provision of a MHLW - work with staff to raise awareness of MH issues & services; provide MH info & teaching programme for CAMHS and SES; provide a point of contact for education staff for advice and consultation.	Increased sharing, awareness and access to services & information - strengthening of routes of communication between education services and health services. The LW role highlighted a need for common management across health and education – helped to define roles, responsibilities and correct direction for referrals.
Lester (2007) Resource information re community sector services.	To evaluate the effectiveness of primary care mental health workers with regards to satisfaction with care, mental health symptoms, use of the voluntary sector and cost effectiveness of care.	CM/CoL The role of the PCMHW was to: develop resources for the intervention practices (health & non-health) - compile a practice folder of local voluntary and community sector services, visiting each one in the practice locality to gain more in depth information about waiting times, referral mechanisms, treatment packages, and costs to patients.	No results reported about non-health services.
Morrissey (2002) Welfare service - functional condition homelessness – ACCESS study.	ACCESS sought to integrate service delivery systems for homeless persons with SMI - does implementation of system-change strategies (funds and technical assistance) lead to better integration of service systems?	CoL/MoU Integration between MH, substance abuse, PC, housing and social welfare services. Strategies to improve linkages (health & non health) - interagency coordinating body, cross training, interagency agreements, interagency management info system/client tacking system, pooled joint funding, interagency service delivery team, flexible funding, consolidation of programs.	The implication is that these strategies can make a difference in the degree of integration both on a system basis and on a project-centered basis. Integration between ACCESS integrated agencies and other community service agencies was significantly greater at the experimental sites than at the comparison sites.

First author/ year	Aim	Linkage strategy (non-health)	Outcome/s as relates to non-health
<p>Sweeney (2003) (Australian study) Aboriginal rehabilitation, justice, police, voluntary respite and a range of social services and mental health services.</p>	<p>To explore the perceptions of community-care and MH professionals regarding the care of people with mental health problems in remote and rural Western Australia and the perceived utility of, and barriers to, collaboration and how these could be addressed.</p>	<p>Context Referral and access (including after hrs care) and case management between mental health specific community services and other community services.</p>	<p>Lack of an AH service leads to inappropriate use of other services such as police. Workers in MH and community services identified need for better links which would bring greater understanding/ knowledge of available services (health & non health) and break down barriers.</p>

APPENDIX 13. AUSTRALIAN STUDIES

Author	Aim	Study type	Setting	Client group	Linkage strategy (non-health)	Outcome/s as relates to non-health
Alsop (2000)	Identify strategies to integrate MH & GP services.	Interviews with GPs, MH professionals.	North QLD.	General mental health/adult.	Context: Linkages (mainly referral & feedback) btwn GP & Integrated MH Service.	Unclear referral processes; lack of follow-up feedback guidelines.
Beel (2008)	GP perspectives referral to psychologists.	Interviews - 12 GPs.	Perth, WA.	General mental health/adult.	Context: Survey of GP opinions about referrals.	Important that psychologists included in team management approach. Colocation improved communication/ feedback.
Drew (2003)	Project report - aim to improve general HC of persons with psychosis.	Program evaluation - GPs & CMHS staff surveyed.	ACT.	56 persons with psychosis.	CM/EC/LW/MOU: LW (LN) - liaised with GPs, CMHS staff - developed care plans, prepared progress reports.	Joint meetings well attended by both professions-care pathways enhanced, GP documentation improved. Liaison nurse role seen as important.
Emmerson (2003)	Devel. psychiatric assess. & advisory service for GPs - Medicare funded.	Survey - 79 GPs.	Brisbane, QLD.	Mainly mood or anxiety disorder.	CL/EC/ER: 'Psych opinion ' service at Royal Brisbane Hospital - 1 hour appoint for psychiatrist to assess patients.	92% of GPs happy to refer. In the 1 st 12 months of the service a total of 30 referrals were received with one GP referring 10 people.
Endacott (2006)	Evaluate eating disorder services in 2 regional cities.	Interviews, questionnaires & health service data.	Bendigo & Geelong, VIC.	Eating disorders.	CoL/SC: Bendigo service - stepped collaborative care model - psychiatrist & dietician. Geelong service - PC setting.	Providing locally based service with clinicians & effective communication. However, need clear pathways/guidelines for providing feedback.
Harmon (2000)	Demographic characteristics of patients accessing integrated service.	Clinical audit plus GP satisfaction survey.	Port Stephens, NSW.	General mental health.	CM/ER/LW: MHNs - referrals from GPs, provided clinical assessment, consultation & feedback to GPs re diagnosis & case management. Nurses supervised by a psychiatrist.	MHNs have key role with GP in formulating clear management plans. The integrated model provided assessment & care for broader range of diagnostic groups & higher severity than C/L model & maintained a central role for the GP.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Author	Aim	Study type	Setting	Client group	Linkage strategy (non-health)	Outcome/s as relates to non-health
Harris (2007)	To evaluate the Aboriginal Mental Health Worker program.	Audit of 35 client records & 52 interviews with MHWs.	Remote communities – NT.	General mental health/adult.	CoL: GP mentoring Aboriginal MHW. Supported by GP visiting Aboriginal MHWs.	Need for role clarification; develop approp practice models of Aboriginal MHWs in NT remote communities; 2-way communication between the GP & MHW; the importance of wellbeing;
Horner (2005)	Describe a shared care programme - MH services & GPs.	Questionnaire re GP Clinical Liaison Officer - 56 patients, 13 GPs	Sydney, NSW.	Chronic psychiatric disorders.	CM/LW: GP Clinical Liaison Officer (GPCLO) - within a multi disciplinary care planning meeting – develop individual management shared care plan.	Av. score for all patients slightly reduced after 6 months (HoNOS 6.1-5.2; LSP 7.3-6.7) – generally patients coped well in the shared care. 8/13 GP - improved working relationship.
Meadows (2007)	CLIPP model – Consult/ Liaison in PC Psychiatry Program.	62 patients transferred to GP care in CLIPP. Measures - HoNOS, LSP, RFS, SF-36.	Melbourne, VIC.	Major psychiatric disorders, mostly schizophrenia	CL/CM/EC/MOU: Consult/ liaison service by psychiatric consultants at GPs. Clinical case register used to actively promote follow-up for transferred clients.	Modest changes - Data suggest any actual deterioration was not progressive beyond 1 st year, with clinical status & functioning remaining stable between 12 & 24 months after transfer.
Mildred (2000)	Collaboration btwn GPs & CAMHS.	Survey & interviews with GPs (114) & MHWs (14).	Melbourne, VIC.	CAMHS - General mental health.	EC: CM – develop standardised letters for communication, liaison with MHCAMHS and GPs.	CM -doubling of reg phone contact & increase in 3 monthly frequent written communication between GPs and CAMHS.
Morley (2007)	Evaluation - BOiMHC: impact of different models.	29 projects (27%) included.	Various Australian sites.	Depression & anxiety.	CoL: Colocation of services	Majority of projects retain allied health profs under contract (83%). Services provided in allied health profs' rooms (69%), CoL in GPs' practices (62%). Maj. projects use direct referral mechanism (48%) and/or a register system (38%). Overall effect size across all projects = 1.05 (CI 0.92-1.19) indicating a large positive effect.

Author	Aim	Study type	Setting	Client group	Linkage strategy (non-health)	Outcome/s as relates to non-health
Perkins (2005) (2006)	Evaluation of the Mental Health Integration Project (MHIP) in remote far western NSW	Survey - 10 GPs remote (59%), 5 regional towns (45%)	Remote far western NSW.	General mental health.	CL: Local resident MH team, GPs & other providers supported by specialist MH staff & visiting psychiatrists. Local GPs refer to MH team - controlled patient access to VMO psychiatrist re priorities for staff support & patient assessment or care.	GPs aware of VMO psychiatrist visits - consulted re patients with severe depression, eating disorders, psychoses, personality disorders. CMHTs thought responsive & competent but under staffed. Arrangements allowed continuity of care. GPs happy to refer to MH team & not directly to VMO psychiatrist.
Pirkis (2004)	Description of Partnership Project - linkages btwn public and private MH services.	Program evaluation - key informant interviews, billing data & HIC data.	Melbourne, VIC.	General mental health.	CL/EC/MOU/Prot: Linkage Unit - Expansion of psychiatrists' roles to include supervision /training, case conferencing and secondary consultation. The Linkage Unit had a facilitating role only.	Good multi-way communication btwn all parties - email; clearly defined roles & responsibilities, well-documented crisis plans; joint attendance at assessment & treatment sessions by CMs, GPs & psychiatrists; use of formal protocols re transferring consumers.
Pirkis (2006)	ATAPS – To determine if particular models associated with differential levels of access.	Survey - data from 97 ATAPS projects (95%).	Various Australian sites.	General mental health.	CoL: Colocation of services	Allied health professionals in 61 projects providing services from GPs' rooms. In the same number of projects, allied health professionals were providing services from their own rooms. In 41 projects (42%) allied health professionals were delivering sessions from other locations.
Samy (2007)	Identify working model btwn rural & remote MHservices & local GPs -The GP Liaison Project.	Questionnaire (17 GPs) - at inception of Project - 3 & 5-year follow up.	Victoria – rural and remote MH services.	General mental health.	CL/EC/IC: Communication btwn MH services & GPs facilitated through regular meetings. Consult. psychiatrist visiting remote community MH centres 3X week.	Study confirmed importance of communication between the GPs & MH services.
Simpson 2005	Evaluation - GP Psych Opinion -	Survey - GPs in assesement of	Brisbane, QLD.	General mental	CL/EC/ER: Expedited referral from GP to psychiatrist. GP	GPs' overall rating of the service remained high including the level of information

Author	Aim	Study type	Setting	Client group	Linkage strategy (non-health)	Outcome/s as relates to non-health
		referrals March - August 2003.		health.	received assessment & recommendations focusing on diagnosis and/or management & the option to discuss the case with the psychiatrist by phone.	provided, waiting time, usefulness and practicality of the psychiatrist's advice & patient improvement after consultation. GPs felt that the service should continue.
Sweeney (2003)	Perceptions of community-care and MH workers re care of people with MH problems.	Interviews- reps gov & non-gov orgs (n=38).	Remote and Rural WA – Esperance.	General mental health – not specified.	Context: Referral, access & CM btwn MH services & other community services - Aboriginal rehabilitation, justice, police, voluntary respite, range of social & MH services.	Lack of an AH service = inappropriate use of other services e.g. police. Identified need for better links - would bring greater understanding/ knowledge of available services (health & non health) and break down barriers.
Vines (2004)	Evaluate re CC model with GPs & clinical psychologists.	Data re Clinical Psychology - 9 group GPs. 276 GP patients received the intervention & 198 = control.	Bathurst & Armidale -NSW, Ballarat – VIC & 2 practices in 2 rural & remote NSW -Rylstone & Trundle.	Primarily depression and/or anxiety.	CoL/EC: Patients referred by GP to clinical psychologist (co located in the GP) supervised by senior clinical psychologist. Ongoing face-to-face discussion/consult btwn GPs & clinical psychologists during course of treatment.	Preliminary findings suggest the collaborative model of MH care involving GPs & clinical psychologists provides positive gains for patients with common mental disorders. Current government support for such services should be continued.
Wade (2005)	Examine the effectiveness & practicality of different forms of communication btwn hospital psychiatric services & GPs.	RCT - 480 GPs nominated by the 669 patients. Depression status assessed at 12 months.	4 major public hospitals (cardiology units) in Adelaide, SA.	Depression	CL/EC/IC/Prot: Intervention patients referred to psychiatric consult/ liaison service for in-hospital psychiatric consult - rehab nurse notified. Rehab nurse & psychiatry liaison registrar received ongoing supervision from senior psychiatrist. Patient's depression screening scores, copy of evidence-based treatment guide develop for IDACC sent to GP. GP invited to phone case	The psych liaison & cardiac rehab nurse saw 102 patients during hospital admission - 79 had an EPC case conference (24% of the intervention group). Phone advice to GPs of 252 patients (229 not reviewed by both psychiatry and rehab staff) & 23 who were eligible for case conferencing but did not receive one. Advice implemented in 132 cases. At 12 months only the phone call by the psychiatrist led to a significant reduction in the proportion of patients with moderate to severe depression (CES-D \geq 27), 19% v 35% (RR 0.55, CI 0.34-0.86, NNT 7 (4-24).

Author	Aim	Study type	Setting	Client group	Linkage strategy (non-health)	Outcome/s as relates to non-health
					conference with psychiatric registrar & rehab nurse & GP.	
Winefield (2007)	To evaluate a Better Outcomes of Mental Health Care Access to Allied Psychological Services Program for GP patients referred for high prevalence mental disorders.	GPs (n=26) undertook the necessary training to qualify as referrers & referred patients (n= 280) to receive psychological treatment for anxiety & depression.	SA.	High prevalence mental disorders.	CoL/ Prot: MH specialists delivered Focused Psychological Strategies (FPSs) at PC practices located in the community using the direct referral model. The Division employed psychologists & social workers with cognitive behaviour therapy (CBT) training.	The median total GP sat. score was 26 (inter quartile range 23-27.5) = response of "strongly agree" for majority of questions. A significant time by number of treatment sessions interaction was found (F(6,398)=4.91, p<0.0001), such that participants attending 1 - 2 sessions showed no improvement, whereas those attending 3+ sessions did improve & remained improved 3 months later.
Wright (2006)	Improving collaboration between community MH services & GPs.	Questionnaire -32 GPs & 11 HVMHS staff.	Hunter Valley, NSW.	General mental health.	CM/EC: Multidisciplinary staff (nurses, psychologists & psychiatrist) from HVMHS visited GPs in their surgeries for case review meetings. Discussions re 'shared' cases, issues relating to MH assessments, access to the HVMHS & possible treatment strategies. Opportunities for GPs to prepare care plans & case conferencing under - Enhanced Primary Care (EPC) initiative.	HVMHS staff & GPs rated the case review meetings as moderate to high on all domains. GPs rated them significantly higher on satisfaction (mean 3.84, SD 0.68 p<0.05); awareness of services (mean 3.69, SD 0.64, p<0.05) & improving links (mean 3.78, SD 0.83, p<0.01). The aspect most commonly described as helpful by both groups = personal contact btwn HVMHS staff & GPs (n=19, 44%), followed by review of patient treatment strategies (n=12, 28%).

APPENDIX 14. ENABLERS AND BARRIERS TO SUSTAINABLE LINKAGES (BY PAPER)

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
Alsop 1999	B	GP unable to contact psychiatrist		CONTX
	B	Barrier when there is lack of follow up	Clear and immediate feedback re patient status	
	B	Inadequate information on referral	Clear procedure on referral to MHS Acknowledgement of who is the case manager	
Blasinsky 2008	E	Someone dedicated to follow up improves continuity of care		CL/CM/LW/ Prot/SC
	B	Continued funding of the DCS beyond the study needed		
	E	Evidence that the model works "The most important factor, cited in four of the five sites, was the ability to document positive client outcomes from the research study"	DECISION SUPPORT (OUR COMMENT) Evidence (outcomes drive change) Institutional support for change Staff capacity (numbers and skills)	
	E	Institutional support - willingness to promote change in systems and support for (1) collaboration and (2) MH trt in PC		
	E	PCPs in academic or large group practices were found to be more amenable to collaborative care		
	B	PC clinicians prefer to refer to MHS rather than treat themselves		
	B	Increased technology/treatments & responsibilities in PC puts competing demands for limited resources Staff trained in collaborative care		
Butler 2009	B	For sustainability of integrated program – no evidence exists about which reimbursement system is best to support integrated care		SR
Bruce 1999	B	Fear that if CPNs took on the role of visiting psychiatric hostels their time would be 'tied up' and they would never get out of the place		Col/CM/LW
Brucker 2003	E	Most frequent form of collaboration (in 51 encounters) was in person (70.6%) letter (7.8%) & phone (5.9%)	Small & limited study, but may suggest that face to face is the best means to promote collaboration/ enhanced communication	EC
Byng(a) 2004	E	Development of a joint working group to do the following: Assess epidemiological needs Obtain patient views Share a vision for change Develop a shared care agreement Detail responsibilities		CM/EC/LW

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
		Develop guides/ processes Develop a patient register Develop care management framework- series of theoretical pathways of improved health care for patients Undertake training Audit care (1) Improved formal and informal communication (2) patient register & (3) review and recall		
Byng 2005	E	The intermediate level mechanisms most associated with positive outcomes on the 'integrated worker' were joint discussion of individual cases	See communication – value (ie that when collaborators deem the shared activity as worthwhile this led to increased trust and a willingness to participate further	CM/EC/LW
	E	Integration of the Link Worker (ie they become part of the PHCT) when CMHT provide protected time for the LW to attend meetings		
	E	When collaborators deemed the shared activity as worthwhile this led to increased trust and a willingness to participate further		
	E	Practices in which integration of Link Worker achieved – those with an enhanced interest in MH and being interested in Collaborative work		
	E	Integration occurred in context of the PC Practice prioritizing MH		
	E	Integration occurred in context of good prior relationship b/w the CMHT and the PC Practice – GP had prior experience working as a psychiatrist		
	E	Practices in which integration of Link Worker achieved – where LW were experienced & flexible		
	E	Association b/w LW personality traits and problem solving – in two negative cases the LW not motivated to do link work and in two practices GPs not motivated to collaborate with MHT		
	E	Were LW engaged in problem solving associated with more satisfaction & belief that care had been improved		

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
Chew-Graham 2007b, 2008	B	<p>Failure of the Threshold Assessment Grid (TAG) that was designed to facilitate referrals b/w GPs and CMHTs – both GPs and CMHTs did not use the TAG.</p> <p>GPs want direct access to specialist knowledge (psychiatrists). Going through the CMHT triage was seen by GPs and inhibiting access.</p> <p>Referrals by GPs outside of the CMHT criteria were labeled (by the CMHT) as inappropriate – criteria takes no account of GPs referral threshold (the level of MH difficulty at which they refer) – GPs left feeling patronized.</p> <p>Hence GPs find ways to bypass the system to achieve direct GP-psychiatrist communication (& psychiatrists participate in this by agreeing to see patients referred outside of the triage process). GPs also force referral acceptance by exacerbating their assessment of client risk.</p> <p>Other reasons given to explain why TAG failed: Tension about the role of CMHT – for the LTMI or crisis response. Lack of clear referral process Inconsistent application of referral criteria</p>		ER
Druss 2001	E	<p>“For the integrated care clinic, the on-site location, common chart, and enhanced channels of communication, including joint meetings, email, and in-person contact facilitated the development of common goals and sharing of information between medical and mental health care providers.</p>		CL/CM/Col/EC/LW
Endacott 2006	E	<p>In development of an Eating Disorder Service that linked with GPs – process factor to achieve linkages were to provide a locally based service with credible clinicians & effective communication</p>	<p>Service needs to be locally based. Communication pathways need to be established including feedback. Services should be developed in consultation with PC and MH providers</p>	Col/SC
Fickel 2007	B	<p>Several leaders indicated that physical distance between PC and MH facilities posed a barrier to collaboration</p>		CONTX

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Paper 1st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
	B	No site in the study demonstrated integration of MH & PC with shared responsibility/ or activities towards a common goal – for clinical leaders at these sites “collaboration” meant referral and consultation.		
	B	Four MH leaders reported collaboration as difficult when PCPs referred large number of patients with low severity to MH – because of MH then large patient volume with time limitations		
Frazer 2006	E	GPs found that clarifying the role of the MHW helped (1) integrate them into PC and MHW found that clarifying their role (2) ensured their (2) safe practice within the boundaries of their competence and hence (3) in managing risk.	Both GPs & MHW found that an Integrated Care Pathway (ICP) was useful for role clarification.	CM/EC/Prot
Gavin 2008	E	Linkages improved when have a communication system between MH and PC		ER
	E	Stigma reduced when treatments provided in PMHC		
	E	Rapid access to assessments improves linkages		
	B	Managing psychosis in PC will often involve long consultations.		
	B	Can be difficult to get patients to attend mental health hence need flexibility in service provision	Develop referral processes that enable some flexibility in how mental health care is provided to take account of client resistance to treatment	
Harris 2007	B	Difficulties in a program involving GPs and Aboriginal Mental Health Workers because of failure to distinguish the AMHW role – as mental health or wellbeing.		CoL
Heidemann 2007	B	National QI program (able to choose from suite of strategies) to address perceived barriers b/w GPs and MH Professionals. Amongst other things (see joint treatment & organizational structure) (1) Long waiting lists and (2) insufficient advice or access to short term treatments seen as a barrier to collaboration between GPs and mental health professionals.	Less than 25% GPs offered the program actually participated. Findings (percent offered/ participated) Psych Nurse in GP 60/38 Local meeting with psychiatrist 53/28 Discuss pt with PC psychologist or SW ?/27 Psychiatrist in GP ?/11 MultiD mtgs 25/4 Joint consults 24/3 Strategies associated with following changes: 1. Discussions with psychiatrists, pharmacists and MH	CONTX

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
			professionals = more structured contact with SW, PC psychologists & psychiatrists, and also less perceived barrier to collaboration. 2. Integration of psychiatrists into PC = more GP contact with mental health services. 3. Psych Nurses in PC = less perceived barrier to collaboration with public MH services	
	B	Amongst other things lack of opportunities for joint treatment seen as a barrier to collaboration between GPs and mental health professionals.		
Hull 2002	E	Larger practices (4+ GPs) had larger number of referrals to CMHTs and smaller number of referrals to inpatient and outpatient psychiatric referrals		
Kates 2002	E	Success factors re co-location of counsellor in PC Partnership with PCP involvement in all aspects of the program design. Central coordinating team to recruit & support counselors. Having counselors meet regularly & provide mutual support & problem solving Regular supervision by a psychiatrist Style of counseling practice reflects primary care providers who see whoever is referred – as distinct to mental health services who set criteria.		CL/Col
Killapsy 1999	Neither	There was no statistically significant difference in the satisfaction with communication between GPs working single handedly and those in group practices (34 [77%] versus 127 [77%]; $\chi^2 = 0$; $df = 1$; $P = 1.0$		CONTX
Kirchner 2004 PRISM-E	E & B	Themes regarding implementation of MH/SA in Community Based Outreach Centres: Staff attitudes & beliefs Belief in depression trt in PC Prior clinical experience of MH/SA provider Ability to fit in Supervision within MH		CoL/EC/ER/Prot

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
		<p>Clinic culture Communication processes such as weekly meetings Collaborative Practice style Propensity for change – successfully integrated clinic perceived benefits in having colocated worker as saw that own workload made lighter and patients got better</p> <p>Leadership for change Unsuccessfully integrated clinic leadership seen as chaotic and overwhelming with opinion leader not supportive of integration – turf issues arose</p>		
Macdonald 2004	B	<p>Difficulties experienced by PMHW: Differing expectations about their role and left to design their role without guidance. Referral suspicion about modus of PMHW – from PC staff about pressure to keep clients longer & from MH staff about increased referrals Inappropriate accommodation & limited admin support</p>		CL/CoL
Oishi 2003 IMPACT	E	<p>Aspects of the model identified as important: Care strategies – simple educational and behavioural elements of the care processes as a valuable tool to engage patients as collaborators in their treatment. Role clarity with clear interpersonal boundaries for the Depression Care Specialist (DCS) to maintain the integrity of the role. Weekly team meetings with the DCS, PCP and psychiatrist at the same time to optimise the treatment plan, make efficient use of the psychiatrists time and for the PCP to trouble shoot continuity of care issues. DCS with knowledge of primary care to manager the interrelationship b/w mental & physical health – DCS knowledge of antidepressant medication and medical comorbidities. Build relationships with front office & nursing staff & become known to physicians – being in an office that is visible in the clinic</p>	<p>OVERALL CONCLUSIONS RE SUCCESS FACTORS When health worker with clearly defined role in care management placed at the center of the multiD team = ROLE DEFINITION IN CARE MANAGEMENT Central team member well versed in biological & psychological treatments for depression = MENTAL HEALTH AND PRIMARY CARE KNOWLEDGE Team member helps patient to make own linkages in the system of care = ENHANCED REFERRAL Team member facilitates expert input b/w psychiatrist and primary care provider at meetings = MEETINGS Expert input is communicated on an individual basis = ENHANCED COMMUNICATION AND CONSULTATION LIAISON Follow up by reliable tracking and feedback to the team =</p>	CL/CM/LW/P rot/SC

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		<p>– chance hallway meetings helped the DCS to fit in and work together.</p> <p>A monitoring (measurement, data base & communication) system to determine outcomes and so that patients don't fall through the cracks if additional treatments are required (stepped care). Regular supports/ telephone conference with DCS peers about how to deal with unusual cases, and to validate role</p>	<p>MONITORING, FOLLOW UP & FEEDBACK</p> <p>SPECULATION Perhaps informed and "savy" patients can be a key element or the "lynch pin" in optimising collaborative care and that the educational and behavioural strategy forms the "content" or contains the elements around which collaboration occurs.</p>	
Perkins 2005	E	Communication arrangements provide regular and practical support allowing continuity of care in remote settings		CoL
Pirkis 2004	E	<p>Common features of collaborations that worked well included:</p> <p>Good multiway communication b/w parties via email etc</p> <p>Clearly defined roles and responsibilities</p> <p>Well documented crisis plans & transfer/referral protocols (enables services to work smoothly together).</p> <p>Flexibility in the work style of the mental health specialist (to adjust to suit).</p>		CL/EC/MOU/Prot
Raine 2005	B	<p>Opinion of surveyed GPs</p> <p>Single point of referral access to MH teams hinders mutual understanding:</p> <p>Undermines credibility of GP & hence the GP-Patient relationship – contrasts re referrals to other specialties where there is personal knowledge of the clinician to whom is being referred.</p> <p>Hampers GPs efforts to increase knowledge and skills as then don't get information or the chance to supplement therapy.</p> <p>Mental Health Team perceptions:</p> <p>No awareness of GP concerns and of the disruption to the fellowship b/w doctors.</p>		CONTX
Rees 2004	B	Lack of system integrations and lack of resources for team development and change management seen as the reason behind teams not implementing and integrated care pathway (ICP)	Lack of higher level integration created conflicts within the teams that was explicit in their response to the ICP	CM
Richards 2006	B	<p>Small UK survey of 11 patients & 38 professionals about collaborative care</p> <p>"The main barrier to the implementation of collaborative care in</p>	<p>SPECULATION</p> <p>The issue of who should be the leader of the team is likely to be problematic in one player is fixed on a position of</p>	CONTX

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
		<p>the UK is the selection & training of workers who are prepared to operate in a collaborative framework and who are acceptable to patients & GPs” p314</p> <p>However, while the finding was that case managers needed to be experienced in mental health, experienced mental health social workers did not want the job.</p> <p>Concluded: Worker selection & training Physical space, time and resources GP anxiety re the extent to which they would lose control of patient care</p>	control – this would make leadership not negotiable	
Shaw 2005	B	<p>Controlled trial of 10 matched PC Practices with intervention as guidelines about referral letters: No difference in the frequency of guideline expressions in the intervention cf control group This may reflect the poor dissemination of the guidelines. Two thirds of the referral letters referred to (1) presenting problems (2) GP diagnosis - - only a few referred to diagnostic features and treatments given which is the information that psychiatrists need.</p> <p>CONCLUSION GPs describe patients needs in holistic social terms rather than through a technical psychiatric framework – reflecting GPs construction of mental disorder. Letters reflect GPs sense of acting as gatekeepers to secondary services – referral justified not on medical grounds but on degree of suffering and difficulty of providing care in PC settings – reflecting GPs priorities rather than the information required by psychiatrists. Unwillingness of GPs to make a clear request for particular forms of treatment.</p>		ER

Paper 1 st author	Enable Barrier	Explanation	Recommendation/ Comment	Link strategy
Slade 2008 See also Referral-triage (Chew-Graham 2007, 2008)	B	Failure of the TAG (Threshold Assessment Grid) – aid to making referrals - only 25% of GPs used the tool: Forgetting to use when MH referrals are not routine Perception of the tool as simplistic & reductive Concern that the tool could be manipulated to force referral/ concern that scores could be used to restrict referral (referral suspicion from PC and MH)		ER
Vingilis 2007	F	Collaborative communication ranged from/ was helped by:: Shared documentation An open door policy among all practitioners Joint education sessions enabling everyone to meet at one time		CL/CoL/EC/Prot
	B	Increased case detection puts pressure on available time		
Yaffe 2005	B	Study involving consultation liaison between PCPs and psychiatrist – views of these providers. Role expectations differ PCPs wanted the psychiatrists to assume initial treatment while the psychiatrists preferred direct return of the patient after assessment. A half of the patients did not know what to expect from the consultation visit with the psychiatrist. Psychiatrists saw the referral as a request only for assessment in 80% of patients, whereas PCPs expected short to long term care by the psychiatrist in 55% of patient referrals.		CL/EC

APPENDIX 15. DEVELOPMENT AND SUSTAINABILITY FACTORS

Enable		Barrier	
SYSTEM			
		National QI program – low overall uptake High uptake strategies – colocated worker/ local psychiatrist meeting Low uptake strategies – multiD mtgs/ joint consults	Heidemann 2007
		Lack of system integration	Rees 2004
ORGANISATIONAL			
Practice size - larger	Blasinsky 2008 Hull 2002	Practice size – no difference Unclear structure	Killaspy 1999 Heidemann 2007
Accommodation - visibility for interaction	Oishi 2003	Accommodation - inappropriate	Macdonald 2004
CLINICIAN ATTRIBUTE & SKILLS			
Collaboration worthwhile & willing (motivated)	Byng 2005		
Knowledge & skill (PC & MH)	Byng 2005 Oishi 2003 Kirchner 2004	Difficulty recruiting experienced MH workers	Richards 2006
Work style – PC focused & flexible / ability to fit in	Pirkis 2004 Kates 2002 Kirchner 2004		
Local & credible	Endacott 2006		
CLIENT ASPECTS			
Patients as collaborators through educational & behavioural strategies	Oishi 2003		
PARTNERSHIP FORMATION			
Institutional support Leadership	Blasinsky 2008 Byng 2005	Lack of resources & no change management Leadership not supportive GP anxiety about loss of control (if not leader)	Rees 2004 Kirchner 2004 Richards 2006
Joint development	Byng(a) 2004 Endacott 2006 Kates 2002		
On-site location, common chart, and enhanced channels of communication (joint meetings, email, in-person contact) → common goals and sharing	Druss 2001 Gavin 2008 Perkins 2005	Lack common goal	Fickel 2007

Enable		Barrier	
information			
Role clarity	Pirkis 2004 Frazer 2006 Oishi 2003	Differing role expectations	Harris 2007 Macdonald 2004 Yaffe 2005
		Role expansion	Blasinsky 2008
		Referral suspicion	Macdonald 2004 Bruce 1999
		Referral differences	Fickel 2007 Gavin 2008 Chew-Graham 2007b, 2008 Raine 2005 Slade 2008
Supervision	Kates 2002 Kirchner 2004	Lack supervision/mentoring	Harris 2007
Support – mutual	Kates 2002 Oishi 2003		
FEEDBACK			
Evidence – measurement, data base & communication system - document positive outcomes	Blasinsky 2008 Oishi 2003		
COMMUNICATION			
Technology – eg common chart, care plan Channel – eg regular meetings Clinic Culture – eg 'open door'/ change propensity	Kirchner 2004 Oishi 2003 Byng 2005 Pirkis 2004		
Face to face	Brucker 2003, Vingilis 2007		
GUIDELINES			
Crisis plans/ referral protocols	Pirkis 2004	Inadequate referral information	Alsop 1999 Chew-Graham 2007, 2008
Follow up	Blasinsky 2008	No follow up	Alsop 1999

APPENDIX 16. BACKGROUND ELEMENTS IDENTIFIED BY THE REFERENCE GROUP AND KEY INFORMANTS

MoUs	<p>A MoU is effective when it informs the requirements of partnership, including communication requirements, what people’s roles and responsibilities are and so forth.</p> <p>A MoU signifies agreement at the senior level, but also needs ongoing communication at the planning and operational level. MoUs do not work if there is just a contract that is not followed through with resources and staff.</p>
Champions	<p>People need strong philosophical champions who are banging the drum all the time.</p> <p>People need support to manage their mental health on a day-to-day level, for example through the help of peer support – not necessarily a health professional. Because managing mental health is not just about the acute phase as depression, for example, is a chronic disorder.</p>
Information sharing systems	<p>An ideal situation would be where information is shared around providers, and the client knows that when they go to the GP, he or she would have received and read the letter from the psychiatrist etc. – the system does not need to be high tech. This sort of information sharing tends to work when clinicians know each other. It is useful to establish whether clients perceive that a service is linked or not and whether there is continuity between providers.</p>
Supervision	<p>Training and supervision of mental health nurses, case review, case management and membership supervision is important. Some studies identify positive outcomes when the “care coordinator” (often a nurse or graduate trained in mental health) has mental health training and regular supervision by a psychiatrist. Members of the reference group spoke about supervision by a psychiatrist; for example, - the key element may be supervision, rather than needing to be by a psychiatrist. On the other hand it may be the process of continuing case review and skill development, rather than the supervisor as psychiatrist that matters.</p>
Culturally appropriate care	<p>It is important to maintain partnerships that are culturally appropriate and provide culturally appropriate care.</p>
Leadership	<p>Important to know who leads the linkage and where the responsibility lies.</p> <p>It was suggested that effective referral pathways occur when there is leadership that encourages people to work together, which may require changing the culture of the workplace. Hence, collaboration needs partnership skills, coordination skills and leadership.</p>
Shared vision/ common goals/ compatible goals	<p>Mental health care is practitioner driven and there is sometimes a lack of agreement between services – it important that services have a shared vision, values and philosophy so treatment is not divisive. Partnership formation – team processes that build relationships.</p> <p>There needs to be common goals or at least compatible goals – a common understanding of the nature of the partnership.</p>

APPENDIX 17. BARRIERS IDENTIFIED BY THE REFERENCE GROUP AND KEY INFORMANTS

Stigma	The role of stigma in mental health care can discourage teams to work together. The status on integrated care in mental health has been problematic – as physical and mental care has been historically separate. Systems of care are also stigmatised.
Going against the tide	It was noted that, for services in which mental health is not considered core, then a pro-integration worker may have to go against the tide of what has been the historical role of his/her service.
Role tension	Mental health workers can experience role tension; in some programs they provide some level of psycho-education, therapy and medication management.
Unlinked data systems	It is a barrier to linkages when data systems do not talk to one another, such as between GPs and mental health services over care plans and treatment.
Information for managers	Managers need information about clinical and economic outcomes as well as information on how to achieve system change. Need to provide information about successful linkage elements so that managers can choose those elements that fit their context, needs and capacity.
Lack of GP support	GPs need to be well supported – GPs don't want to be stuck in situations where they feel like there's no system behind them. There needs to be tools for GPs to use that are based on evidence – for example CBT and on-line support groups. When mental health teams describe a GP request for assistance or referral as inappropriate, then this can be a failure to support the GP and is a problem for clinical care.
Lack of stepped care	Acute treatment has become containment rather than treatment due to lack of a stepped care system. What's needed is a step-up/step-down support structure.