System-level intersectoral linkages between the mental health and non-clinical support sectors: a qualitative systematic review

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ABSTRACT

Objectives

Concerns about fragmented mental health service delivery persist, particularly for people with severe and persistent mental illness. The objective was to review evidence regarding outcomes attributed to system-level intersectoral linkages involving mental health services and non-clinical support services, and to identify barriers and facilitators to the intersectoral linkage process.

Methods

A systematic, qualitative, review of studies describing attempts to coordinate the activities of multiple service agencies at the policy, program or organisational level. Electronic databases Medline, PsycINFO and EMBASE were searched via OVID from inception to July 2012.

Results

Of 1,593 studies identified, 40 were included in the review - 26 in adult and 14 in vulnerable youth populations. Identified mechanisms to promote positive system-level outcomes included: interagency coordinating committees or intersectoral/interface workers engaged in joint service planning; formalised interagency collaborative agreements; a single care plan in which the responsibilities of all agencies are described; cross-training of staff to ensure staff culture, attitudes, knowledge and skills are complementary; service co-location; and blended funding initiatives to ensure funding aligns with program integration. Identified barriers included: adequacy of funding and

technology; ensuring realistic workloads; overcoming ‘turf issues’ between service providers and disagreements regarding areas of responsibility; ensuring integration strategies are implemented as planned; and maintaining stakeholder enthusiasm.

Conclusions

System-level intersectoral linkages can be achieved various ways and are associated with positive clinical and non-clinical outcomes for services and clients. Some linkage mechanisms present greater implement challenges than others (e.g., major technology upgrades or co-location in geographically remote areas). In some instances (e.g., co-location) alternative options may achieve equivalent benefits. Publication bias could not be discounted, and studies using high-quality research designs are scarce. The limited information base applicable to system-level integration argues strongly for evaluation of the models that evolve in the rollout of the national Partners in Recovery initiative.

Key words

Mental disorders, health services, non-clinical support, health policy, intersectoral links

INTRODUCTION

There continues to be concern, in Australia and internationally, about the fragmentation of mental health service delivery, particularly for those individuals with severe and persistent mental illness with complex needs requiring services from multiple agencies (Rosenberg et al., 2009; The President's New Freedom Commission on Mental Health, 2003; Hogan, 2003). In particular, individuals with complex symptom sets such as co-morbid substance abuse, intellectual disability and forensic issues or involvement with the child welfare system have been considered high risk for falling through the gaps of service delivery systems (Castle, 2011; Rosenheck et al., 2003). Although high quality clinical treatment is the responsibility of mental health services, it is beyond the scope of most clinical mental health services to also provide general medical services, housing, accommodation support, psychosocial support, community and domiciliary services, income security, and employment/training services, which can also be essential for successful community living (Whiteford, 1994; Australian Health Ministers, 2009). A lack of coordination between the various sectors responsible for the treatment, care and support of people experiencing severe mental illness impedes access to services with consequent poor health and social outcomes (Rosenheck et al., 2003; Dill and Rochefort, 1989). The problems associated with implementing an integrated service system have been well documented in the Australian context (Rosenberg et al., 2009; Australian Parliament, 2006; Council of Australian Governments, 2006).

From the outset of the National Mental Health Strategy in Australia in 1992, the need for linkages between the mental health sector and other government and non-

government services was considered critical to the provision of effective community-based treatment and support (Whiteford, 1994; Australian Health Ministers, 1992). The first National Mental Health Policy and plan required: the mainstreaming of mental health services to bring them under the same administrative umbrella as other health services; (Singh, 1992; Whiteford et al., 1993) the integration of hospital (inpatient) mental health services with community mental health services (Whiteford et al., 1993); and intersectoral linkages requiring access to housing and community services (mostly operated outside of health departments) for individuals with mental illness and psychiatric disability living in the community (Whiteford, 1992a; Whiteford, 1992b). Following deinstitutionalization, with most people with severe and persistent mental illness now cared for in the community, poor linkages between the health, housing, employment and income support sectors became evident (HREOC [Human Rights and Equal Opportunity Commission], 1993; Behan et al., 1994). In facilities where adequate community and residential support services had not accompanied downsizing or closure of psychiatric beds, common consequences were substandard accommodation, homelessness, incarceration and unnecessary admissions to hospitals (Hoult and Burchmore, 1994).

The development of an integrated service system has been challenging, as responsibility for the various services span a range of portfolios in Commonwealth and State jurisdictions and the non-government and private sectors. Systemic barriers, such as the administrative and financial separation of these service sectors, have impeded the seamless delivery of the range of necessary services. The Commonwealth Disability Services Act 1986 had recognised that people with psychiatric disability were eligible

for services but afforded them a low priority (Whiteford, 1994). This was changed with the Commonwealth State Disability Agreement 1991 and the Commonwealth Disability Discrimination Act 1992, which made it unlawful to discriminate against people with disability including those with psychiatric disability. An attempt was then made to align the policies and programs of health, housing and community services departments when relevant Ministers in all jurisdictions endorsed findings of a Mental Health Forum on Intersectoral Linkages (Mental Health Forum on Intersectoral Linkages, 1995). Nevertheless there remained a substantial problem in providing equitable access to people with psychiatric disability, given the relatively small growth in expenditure in that program in the following decade. Intersectoral reform was largely unsuccessful; a 'silo' mentality continued to exist within government departments at the Commonwealth and State/Territory level (e.g. mental health, health, housing, education, disability, geriatrics, child and family services) (Betts and Thornicroft, 2001).

By 2006, multiple factors were coalescing to pressure governments for action. The reforms being demanded were in areas within and outside the health portfolio, and involving Commonwealth, State and Territory government responsibilities. The failures highlighted by the *Not for Service* report (Mental Health Council of Australia, 2005), the findings of the Senate inquiry into mental health, and the high profile media cases of Cornelia Rau and Vivian Solon emphasised the need for better coordinated government services. While the problems being addressed by the 2006 COAG National Action Plan on Mental Health (Council of Australian Governments, 2006) covered a number of areas, it gave attention to the need to improve services to those with the highest need; specifically those individuals with severe and persistent mental illness. The highlighted

failures for these individuals were not just in the health system but also in the disability support and housing sectors. This was essentially a return to the concerns raised in the intersectoral reform plank of the first plan (Whiteford, 1994).

Internationally, there is an extensive literature primarily from the United States describing attempts to address the fragmentation of mental health and related services. A wide variety of strategies have been used, from the individual client (micro) level to the system (macro) level (Dill and Rochefort, 1989; Rosenheck et al., 2003), and several large-scale, multi-site studies have been attempted (e.g., Bickman, 1996; Goldman et al., 2002; Lehman et al., 1994). Most research has focused on partnerships within the health sector, between specialist mental health services and primary care (Kathol et al., 2010; Butler et al., 2011), and on initiatives at the individual level that aim to link the client to necessary services through the use of case managers or care coordinators (Stewart et al., 2012; Bruns et al., 2010). However, there has been much less attention paid to describing initiatives to facilitate system level integration or coordination, and even less about the outcomes of, and facilitators and barriers to, system-level intersectoral linkages between mental health clinical services and non-clinical support services. Non-clinical support services, in the Australian context, are spread across a range of administratively, financially and organisationally distinct providers and government portfolios. The current paper focuses on these linkages because these arrangements pose particular challenges to integration, although some of the possible solutions (e.g., a common medical record) may also apply to integration between areas within health.

Tieman and colleagues (2007) provide an overarching definition of integration as the "development of more comprehensive approaches to care provision that [depend] on formal relationships or structural arrangements to organise and deliver that care" (p. 57). Randolph et al (1997) note that be divided into: (a) direct service delivery level integration, in which the needs of the individual are met "without altering the systems in which the services are provided" (p. 370), and; (b) system-level integration which is any "attempt to improve the service system for a defined population" (p.370), and may involve linkages between agencies and programs or reconfiguring or consolidating agencies. Randolph notes however, that system-level integration should be viewed as a continuum comprising a variety of strategies from information-sharing through to arrangements involving the coalescing of service provision and/or funding under a single authority (Randolph et al., 2002). For the purposes of this paper, we use the term "system-level intersectoral linkages" (also referred to as "system-level integration") as per the definition provided by Randolph (Randolph et al., 1997; Randolph et al., 2002). Importantly, we consider this definition enables the inclusion of a broad range of strategies. There may be some contention regarding whether the employment of a non-clinical support worker (such as an employment specialist) within a mental health service would constitute direct clinical or system-level integration. For the purposes of this study, it met criteria for the latter in that it results in an alteration of the systems in which the services are provided. An example of direct clinical integration would be subsuming new non-clinical support roles in to the job description of a clinical case manager, or care coordination involving brokering linkages between agencies, both of which do not result in an alteration to the systems in which care is provided. However,

it is important to note that the implementation of a strategy does not necessarily ensure that integration has been achieved, which is a more empirical question.

A previous systematic review (Cameron and Lart, 2003) commissioned by the UK National Health Service (NHS) sought to identify and describe models of joint working across the NHS and social services interface, as well as factors promoting and hindering the success of identified models. They described four models of joint working, three of which occurred at the system level: (1) placement schemes; (2) multi-agency teams and projects; and (3) strategic level working (i.e. joint planning/ commissioning/ purchasing). Factors promoting and hindering joint working were grouped into three themes: (1) organizational issues; (2) cultural and professional issues; and (3) contextual issues. Outcomes were not described separately for system-level intersectoral linkages, and the scope of the review encompassed the entire health/ social care system. The outcomes of intersectoral strategies specifically involving mental health services and non-clinical support services, and associated facilitators and obstacles, warrant further examination.

The authors sought to systematically review the evidence regarding outcomes attributed to system-level intersectoral linkages involving mental health services and non-clinical support services. Specifically, the aims of the study were to:

1. summarise the evidence regarding the effectiveness of system-level intersectoral linkages involving mental health services and non-clinical support services; and
2. identify factors that act as barriers and facilitators to the linkage process.

METHODS

Search methodology

The systematic review adhered to guidelines recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher et al., 2009). Electronic databases Medline, PsycINFO and EMBASE were searched via OVID from their respective inception years to July 2012. The following search string was utilized to identify potentially relevant articles: (Psychiatric Service* OR Mental Health Service* OR Mental Health System*) AND (Employment OR Vocational OR Education OR Accommodation OR Residential OR Housing OR Welfare OR Income OR Community OR Disability) AND (Link* OR Integrat* OR Intersectoral* OR Multiagency OR Interagency OR Partnership* OR Reform*) AND (Outcome* OR Effect* OR Impact* OR Challenge* OR Barrier* OR Facilitat*).

There were no limitations to the language of publication. Titles and abstracts were initially screened for relevance. Full-text versions of potentially eligible papers were retrieved and reviewed.

Inclusion/exclusion criteria

Non-peer reviewed reports published by governments or other organisations were excluded from the review. Eligible reports fulfilled the following criteria:

1. Described a system-level intersectoral linkage, defined as any attempt to improve the service system for a defined population by implementing linkages between agencies and programs or reconfiguring or consolidating agencies at the

policy, program or organisational level (Randolph et al., 1997; Randolph et al., 2002). Reports describing efforts to link individual clients to multiple services, for example through case management or care coordination, were not considered for inclusion because these strategies do not alter the systems in which such services are provided (Randolph et al., 1997). Reports that said services were integrated but did not describe the mechanisms by which integration was attempted were excluded.

2. The intersectoral linkage was between clinical services and any combination of the non-clinical support sectors utilised by people experiencing mental health problems (i.e., excluding services for substance use disorders and physical health);
3. Outcomes were described for either:
    a. The services involved; and/ or
    b. The clients served.

To ensure that outcomes could be appropriately linked to the integration mechanisms described we required that all necessary information was available within a given report, and that cross-referencing was not required. Although the study sought to describe facilitators and barriers to system-level intersectoral activities, these were not considered in terms of inclusion criteria for the review, but rather, were documented where available.

Data Extraction

The following variables were extracted from articles identified as meeting criteria for inclusion: geographical location of services; year of data collection; target population;

study design and level of evidence; the non-clinical sectors linked to mental health by the described model/ intersectoral intervention; description of the mechanism utilised to link the services; data source; client and/ or service-level outcomes; any identified facilitators to the linkage process; and any identified barriers to the linkage processes.

We used the National Health and Medical Research Council levels of evidence hierarchy to classify the study designs (NHMRC, 2000). The levels in the hierarchy are: Level I - evidence obtained from a systematic review of all relevant randomised controlled trials; Level II - evidence obtained from at least one properly designed randomised controlled trial; Level III-1 - evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method); Level III-2 - evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group; Level III-3 - evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group, and; Level IV - evidence obtained from case series, either post-test or pre-test and post-test.

Qualitative analysis

The key findings regarding intersectoral service activity derived from included studies were tabulated and descriptively summarised to provide an overview of factors to consider with regard to multiagency policymaking. The implications of intersectoral activity for particular age brackets (e.g., youth and adult populations) and sectors (e.g., employment) were also considered.

RESULTS

Included studies

Forty studies met inclusion criteria (**Figure 1; Table 1**), grouped into three study categories: (1) Adult populations (multiple sectors) - ten studies reporting on adult populations and multiple sectors and are summarized in **Supplementary Table 1**; (2) Vulnerable youth populations (multiple agencies) - 14 studies described intersectoral linkages designed to improve outcomes for vulnerable youth populations and the multiple agencies serving them; these are summarized in **Supplementary Table 2**, and; (3) Adult populations (integrating clinical and employment services) - 16 studies of adults reported specifically on the effects of integrated clinical and employment services; these studies have been summarized separately from other studies of adults in **Supplementary Table 3**.

Included studies described intersectoral linkages between mental health services and a diverse array of non-clinical support sectors including: judicial/forensic services, social services, mainstream education, special education, vocational support services, child welfare agencies, substance abuse services, supported employment, housing support services, government welfare and other community-based services. Populations studied included homeless, forensic, persons with first episode psychosis and persons with chronic mental illness.

Several studies reported data from the same primary study, including four from the ACCESS study, two from the Children's Program and two from an employment

program for persons with first episode psychosis. Some programs, including large programs such as ACCESS, received special and sometimes time-limited funding to implement the linkages (e.g., funding for taking people out for coffee, exercise programs, discretionary money etc.).

Study quality varied, with only 14 of the 40 included studies using any form of randomisation. The four papers based on the ACCESS study randomised based on service site and ten other studies randomised at the level of the individual service recipients (i.e. randomised controlled trials; see Table 1). Sixteen papers reported on case study designs with no comparison control group, with only six of these collecting baseline data. Levels of evidence were not equally distributed across the three broad study categories. Notably, studies in adult populations (multiple sectors) were virtually all Level III-1 and Level IV. Studies in vulnerable youth populations (multiple agencies) were either Level IV or Level III-2. Of studies in adult populations (integrating clinical and employment services) about half were Level II, and the remainder were Level III-2 or Level IV.

Twenty-two of the 40 studies reported system-level outcomes, and 30 reported client-level outcomes, with 12 studies reporting both. Studies of integrated mental health and vocational services were most likely to report on client-level outcomes. For studies reporting these outcomes, sample sizes varied widely, ranging from 14 to 7,055 people, the majority with a sample of less than 500 clients. The number of services included in service-level outcome analyses also varied, ranging from a single service provider to 32 separate agencies.

Mechanisms of intersectoral linkage

The studies described a range of mechanisms for promoting collaborative intersectoral practice (see Table 1). These were variously defined, and were generally poorly delineated from each other. However, they can be broadly classified into the following nine categories:

1. Joint service planning and information exchange with interagency coordinating committees and/or intersectoral/interface workers (n=18 studies);
2. A single multiagency care plan for each client (n=2 studies);
3. Formal interagency collaborative agreements or memoranda of understanding (n=9 studies);
4. Staff training, including joint training - ensuring staff have shared attitudes and consistent understanding (n=10 studies);
5. Information sharing using single information system, shared case records or client tracking systems (n=10 studies);
6. Blended funding initiatives (n=9 studies);
7. Joint service provision through multidisciplinary, multi-agency teams coordinated via regular communication (n=17 studies);
8. Service co-location (n=19 studies); and
9. Service administration by a single lead agency (n=6 studies).

The use of different linkage mechanisms varied by category of study, reflecting the nature of the services being linked. For example, the most common linkage mechanism was service co-location, being used in almost half of all studies. Joint service planning was also common, being a feature of many studies involving adult populations (multiple

sectors) and vulnerable youth populations (multiple agencies), but none of those in adult populations (integrating clinical and employment programs). Conversely, joint service provision arrangements were only a common feature in studies of adult populations (integrating clinical and employment programs).

Service outcomes of intersectoral linkage

Outcomes reported were overwhelmingly positive, particularly with regard to improvements in interagency communication, greater mutual understanding of and empathy for each other's services, and reduced bureaucracy and improved service efficiency. System-level integration strategies were also associated with service outcomes such as improved cost efficiency across sectors (Abbott et al., 1995; Anderson et al., 2002; Rinaldi and Perkins, 2007b; Foster and Connor, 2005) and improved capacity for non-clinical staff to manage mental health needs (Hunter et al., 2008; Lee et al., 2010; Nadkarni et al., 2000).

Within the studies reviewed, exceptions to the positive outcomes are worth noting, and potentially represent a more balanced view on intersectoral service reform. Within studies of adults, Secker and Hill (Secker and Hill, 2001) reported stakeholder perspectives on the UK pooled financing initiative under the 1999 Health Act. Despite the scheme, inter-agency support was restricted to a minority of agencies from comparable practice contexts. The policy emphasis on partnerships was considered too narrow, and failed to be translated into the desired whole-of-systems approach. Foster and Connor (Foster and Connor, 2005) reported that although delivering services for youth through a 'system of care' led to substantially reduced expenditure in non-clinical

sectors, this only partially offset the higher costs accrued by mental health services participating in the comprehensive system. In synthesising the results from studies of the ACCESS program, Goldman and colleagues (2002) concluded that providing funds and technical support to promote service system integration may improve integration on a local level (i.e., between mental health and other agencies within a given community) but may not do so at a system-wide level (i.e., across human service agencies at a macro level).

Client outcomes of intersectoral linkage

Positive client outcomes such as improvements in clinical functioning and employment prospects were also encouraging in terms of the impact of system-level intersectoral practices on individuals. The benefits of intersectoral collaboration were not limited to the clinical service sector. For example, system-level integration strategies were associated with outcomes such as: improved accommodation stability (Goldman et al., 2002; Lee et al., 2010; McHugo et al., 2004; Rosenheck et al., 2002); reduced child foster placements (Abbott et al., 1995); reduced recidivism rates/ involvement with the juvenile justice sector (Anderson et al., 2002; Foster et al., 2004; Foster and Connor, 2005); and improved vocational outcomes (Cook et al., 2005; Rinaldi and Perkins, 2007b; Sherring et al., 2010; Burns et al., 2007; Drake et al., 1996; Drake et al., 1999; Gold et al., 2006; Killackey et al., 2008a; Rinaldi et al., 2004; Tsang et al., 2009).

However, exceptions to positive outcomes were also found for the effect on client outcomes. Negative findings were reported by reports from the ACCESS program (Cocozza et al., 2000; Goldman et al., 2002; Morrissey et al., 2002; Rosenheck et al.,

2002), in which system-level intersectoral strategies designed to address homelessness among persons with severe mental illness were evaluated on a large scale. Targeted efforts to implement integration strategies through earmarked funding and technical assistance did not lead to better client outcomes above and beyond high quality clinical services such as assertive community treatment (Goldman et al, 2002). It has been suggested that the lack of a positive effect could be explained by the implementation of integration strategies at some of the comparison sites (Morrissey et al., 2002; Rosenheck et al., 2002).

Within studies of youth populations, Chuang and Lucio (Chuang and Lucio, 2011) investigated two types of intersectoral links between child welfare agencies, schools and outpatient mental health services. Administratively-oriented collaborative arrangements including staff co-location, shared records and information management systems were associated with reduced odds of children receiving needed school-based and outpatient mental health services. Authors highlight that such strategies do not guarantee the quality of services, and without a shared vision services may suffer. Glisson and Hemmelgarn (Glisson and Hemmelgarn, 1998) reported that interorganisational coordination through centralisation of authority led to a diffusion of responsibility amongst direct service providers, and consequently had a negative effect on service quality. They highlight that efforts to improve children's service systems should consider a focus on fostering positive organisational climates rather than exclusively directing effort towards top-down service configurations.

Finally, in the context of implementing evidence-based, integrated supported employment practices, the evidence for improving non-vocational outcomes is equivocal (Drake et al., 1996). Importantly, these studies did not test the specific effects of the extent of integration between clinical and vocational services and subsequent outcomes. Rather, they provide indirect evidence that when integration is included in a set of service principles of supported employment, the integrated services consistently outperform segregated vocational services (Waghorn et al., 2012).

Facilitators of intersectoral linkage

Facilitators of intersectoral activity were identified. The most commonly identified factor attributed to the success of interagency collaborations related to improvements in communication between services, and subsequently increased access to multidisciplinary resources and staff-friendly networks (Abbott et al., 1995; Anderson et al., 2002; Chuang and Lucio, 2011; Cook et al., 2005; Henry et al., 2004; Hunter et al., 2008; Killackey and Waghorn, 2008b; Lee et al., 2004; O'Sullivan et al., 2009; Drake et al., 1996; Drake et al., 1999). Strong senior leadership from each service sector supporting integration and mechanisms for early resolution of conflict/issues between services was also important (Cocozza et al., 2000; Ellmer et al., 1995; Lee et al., 2004). The achievement of a shared perspective, or some form of mutual understanding and increase in intersectoral empathy was also frequently cited as critical to the success of working across organisations (Abbott et al., 1995; Anderson et al., 2002; Chuang and Lucio, 2011; Waghorn et al., 2012). Co-location of services was also considered to be important (Henry et al., 2004; Lee et al., 2010; Nadkarni et al., 2000; Drake et al., 1999), as was the intensity and number of linkages between services (Bai et al., 2009).

Some studies reported that the clarity of a chain of responsibility or accountability facilitated interagency cooperation (Chuang and Lucio, 2011; Grimes et al., 2011; McHugo et al., 2004). The presence of a strategic plan, or coordinating body was also considered essential to the success of system-level integration strategy implementation (Cocozza et al., 2000; Waghorn et al., 2012), as was the ongoing monitoring of joint service effectiveness (Waghorn et al., 2012; Gold et al., 2006; Ellmer et al., 1995).

Barriers to intersectoral linkage

Studies described a range of barriers to the implementation of system-level intersectoral linkages. The most commonly identified barriers related to resource constraints with respect to funding, time, workloads and technology (Abbott et al., 1995; Anderson et al., 2002; Chuang and Lucio, 2011; Ellmer et al., 1995; Hunter et al., 2008; Killackey and Waghorn, 2008b; Lee et al., 2004; Secker and Hill, 2001; Sherring et al., 2010; Waghorn et al., 2007; Cocozza et al., 2000; Morrissey et al., 2002; Rosenheck et al., 2002; Morrissey et al., 1997; Gold et al., 2006; Waghorn et al., 2012). 'Turf issues' relating to differences of opinion between service providers and disagreements regarding areas of responsibility were also commonly cited as significant impediments to the success of interagency initiatives (Abbott et al., 1995; Anderson et al., 2002; Chuang and Lucio, 2011; Hunter et al., 2008; Killackey and Waghorn, 2008b; Lee et al., 2004; Secker and Hill, 2001; Sherring et al., 2010; Waghorn et al., 2007; Glisson and Hemmelgarn, 1998; Waghorn et al., 2012). Client confidentiality and the legal ramifications of and barriers to information sharing were also problematic (Anderson et al., 2002; Hunter et al., 2008; Lee et al., 2004; Secker and Hill, 2001; Waghorn et al., 2007; Chuang and Lucio, 2011). One study (Hunter et al., 2008) reported that mental

health stakeholders felt negatively about closer intersectoral links, as they were concerned about the potential increase in inappropriate referrals to their services. Another, (Greenberg and Rosenheck, 2010), reported that waning stakeholder enthusiasm for intersectoral strategies may impede subsequent growth in levels of joint planning and coordination. The need to ensure adequate an 'dosage' of system integration strategies was highlighted strongly by the failure of the ACCESS program interventions to affect measurable client outcomes (Morrissey et al., 2002; Rosenheck et al., 2002).

Establishing intersectoral linkages

Few studies described the process of initially establishing an intersectoral collaboration. Three studies (Ellmer et al., 1995; Goldman et al., 2002; York, 2009) reported the use of competitive grants to garner interest from multiple agencies in participating in intersectoral reforms. Another two (Lee et al., 2004; O'Sullivan et al., 2009) described how clinical services solicited interest in intersectoral collaboration via direct stakeholder consultation. Anderson and colleagues (Anderson et al., 2002) highlight that for a collaborative system of care to coalesce, there must be a consensus amongst stakeholders from the outset regarding values, goals, language and definitions.

DISCUSSION

The literature review suggests that system-level intersectoral linkages can be achieved in a variety of ways and are associated with positive outcomes for services and clients in both clinical and non-clinical contexts. The standout issue needed to promote effective service integration is arguably the hardest to achieve, that is, ensuring mutual respect and understanding of roles with streamlined communication between all the services involved in the care and support of clients.

Other mechanisms found to promote positive outcomes included formal interagency memoranda, joint service planning and provision, single cross agency care plans, cross-training of staff, shared case records, integrated funding, service colocation and a lead agency for coordination. However there were multiple barriers to achieving integration, including inadequate funding and technology, excessive workloads, disagreements relating to service responsibilities, client confidentiality and maintaining stakeholder buy-in.

Methodological considerations

The findings from this study contribute a more detailed, systematically derived description of the outcomes, and facilitators and obstacles to, intersectoral strategies involving mental health services than has been available previously. However five main methodological considerations warrant attention when interpreting the findings of this study. Firstly, the overwhelmingly positive findings in the literature should be seen in light of probable publication bias. It is probable that negative findings regarding

intersectoral systems reforms have been documented, but not submitted or accepted for publication. This review found only 40 studies meeting eligibility criteria and, of these, several were sourced from the same evaluations.

Secondly, only 14 studies employed a study design involving randomisation procedures (ten at the individual level and four at the service level). Collectively, the identified literature may be subject a range of biases, with these varying across study categories due to the different balance of designs used in each. For example, studies in adult populations (multiple sectors) were virtually all Level III-1 and Level IV, the latter category including numerous qualitative studies. Level IV studies are particularly susceptible to selection bias, non-representativeness, and performance bias, as acknowledged in some studies (e.g., (Greenberg and Rosenheck, 2010)). In this study category, all Level III-1 studies were from the ACCESS program, which may be subject to problem such as poor allocation concealment. One study noted diffusion of innovation as a possible source of bias in for their results (Morrissey et al., 2002). Studies in vulnerable youth populations (multiple agencies) were either Level IV or Level III-2. Non-representativeness was noted as an issue in some Level III-2 studies (e.g., Foster et al, 2004). Studies in adult populations (integrating clinical and employment services), accounted for all but one of the Level II studies. Inability to blind employment specialists to the treatment assignment of the subjects was one possible source of bias noted in the Level II studies (e.g., Tsang et al. (2009)).

Thirdly, despite relatively broad inclusion and exclusion criteria, many of the studies identified in the literature search were excluded because they did not meet the inclusion

criteria of taking a system level approach, or describing service or client outcomes. Inadequate description of complex interventions is common, and others have recommended the development of standardised approaches to describing intervention content as one possible solution. There remains a need for further high-quality studies in the field that address system level approaches with client and service level outcomes, and provide a critical appraisal of the intersectoral linkages.

Fouthly, some studies (such as ACCESS) may have received additional funding to support the necessary linkages. It is possible that these incentives may introduce bias. Notably, additional services could allow for better consumer engagement and improved service and consumer outcomes. Others did not mention funding, but it cannot necessarily be assumed that implementation was supported within their existing service budget or framework. In other cases, it was not possible to determine whether the funding arrangements might constitute a possible source of bias.

Fifthly, this study was subject to many of the problems associated with reviews involving heterogeneous studies. One of these was that estimates of the size of the effects of system-level intersectoral linkages were not able to be made. In some cases this was due to the qualitative nature of the data collected in some studies. In quantitative studies, we were limited by the broad array of outcomes assessed, which meant that there were few measures on which there were sufficient common outcome data for comparison. Another problem was that, as the majority of reviewed articles included multiple intersectoral linkage mechanisms and did not provide outcomes by each mechanism, it was not possible to tease out the positive outcomes attributable to

individual linkage mechanisms. The development of methods for identifying the 'essential ingredients' of complex interventions, such as those examined in this review, remains a significant challenge in healthcare evaluation (Bower et al., 2006). In addition, this review included numerous studies presenting qualitative results. Quality standards for assessing the results from qualitative studies are lacking. When examining qualitative health services research, it is also important to consider the social context of services (Popay et al., 1998). We have attempted to address this issue of context in our analysis of the integration of services, as outlined in Supplementary Tables 1-3.

Implications for the Australian context

Most of the mechanisms identified above are relevant for Australia. Some, such as a single information system or services administered by a single lead agency, would be hard to achieve in most areas in the short to medium term. However having a shared care plan and regular communication has been shown to achieve many of the same benefits. All of the identified barriers would apply in Australian service settings.

In some parts of Australia, geographic circumstances pose unique implementation difficulties (Waghorn et al., 2007; Killackey and Waghorn, 2008b). Specifically, co-location of employment specialists in mental health settings may not always be possible, despite the evidence-base in support of such practices (Waghorn et al., 2007). Nonetheless, the 'enhanced intersectoral links' (Sherring et al., 2010) approach, that is the implementation of procedures for facilitating and monitoring referrals from mental health teams to several disability employment services in the local region, represents a promising alternative in Australia. Structural barriers to high fidelity implementation of

evidence based supported employment can be overcome where the Federal disability employment system is bypassed (Killackey and Waghorn, 2008b).

The emphasis in the literature for benefits to the child and adolescent health, education and welfare sectors is a reminder that these populations need to be included in intersectoral reform initiatives. Positive outcomes of Australian intersectoral initiatives were also reported where mental health services were linked at the system-level to welfare and community based non-government services (O'Sullivan et al., 2009; Lee et al., 2010) and multiple child serving agencies (Lee et al., 2004).

The Australian Government has allocated $549.8 million over 5 years to the new Partners in Recovery (PiR) program (Roxon et al., 2011), to create and strengthen between-service partnerships and referral mechanisms, and facilitate recovery for individuals with severe and persistent mental illness (Departmnet of Health, 2012). Implementation models will vary by Medicare Local region, however evidence regarding optimal service delivery models is scarce. A national evaluation (to be completed in 2016) will provide broad evidence of PiR's effectiveness. However, given the limited information base applicable to integration - what works, for whom, in what settings and why – argues strongly for evaluation of the models that evolve in the rollout of the PiR initiative.

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Declaration of interest

The Authors declare that there is no conflict of interest.

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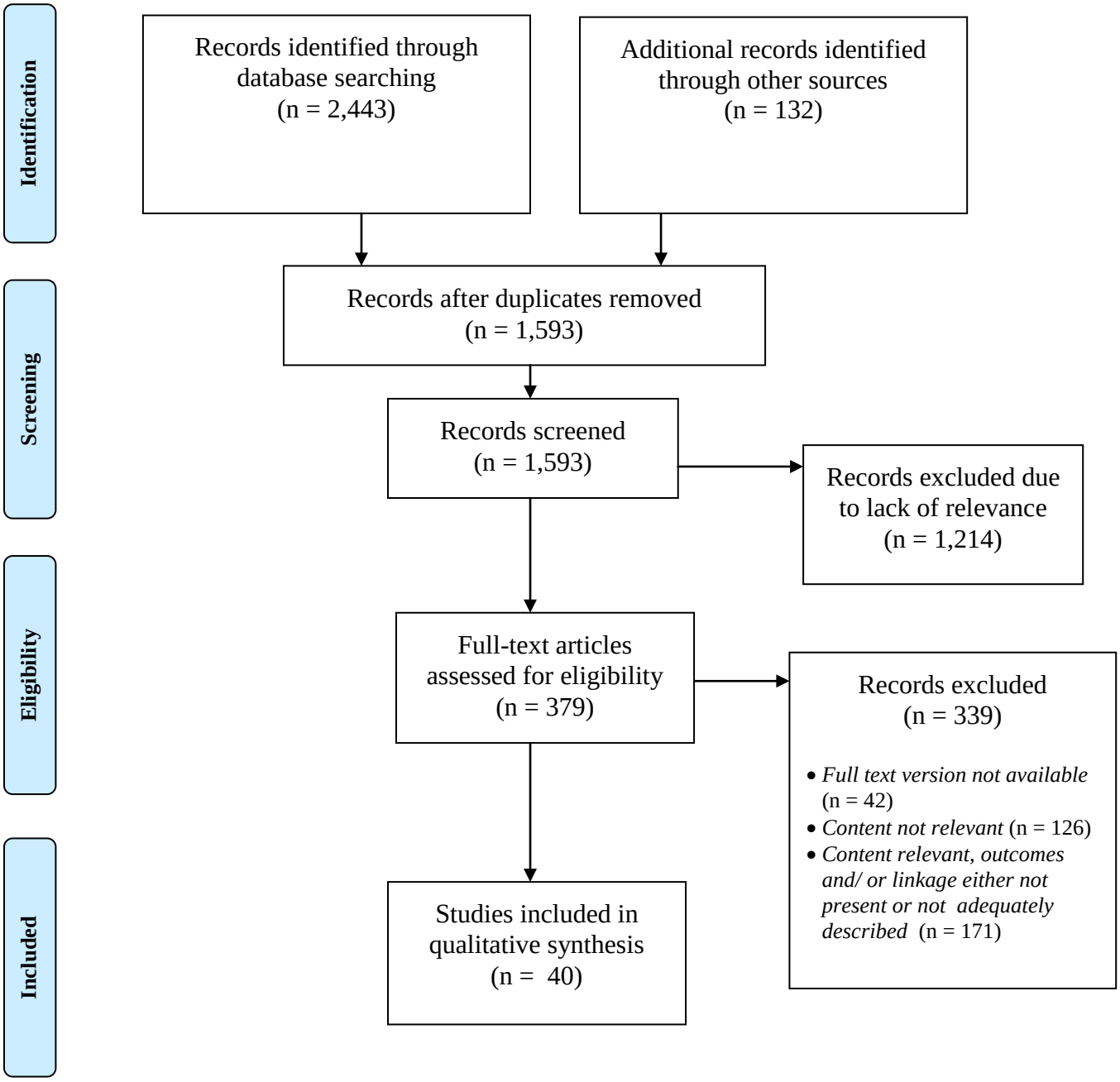

Figure 1. Summary of process for identifying articles meeting inclusion criteria.

Table 1. Studies meeting criteria for inclusion in qualitative synthesis (n=40)

Reference	Study design and level of evidence[d]	Outcomes	Mechanisms[e]
Adult populations (multiple sectors)			
Cocozza et al. (2000)[a]	Quasi-experimental, randomised by service site (Level III-1)	System-level	1,3,4,5,6,8
Goldman et al. (2002)[a]	Quasi-experimental, randomised by service site (Level III-1)	System-level & client-level	1,3,4,5,6,8
Greenberg and Rosenheck (2010)	Services case study, baseline and follow-up (Level IV)	System-level	1,3,5,8
Lee et al. (2010)	Service case study, baseline and follow up (Level IV)	System-level & client-level	4,8
McHugo et al. (2004)	Randomised controlled trial (Level II)	Client-level	9
Morrissey et al. (2002)[a]	Quasi-experimental, randomised by service site (Level III-1)	System-level	1,3,4,5,6,8
Nadkarni et al. (2000)	Retrospective service case study (Level IV)	System-level & client-level	8
O'Sullivan et al. (2009)	Retrospective service case study (Level IV)	System-level	5
Rosenheck et al. (2002)[a]	Quasi-experimental, randomised by service site (Level III-1)	Client-level	1,3,4,5,6,8
Secker and Hill (2001)	Retrospective services case study (Level IV)	System-level	6
Vulnerable youth populations (multiple agencies)			
Abbott et al. (1995)	Service case study, baseline and follow up (Level IV)	System-level & client-level	1,3
Anderson et al. (2002)	Service case study, baseline and follow up (Level IV)	System-level & client-level	1,2,7
Bai et al. (2009)	Longitudinal cohort study (Level III-2)	Client-level	1,3,5,6
Chuang and Lucio (2011)	Longitudinal cohort study (Level III-2)	Client-level	1,4,5,8
Ellmer et al. (1995)	Retrospective services case study (Level IV)	System-level	1,6
Foster et al. (2004)[b]	Quasi-experimental, case-control (Level III-2)	Client-level	1,4,6,8
Foster and Connor (2005)[b]	Quasi-experimental, case-control (Level III-2)	System-level & client-level	1,4,8
Glisson and Hemmelgarn (1998)	Quasi-experimental, case-control (Level III-2)	System-level & client-level	1,9
Grimes et al. (2011)	Quasi-experimental, case-control (Level III-2)	System-level & client-level	2,6,7
Hunter et al. (2008)	Retrospective service case study (Level IV)	System-level	1
Hurlburt et al. (2004)	Longitudinal cohort study (Level III-2)	Client-level	1,4,7,8
Lee et al. (2004)	Retrospective service case study (Level IV)	System-level & client-level	1
Morrissey et al. (1997)	Retrospective service case study (Level IV)	System-level & client-level	1,3,8
York (2009)	Retrospective service case study (Level IV)	Client-level	1,4,8
Adult populations (integrating clinical and employment services)			
Burns et al. (2007)	Randomised controlled trial (Level II)	Client-level	7
Cook et al. (2005)	Randomised controlled trial (Level II)	Client-level	5,7,8,9
Drake et al. (1999)	Randomised controlled trial (Level II)	Client-level	7,8

Drake et al. (1996)	Randomised controlled trial (Level II)	Client-level	7,9
Gold et al. (2006)	Randomised controlled trial (Level II)	Client-level	5,7
Henry et al. (2004)	Quasi-experimental, case-control (Level III-2)	Client-level	7,8,9
Howard et al. (2010)	Randomised controlled trial (Level II)	Client-level	7
Killackey et al. (2008a)[c]	Randomised controlled trial (Level II)	Client-level	7,8
Killackey and Waghorn (2008b)[c]	Randomised controlled trial (Level II)	System-level	7,9
Rinaldi et al. (2004)	Service case study, baseline and follow up (Level IV)	Client-level	7
Rinaldi and Perkins (2007a)	Quasi-experimental, case-control (Level III-2)	Client-level	7
Rinaldi and Perkins (2007b)	Quasi-experimental, case-control (Level III-2)	System-level & client-level	7
Sherring et al. (2010)	Service case study, baseline and follow up (Level IV)	System-level & client-level	3,7
Tsang et al. (2009)	Randomised controlled trial (Level II)	Client-level	7
Waghorn et al. (2007)	Retrospective services case study (Level IV)	System-level	8
Waghorn et al. (2012)	Retrospective services case study (Level IV)	System-level	8

[a] One of four papers based on analysis of data from the ACCESS study.

[b] One of two papers based on analysis of data from the Children's Program.

[c] One of two papers based on analysis of data from the same first episodes psychosis employment program.

[d] Levels of evidence (NHMRC, 2000):

Level I - evidence obtained from a systematic review of all relevant randomised controlled trials

Level II - evidence obtained from at least one properly designed randomised controlled trial

Level III-1 - evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)

Level III-2 - evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group

Level III-3 - evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group

Level IV - evidence obtained from case series, either post-test or pre-test and post-test

[e] Mechanisms of intersectoral linkages:

1. Joint service planning and information exchange with interagency coordinating committees and/or intersectoral/interface workers
2. A single multiagency care plan for each client
3. Formal interagency collaborative agreements or memoranda of understanding
4. Staff training, including joint training - ensuring staff have shared attitudes and consistent understanding
5. Information sharing using single information system, shared case records or client tracking systems
6. Blended funding initiatives
7. Joint service provision through multidisciplinary, multi-agency teams coordinated via regular communication
8. Service co-location
9. Service administration by a single lead agency

Supplementary Table 1. Summary of studies reporting the effects of intersectoral linkages between mental health and non-clinical services for adults.

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Cocozza et al. (2000)	18 sites in 9 states, USA 1994-1998 [*the ACCESS program*]	Homeless persons with severe mental illness (n=7,055)	Quasi-experimental, randomised by service site (Level III-1)	• Substance abuse services • Housing • Income support/ entitlements	Funds and technical support were provided to experimental sites to implement various systems integration strategies, including: • Interagency service development teams • Interagency management and client tracking systems • Cross-training • Interagency agreements or MOUs • Pooled or joint funding; • Flexible funding • Uniform applications, eligibility criteria, and intake assessments • Service co-location	Descriptive results and 2-3 independent researcher ratings of level of implementation of each systems integration strategy on a 5 point scale, based on: • In-depth interviews with key informants at 9 experimental study sites; • Review of written documents and reports; • Semi-annual telephone • calls with the state and site coordinators; • Visits to relevant service locations	• The systems integration strategies employed remained relatively stable over time • Local interagency coordinating bodies, system integration coordinator positions, interagency agreements and consolidation of programs were implemented to a moderate/ high degree (≥4.7/5) • Interagency management information systems/ client tracking systems and the establishment of uniform applications/ eligibility criteria were more difficult to implement (≤2.9/5)	• Major technical assistance; • Shorter time periods necessary to implement certain strategies • Someone in a senior position responsible for service integration • A coordinating body involving major providers and stakeholders • The presence of strategic plan with objectives, tasks and timetables within project resources	Inadequate funding (note that sites with adequate funding also experienced problems implementing systems integration strategies)

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Goldman et al. (2002)	18 sites in 9 states, USA 1994-1998 [*the ACCESS program*]	Homeless persons with severe mental illness (n=7,055)	Quasi-experimental, randomised by service site (Level III-1)	• Substance abuse services • Housing • Income support/ entitlements	Funds and technical support were provided to experimental sites to implement various systems integration strategies, including: • Interagency service development teams • Interagency management and client tracking systems; • Cross-training • Interagency agreements or MOUs • Pooled or joint funding; • Flexible funding • Uniform applications, eligibility criteria, and intake assessments • Service co-location	Narrative summary of findings from the *ACCESS program*. Data on the implementation of system change strategies from annual site visits; data on changes in systems integration from interviews with key informants; client outcome data at baseline and 3 and 12 month follow up	Relative to 9 comparison sites, systems integration strategies implemented at 9 experimental sites resulted in greater levels of 'project-centred' integration. No significant differences regarding: • Client outcomes; or • Levels of 'systems integration' Across study conditions: • Sites that more fully implemented integration strategies experienced higher levels of systems and project-centred integration • Increased system integration was not associated with improvements in client outcomes (except for stable housing) • Implementation of a greater number of systems integration strategies was not associated with superior outcomes	Not described	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Greenberg & Rosenheck (2010)	11 sites in 9 states, USA 2003-2007 [*The Collaborative Initiative to Help End Chronic Homelessness: CICH*]	Chronically homeless individuals	Services case study, baseline and follow-up (Level IV)	• Substance abuse services • Housing services	Collaborative funding from 3 federal departments (Housing, Veterans Affairs and Health and Human Services) was awarded to implement strategies designed to provide comprehensive assistance to the target population. Systems integration strategies included: • A system coordinator position • An interagency coordinating body • A formal strategic plan • Co-location of services • Client tracking systems	Data collected from annual key informant survey from an average of 6.6 agencies at each site at baseline and three follow ups: • Implementation of 20 integration strategies (score of 0-3 for each item) • Interorganisational relationships (joint planning and coordination; trust and respect; funding flows; score of 0-3 for each item)	Over the study period there were significant increases in the use of system integration strategies (16% increase), as well as in levels of joint planning and coordination (24% increase). This effect plateaued in later waves of the study	Not described	Waning stakeholder enthusiasm and excitement for the initiative following initial changes

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Lee et al. (2010)	Inner south Melbourne, Australia 2005-2007	People who are homeless, difficult to engage, and in need of mental health support (n=417)	Services case study, baseline and follow-up (Level IV)	• Welfare services (accommodation, drop-in, other welfare support)	Mental health staff were embedded into the daily operations of 2 welfare services. Mental health staff provided: • Onsite support to consumers • Consultation to welfare staff • Formal education sessions for welfare case management staff	Quantitative analysis of changes in outcomes at one and two year follow up: • Audit of consumer clinical service usage, accommodation information, inter-service referrals (database and files) • Questionnaire and interview feedback from consumers and staff	• Engagement of more people with community mental health care • Improved accommodation stability • Improved capacity for welfare service staff to identify and manage people experiencing mental illness	Co-location	Not described
McHugo et al. (2004)	Washington DC, USA	Adults with severe mental illness who were currently homeless or at high risk of homelessness (n=121)	Randomised controlled trial (Level II)	• Housing support services	Integrated housing services program was implemented by five teams within a single provider agency	Quantitative analysis of consumer outcomes from interviews at baseline, and 6, 12 and 18 month follow ups. 6-monthly evaluation of fidelity to approaches (Housing Fidelity Rating Scale & Dartmouth ACT Fidelity Scale)	• Clients in the integrated housing services program spent less time functionally homeless • Clients in the integrated housing services program had lower levels of psychiatric symptom severity	• Single agency • Close working relationship between case management and housing teams	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Morrissey et al. (2002)	18 sites in 9 states, USA 1994-1998 [*the ACCESS program*]	Homeless persons with severe mental illness (n=7,055)	Quasi-experimental, randomised by service site (Level III-1)	• Substance abuse services • Housing • Income support/ entitlements	Funds and technical support were provided to experimental sites to implement various systems integration strategies, including: • Interagency service development teams • Interagency management and client tracking systems • Cross-training • Interagency agreements or MOUs • Pooled or joint funding; • Flexible funding • Uniform applications, eligibility criteria, and intake assessments • Service co-location	Descriptive results and 2-3 independent researcher ratings of level of implementation of each systems integration strategy on a 5 point scale, based on: • In-depth interviews with key informants at 9 experimental study sites; • Review of written documents and reports; • Semi-annual telephone calls with the state and site coordinators; • Visits to relevant service locations	• The 9 experimental sites did not demonstrate significantly greater overall systems integration than comparison sites • The experimental sites demonstrated significantly better 'project-centred' integration relative to comparison sites • More extensive implementation of integration strategies was associated with higher levels of overall systems integration and project-centred integration across conditions	Not described	• Inadequate 'dosage' of system integration strategies • Secular trends such as welfare reform • Insufficient time for service system effects to take place • Restricted range of impact of integration strategies outside the mental health sector

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Nadkarni et al. (2000)	Newcastle, UK 1997-1998	Offenders who are subject to a probation order and defendants on bail (n=149)	Retrospective service case study (Level IV)	Probation and bail hostel services	• Specialist psychiatric services were made available at the point of contact within the hostel • Mental health training workshops were conducted for hostel staff	Discussions and feedback at training workshops from hostel staff	• Increased awareness amongst hostel staff of mental health problems in offenders, and practical strategies to manage and risk assess these clients • Staff perceived reduced stigma toward help-seeking amongst offenders	Co-location	Not described
O'Sullivan et al. (2009)	Brisbane, Australia	Clients of the Inner North Brisbane Mental Health Service	Retrospective service case study (Level IV)	Welfare and community-based non-government services	The establishment of a multidisciplinary team intended to link clinicians to welfare and community agencies and improve IT management of clinical resources	Narrative summary of qualitative program outcomes	• Increased consumer access to clinical programs and community resources • More effective delivery of support and resources to the clinical team	Effective communication	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Rosenheck et al. (2002)	18 sites in 9 states, USA 1994-1998 [*the ACCESS program*]	Homeless persons with severe mental illness (n=7,055)	Quasi-experimental, randomised by service site (Level III-1)	• Substance abuse services • Housing • Income support/ entitlements	Funds and technical support were provided to experimental sites to implement various systems integration strategies, including: • Interagency service development teams • Interagency management and client tracking systems • Cross-training • Interagency agreements or MOUs • Pooled or joint funding • Flexible funding • Uniform applications, eligibility criteria, and intake assessments • Service co-location	Client outcome data collected via interviews at baseline and 3 and 12 month follow up. Data on the implementation of system change strategies from annual site visits; data on changes in systems integration from interviews with key informants	• Clients at all sites demonstrated improvements in outcome measures • Clients at experimental systems integration sites showed no greater improvement on measures of mental health or housing outcomes relative to comparison sites • Clients in service systems that became more integrated had significantly better housing outcomes, but no benefits were demonstrated on other measures such as mental health status	Not described	• Insufficient time for service system effects to take place • Inadequate 'dosage' of system integration strategies

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Secker & Hill (2001)	Southern English county, UK	People with mental health problems requiring services from multiple agencies	Retrospective services case study (Level IV)	• Local housing agencies • Criminal justice services • Community learning disability • Drug and alcohol teams • Child care teams	National Health Service trusts and local authority social services departments are required to integrate their mental health services through pooled finances and resources under the Health Act of 1999	A qualitative approach comprising an extensive series of focus group discussions, exploring staff experiences of and confidence in meeting service users' mental health needs (128 staff from 21 agencies)	Interagency support in working with clients was generally restricted to a minority of agencies operating within the same practice context. The policy emphasis on partnerships was considered too narrow, and failed to translate into a whole systems approach	• Multi-agency training to address training needs and perspective sharing • Development of local protocols covering joint working and information sharing • Multi-agency forums to monitor joint working proposals	• Confidentiality issues • Role boundary conflicts, tensions between agencies, misunderstandings of agency roles, interprofessional differences of perspective • Inadequate resourcing

Note: ACCESS = Access to Community Care and Effective Services; CICH = Collaborative Initiative to End Chronic Homelessness; MOU = Memoranda of Understanding

[a] Levels of evidence (sourced from: NHMRC, 2000. *How to use the Evidence: Assessment and Application of Scientific Evidence*. NHMRC: Canberra):

Level I - evidence obtained from a systematic review of all relevant randomised controlled trials

Level II - evidence obtained from at least one properly designed randomised controlled trial

Level III-1 - evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)

Level III-2 - evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group

Level III-3 - evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group

Level IV - evidence obtained from case series, either post-test or pre-test and post-test

Supplementary Table 2. Summary of studies reporting the effects of intersectoral linkages between mental health and non-clinical services for children and adolescents.

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Abbott et al. (1995)	California, USA 1986-1992 [*Crossroads project*]	Children from the San Mateo county region who were: • Experiencing a serious psychiatric crisis; and/or • Seriously emotionally disturbed and in need of mental health treatment in order to learn effectively; Involved with child protective services; and/or wards of the court	Service case study, baseline and follow up (Level IV)	• The County Department of Probation • The County Department of Social Services • The San Mateo Office of Education	• Formal interagency agreements to collaborate and eliminate duplication of services • Committees to enhance communication between agencies	Principally narrative summary of program impact; Baseline data collection in 1986-87, follow up data in 1990-91 and 1991-92: • Number of clients, admissions, discharge, length of stay • Treatment environment • School achievement • Agency coordination (client movement through system, interagency contact, client and family treatment participation, staff satisfaction)	• Reductions in 'bureaucracy' and response time to interagency requests • Positive and cooperative employee outlooks, relative to former competitive, adversarial interagency attitudes • Reduced costs per child • Improved quality of services • Reduced out-of-home child placements	• Interagency access to resources • Shared perspectives on problem-solving • Greater empathy for the constraints experienced by other agencies • Informal, friendly interagency staff networks	• Committees increased workload and raised some 'turf issues' • Staffing and resource cuts due to a recession impeded collaboration

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Anderson et al. (2002)	Indiana, USA 1997-2002 [*Dawn project*]	Children and adolescents from the Marion County region with severe emotional disturbances requiring multisystem services	Service case study, baseline and follow up (Level IV)	• The Marion County Office of Family and Children • The Indiana Division of Special Education • The Marion Superior Court Juvenile Division	Employment of 'service coordinators' responsible for implementing a 'system of care.' Coordinators form teams involving practitioners from all agencies involved with a family. The team develops a multiagency service plan. Regular meetings take place at the child/ family and agent/ supervisory levels	Narrative overview of project outcomes; Client outcomes, patterns and costs of service use, service coordination team functioning, program effectiveness, system level changes	• Reduced costs per child • Improved clinical functioning, and reduced recidivism rates for those who successfully complete the project	• Conflict resolution and cross-system training and national meetings increased chances of collaborative success by building inter-service empathy • Open lines of communication, e.g. the use of a broad release form facilitated information sharing	• Personal barriers: ideals of competition and independence • Systemic barriers: scarcity of resources (financial, staff, time, technology), confidentiality issues and 'turfism'/ cost-shifting • Environmental barriers: political rivalries, competing or contradictory mandates for state agencies serving children, variations in how services define disorders and disability

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Bai et al. (2009)	USA 1999-2003	Emotionally disturbed children in the child welfare system (1,163 children within 75 agencies)	Longitudinal cohort study (Level III-2)	Child welfare agencies	Linkages of varying intensity and combinations included: • Joint budgeting • Cross-training of staff • Working with the agency on child welfare cases • Interagency agreements/ MOUs • Joint planning/ policy formulation • Information sharing • 'Other' approaches	Interview with the child, caregiver and welfare worker at baseline and 2-6, 12, 18 and 36 month follow up: number of coordination approaches between each child welfare agency, service use and outcomes	Greater intensity of linkages was associated with higher likelihood of: • Mental health service use • Improved mental health status	Greater intensity/ number of linkages between child welfare agencies and mental health services	Not described
Chuang & Lucio (2011)	USA 1999-2003	Children aged >6 years involved with the child welfare system experiencing emotional and behavioural problems necessitating mental health treatment (491 children within 52 agencies)	Longitudinal cohort study (Level III-2)	• Child welfare agencies • Schools	• 'Person-centred ties:' e.g. using a care coordinator position or committee or cross-training staff • 'Administrative ties:' e.g. co-location of staff, shared records, shared management information systems	Interview with the child, caregiver and welfare worker at baseline and 2-6, 12, 18 and 36 month follow up: number of coordination approaches between each child welfare agency, service use and outcomes	• Person-centred collaborative practices were positively associated with receipt of mental health services • Administratively-oriented collaborative arrangements had a negative impact on children's use of mental health services	• Communication between organisations • Single person accountable for children's care • Strong relationships and mutual understanding	• 'Turf' issues, professional mistrust, lack of a shared vision • Inadequate funding • Workloads • Low quality shared records e.g. information entered incorrectly • Lack of staff training in using shared records

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Ellmer et al. (1995)	Texas, USA	Children with serious emotional, mental, or psychiatric disorders who require services from multiple agencies	Retrospective services case study (Level IV)	• Texas Commission on Alcohol and Drug Abuse • Texas Department of Health • Texas Department of Human Services • Texas Department of Protective and Regulatory Services • Texas Education Agency • Texas Juvenile Probation Commission • Texas Rehabilitation Commission • Texas Youth Commission • Interagency Council on Early Childhood Intervention	• Joint application and joint management of funds involving all participating human service agencies • Employment of a local project director to facilitate interagency collaboration	Qualitative interviews with agency staff; observation of meetings and activities; back-up materials	• Agencies developed a better understanding of each other's mandates and limitations • Systemic barriers more easily discovered and corrected • Increased service effectiveness and efficiency (not further defined) • Development of more extensive services (not further defined)	• Effective mechanisms of provider communication; • Financial incentives • Strong leadership and support from agency CEOs • Prior collaborative experience • Continual collaborative planning throughout implementation	• Financial constraints • Time constraints • Staff turnover

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Foster et al. (2004)	Ohio, USA 1997-2000 [part of *the Children's Program*]	Youths at risk of out of home placement and who are involved in multiple child-serving agencies (n=449)	Quasi-experimental, case-control (Level III-2)	The juvenile justice system	• Joint agency service planning • Pooled funding • Staff co-location • Cross-training	Quantitative and qualitative administrative and interview data: - timing of first involvement with the juvenile justice system; -likelihood of recidivism	Reduced/ delayed entry into the juvenile justice system, as well as recidivism among those who were involved in the system	Not described	Not described
Foster & Connor (2005)	Ohio, USA 1997-2000 [part of *the Children's Program*]	Youths at risk of out of home placement who are involved in multiple sectors (n=431)	Quasi-experimental, case-control (Level III-2)	• Special education services • The juvenile justice system • Child welfare services	• Joint agency service planning • Staff co-location • Cross-training	Quantitative and qualitative administrative and interview data: • mental health • use of services • child welfare • per diem costs	Relative to a matched community, a 'system of care' resulted in: • Higher expenditure on core mental health services • Cost reductions in the juvenile justice and child welfare sectors • Decreased likelihood of hospitalisation and involvement with the juvenile justice sector • Higher expenditure on special education services	Not described	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Glisson & Hemmelgarn (1998)	Tennessee, USA [*AIMS program*]	Children and adolescents referred for state custody (n=250 in 32 agencies)	Quasi-experimental, case-control (Level III-2)	• Child welfare • Juvenile justice • Education	• Interorganisational services coordination teams were formed with centralised authority for state-supported services from participating sectors • A state-level council council of the commissioners of participating service systems was formed to facilitate the coordination of services by the teams	Qualitative and quantitative data collected over a 3-year period directly from parents, teachers, caseworkers, and other service providers, plus organizational surveys of caseworkers in the 32 children's service offices	• Interorganisational coordination had a negative effect on service quality and no effect on outcomes • Intraorganisational climate was the primary predictor of improved client psychosocial functioning, and a significant predictor of service quality	Not described	• Centralisation of authority led to diffusion of responsibility amongst direct service providers • Service coordination teams were not compelled to assume a comparable degree of responsibility for children relative to direct service providers

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Grimes et al. (2011)	Massachusetts, USA 2003-2007 [*Mental Health Services Program for Youth*]	Vulnerable youth with complex needs and serious emotional disturbance	Quasi-experimental, case-control (Level III-2)	Social services	• Blending of public agency finances drawn from the distinct budgets of multiple state agency stakeholders • Use of a multiagency 'Care Planning Team' to create a single individualised care plan for all paediatric, mental health, substance abuse, educational and social services. Services are provided in a coordinated fashion with frequent communication amongst team members	Claims analyses including patterns of service utilization and medical expense for both groups. Clinical functioning from medical records for the intervention group at baseline and 12 months	• Improved access to care for typically hard-to-engage families • Statistically significant improvement on measures of clinical functioning • Enhanced clinical effectiveness obtained at equal or reduced cost relative to 'usual care'	• The use of a strengths based approach focused by a clear clinical formulation; • Shortened distance between managing expense and quality created a clear chain of responsibility	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Hunter et al. (2008)	UK 2002-2004	Adolescents with mental health problems and complex needs.	Retrospective service case study (Level IV)	Secondary education services	The introduction of a 'mental health link worker' to: • Work with mental health staff to raise awareness of mental health issues and services in schools • Provide mental health information and a teaching program for mental health and education staff • Provide a point of contact for education staff for advice	Focus groups conducted with 26 staff from mental health and secondary education services	• Improved systems communication • Increased capacity for education staff to manage mental health needs • Greater appreciation of expertise amongst different disciplines	Good communication	• Concern that closer links may have increased inappropriate referrals to mental health • Different modes of language • Information sharing • The need for more resources and common structures
Hurlburt et al. (2004)	USA 1999-2001	Children involved in child welfare systems with emotional and behavioural problems (n=2823)	Longitudinal cohort study (Level III-2)	Child welfare agencies	Linkages were defined by concrete indicators between the 2 local agencies (e.g. co-location, existence of formal child welfare committees responsible for reviewing mental health service use, shared office space, joint service provision at the caseworker level and joint training)	Initial interviews with child welfare workers and initial and 12-month follow-up interviews with current caregivers	Increased coordination between local child welfare and mental health agencies was associated with: • Stronger relationships between symptom levels and service use • Decreased differences in rates of service use between white and African American children	Specific mechanisms of effects not known and are potentially numerous	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
Lee et al. (2004)	Brisbane, Australia	Children and youth with severe and complex presentations (n=14)	Retrospective service case study (Level IV)	• Education Queensland • The Department of Families (incorporates QLD juvenile justice, disabilities and child protective services)	The establishment of an interagency forum to collaboratively discuss referred cases at monthly meetings	Client data collected through discussion by Forum members; review of Forum minutes; qualitative feedback from agencies	• Development of a shared understanding and responsibility • Facilitation of planning • The majority of clients GAF (impairment) scores had improved from severe to moderate levels of dysfunction on discharge	• Provider communication • The presence of high-level professionals	• Dominant organisational cultures • Legal and reporting obligations • Funding differentials • Increased workloads
Morrissey et al. (1997)	North Carolina, USA 1991-1993 [*RWJF Children's Initiative - Mental Health Services Program for Youth*]	Children with severe emotional disturbance and multiple service agency needs	Retrospective service case study (Level IV)	• Education • Social services • Juvenile justice	• Interagency coalitions were formed to identify community needs and to monitor service delivery • Interagency agreements were negotiated to outline service provision and agency responsibilities	Data on the structure and performance of the systems were collected in 1991 and 1993 using key informant interviews and questionnaires (structure) and surveys (performance)	• During the demonstration, the systems of both an urban and rural site grew by about 20% • The structure of the rural system remained stable from T1 (2 years) to T2 (4 years) • The structure of the urban system became significantly more concentrated in its interagency linkages between T1 and T2 • Stakeholder ratings of service adequacy, availability, quality and coordination confirmed the network analysis at both time periods	Smaller communities may require less time to implement system changes	Unexpected disruption at the rural site from administrative and staff changes

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Non-clinical sector(s) linked to mental health	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified	Barriers identified
York (2009)	London, UK 2005-2007	School-aged children attending special schools and pupil referral units who had mental health problems and were not accessing support	Retrospective service case study (Level IV)	• Education • Children's social care	Joint agency working where mental health specialists join the teaching staff on site to offer assessment, treatment, referral, training and consultation	Narrative discussion of results from child, carer and teacher completed questionnaires at referral and case closure	• 'Positive outcomes' for most children and young people (not further defined) • Increased service access for hard-to-engage youths and families already known to child and family services	Placement of mental health professionals in schools is ideal for coordination and liaison with other child services	Not described

MOU = Memoranda of Understanding; RWJF = Robert Wood Johnson Foundation

[a] Levels of evidence (sourced from: NHMRC, 2000. *How to use the Evidence: Assessment and Application of Scientific Evidence*. NHMRC: Canberra):

Level I - evidence obtained from a systematic review of all relevant randomised controlled trials

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Level III-2 - evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group

Level III-3 - evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group

Level IV - evidence obtained from case series, either post-test or pre-test and post-test

Supplementary Table 3. Summary of studies reporting the effects of integrated mental health and vocational services

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Burns et al. (2007)	6 European sites: London, Ulm-Günzburg, Rimini, Zurich, Groningen, and Sofia 2003-2005	Individuals > 18 years of age with a severe mental illness, major role dysfunction and who desired competitive employment (n=312)	Randomised controlled trial (Level II)	IPS workers were located within community mental health teams	Patient interviews at baseline and 6, 12, and 18 month follow up. Data obtained on vocational outcomes, hospital admission, and service use by interview, on job satisfaction and hours worked by questionnaire at the start and end of each job obtained, and on job status by vocational staff	• Patients assigned to IPS were more likely to be competitively employed, work more hours, and maintain their job for longer relative to those receiving high quality vocational services • Vocational service patients were more likely to drop out relative to the IPS group • Vocational service patients were more likely to be admitted, and spent twice as long in hospital relative to the IPS group	Socioeconomic context: • Low local unemployment rates • Strength of the economy	'The benefit trap' i.e. a national welfare system which creates a real or perceived disencentive to return to competitive employment

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Cook et al. (2005)	USA 1996-2002 [*Employment Intervention Demonstration Program*]	Individuals with severe and persistent mental illness (n=1,273)	Randomised controlled trial (Level II)	• Psychiatric and vocational services were provided through multidisciplinary teams who engaged in face-to-face interaction at least three times a week • Psychiatric and vocational services were co-located • Both services were provided through the same agency • A single case record was used	Monthly services tracking, semiannual in-person interviews with clients, recording of all paid employment, and program ratings made by using a services integration measure	Participants in high integration services (> 2 linkage mechanisms utilised) were more than twice as likely to work competitively and were 1.25 times more likely to work ≥ 40 hours per month	Provider communication, interaction and information sharing	Not described
Drake et al. (1996)	New Hampshire, USA	Individuals with severe mental disorders and an expressed interest in competitive employment (n=143)	Randomised controlled trial (Level II)	• Employment specialists were hired by mental health centres and attached directly to clinical teams • A team leader within each mental health centre supervised the IPS workers	Clients interviewed at baseline, 6, 12, and 18 month follow up. Employment assessed weekly by employment specialists and client interview. Implementation monitored through observation of team meetings, site visits, and daily logs of service use	• Clients of the IPS program were more likely to be competitively employed, work longer hours and earn more wages during follow-up relative to clients of a segregated professional rehabilitation agency • There were no between groups differences on non-vocational outcomes	Integration facilitated communication between clinical and vocational services	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Drake et al. (1999)	Washington, DC, USA 1994-1996	Individuals with severe mental disorders (n=152)	Randomised controlled trial (Level II)	Three employment specialists were hired to implement IPS at a community mental health centre. IPS workers joined multidisciplinary case management teams	Clients interviewed at baseline, 6, 12 and 18 month follow up. Employment tracked monthly by employment specialists. Job satisfaction checked with clients every two months	Participants in the IPS program were more likely to become competitively employed and to work at least 20 hours per week relative to clients of segregated vocational services	Co-location overcomes communication difficulties between mental health and vocational services	Not described
Gold et al. (2006)	South Carolina, USA 1996-2000	Rural adults with severe mental illness (n=143)	Randomised controlled trial (Level II)	Employment specialists were integrated with an ACT team in accordance with the IPS model of supported employment. IPS and ACT teams met on a daily basis to: • Allocate tasks to each specialist • Formulate treatment plans • Update each participant's single unified treatment record	Client interviews at baseline and at 6, 12, 18 and 24 month follow up. Employment specialists recorded attributes of participants' jobs	More ACT-IPS participants held competitive jobs, and earned more income that clients of a vocational rehabilitation program operating in parallel to clinical services	Ongoing training, mentoring and fidelity monitoring	Recruiting and retaining the necessary number of staff members in a rural context

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Henry et al. (2004)	Massachusetts, USA 1995-1999	Individuals with serious mental illnesses (n=186)	Quasi-experimental, case-control (Level III-2)	• An IPS supported employment service was situated within a multiservice parent agency providing a range of services, including mental health • Clients received both outpatient mental health and employment services from the same location • Employment specialists and behavioural health clinicians met on a weekly basis	Data retrospectively retrieved by employment program staff from mental health service records and the statewide Client Tracking System database (hospitalisations and emergency service use)	Clients who participated in the supported employment service and also received more regular mental health service hours experienced fewer adverse clinical outcomes (hospitalisations and emergency service visits) compared to controls	• Shared information systems • Interdisciplinary provider teams • Good communication and coordination of efforts • Co-location of services	Not described
Howard et al. (2010)	South London, UK 2004-2006 [*Supported Work and Needs (SWAN) study*]	Unemployed individuals aged 18-65 with severe mental illness attending community mental health services (n=219)	Randomised controlled trial (Level II)	• Four IPS employment specialists from a non-government agency were integrated within two community mental health teams • Employment specialists attended team meetings and care planning meetings and met with care coordinators when appropriate	Client interview at baseline and 12 month follow up, plus data from employment consultants and clinical staff	No significant differences in competitive employment rates or clinical outcomes between the intervention group and treatment as usual	Not described	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Killackey et al. (2008a)	Melbourne, Australia 2005-2006	People experiencing first-episode psychosis who wanted help in finding work (n=41)	Randomised controlled trial (Level II)	An employment specialist was co-located with a clinical team and attended clinical review meetings. Supported employment was provided in accordance with principles of the IPS model of supported employment	Client assessment at baseline and 6 months (end of intervention)	Relative to a group receiving treatment as usual, clients of the IPS service had significantly better outcomes on: • Level of employment • Hours worked per week • Jobs acquired • Longevity of employment Clients of the IPS service also significantly reduced their reliance on welfare benefits	• Intervention intensity: the employment consultant maintained high fidelity to the IPS model, and was limited to a case load of 20 clients • Co-location	Not described
Killackey and Waghorn (2008b)	Melbourne, Australia 2005-2006	People experiencing first-episode psychosis who wanted help in finding work (n=41)	Randomised controlled trial (Level II)	A specialist public mental health service directly engaged an employment specialist. The employment specialist attended weekly clinical review meetings	Narrative review of challenges to service integration; Author ratings of the Supported Employment Fidelity Scale-Implementation Questions	Integration of an employment consultant into the clinical team was achieved in the Australian context with high-fidelity to the IPS model	• Structural barriers to high fidelity implementation were avoided by bypassing the federal disability employment system • Supervision and work location arrangements which maximised communication opportunities • Experience of the employment consultant	• Resources • Organisational cultural differences

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Rinaldi et al. (2004)	London, UK 2001-2002	Young people experiencing a first episode of psychosis (n=40)	Service case study, baseline and follow up (Level IV)	A half-time vocational specialist was integrated into a multidisciplinary clinical early intervention team in accordance with the IPS model of supported employment. She coordinated all vocational plans with the team	Demographic and clinical data collected from clients at baseline, 6 and 12 month follow up. Vocational status collected monthly. Ratings on the Supported Employment Fidelity Scale	During follow-up there were significant increases in the proportion of clients engaged in work or educational activity	A multidisciplinary team with clinical and vocational expertise	Not described
Rinaldi and Perkins (2007a)	London, UK 2003-2004	People with severe mental health problems (n=604)	Quasi-experimental, case-control (Level III-2)	An IPS service was developed which was staffed by employment specialists who were integrated into multidisciplinary community mental health teams, and collaborated with all the mental health professionals	Client demographic, clinical and employment data collected by mental health staff; service fidelity ratings (IPS Fidelity Scale); service costs; survey of user experiences	• High fidelity IPS service was significantly more effective than a non-integrated vocational in enabling people to gain and retain open employment • The IPS service was 6.7 times more financially efficient than the non-integrated service	• High fidelity to the evidence based (IPS) model • Incorporation of clinical information into vocational plans	Not described

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Rinaldi and Perkins (2007b)	London, UK 2002-2005	People with serious mental health problems (n=451)	Quasi-experimental, case-control (Level III-2)	A full time employment specialist was introduced into community mental health teams in accordance with the IPS model of supported employment	Client demographic, clinical and employment data collected by mental health staff;	• Full implementation of high fidelity IPS was associated with dramatic increases in the number of people supported to obtain/ retain open employment • Outcomes for clients supported by their care coordinator in consultation with an employment specialist outside the treatment team were less striking	High fidelity to the IPS model	Not described
Sherring et al. (2010)	NSW, Australia 2006-2008 [*Vocational Education, Training and Employment (VETE) project*]	Individuals with severe and enduring mental health problems (n=43)	Service case study, baseline and follow up (Level IV)	Formal communication structures were established between mental health and employment services in the local area. These included: • Exchange of assessment information • Monthly case reviews • Regular joint appointments • Frequent informal communication	Client demographic assessment at baseline; clinical information from medical records; employment status assessed regularly by employment staff (24 month follow up; program fidelity assessed with the Individual Placement and Support Fidelity Scale.	• 77% of participants achieved competitive employment, with 60.6% remaining in employment at the end of the evaluation period • Outcomes achieved were comparable to studies of supported employment programs utilising co-location strategies • Major cultural changes within the local mental health team	• Linkage mechanism was compatible with Australian health and employment structures • Low financial risk • Clearly defined roles • The engagement of more than one employment provider	• Time constraints • Problems working with different models of employment service provision

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Tsang et al. (2009)	Hong Kong 2003-2006	Unemployed individuals with severe mental illness and an expressed desired to work (n=163)	Randomised controlled trial (Level II)	Close integration between a mental health team and vocational specialist in accordance with the IPS model of supported employment was achieved via regular interdisciplinary meetings to discuss and review treatment plans	Client assessments were conducted by an independent blind assessor at baseline, and 3, 7, 11 and 15 month follow ups.	Relative to a traditional vocational rehabilitation service, the IPS group demonstrated significantly better • Rates of employment • Length of job tenure	Not described	Not described
Waghorn et al. (2007)	Multiple sites across Australia 2006	People with severe mental illnesses	Retrospective services case study (Level IV)	In six sites an employment specialist was employed by the non-government disability employment service, co-located within the mental health service, and primarily supervised by regular visits from the non-government disability employment service manager	Descriptive summary of early stage implementation challenges obtained from a list of key implementation issues provided to the authors by staff at the 5 most advanced sites	The establishment of evidence-based supported employment approaches appears feasible in Australia, although co-location was not possible in some contexts	• Co-location • Not overlapping Federal Government departmental responsibilities • High-fidelity to the IPS model from the outset	• Time constraints • Training strategies • Differences in organisational cultures • Client attitudes • Legal, insurance and confidentiality issues • Risk of isolating the employment specialist from other employment staff • Client eligibility and access issues

Author (year)	Location, year of data	Target population	Study design and level of evidence[a]	Linkage mechanism(s)	Data source	Outcome(s)	Facilitators identified?	Barriers identified?
Waghorn et al. (2012)	12 sites across Australia (11 in Queensland and 1 in Tasmania) 2007-2010 [*Employment Specialists Initiative (ESI-12)*]	Individuals with severe and persistent mental illness who typically receive treatment from a public-funded community mental health team	Retrospective services case study (Level IV)	Disability employment services were closely integrated with mental health services via formal partnerships whereby employment specialists were co-located with community mental health teams	Qualitative analysis of the supporting factors and challenges encountered. Information obtained from project documents, issues identified by staff over the 3 year project, and a survey of all 12 sites in 2010	Formal partnerships between community mental health service teams and supported employment providers can be successfully established in Australia	• National and state mental health policies • Recurrent funding • Joint service governance • Knowledge of evidence based practices • Tools to monitor joint service effectiveness • Increasing client demand for employment services • Mental health leadership • Stable employment service staffing • Favourable attitudes of clinical teams towards client employment • The presence of a proactive steering group which meets regularly and develops new policies to support joint services	• Time to establish new partnerships • Physical facilities of mental health centres which are not suitable for co-location • Resistance to adopt evidence based principles • Inappropriate referrals to employment specialists • Lack of involvement by mental health team members in joint service delivery and ongoing evaluation • Lack of enthusiasm from the clinical teams • Excess demand for employment services

Note: ACT = Assertive Community Treatment; IPS = Individual Placement and Support.

[a] Levels of evidence (sourced from: NHMRC, 2000. *How to use the Evidence: Assessment and Application of Scientific Evidence*. NHMRC: Canberra):

Level I - evidence obtained from a systematic review of all relevant randomised controlled trials

Level II - evidence obtained from at least one properly designed randomised controlled trial

Level III-1 - evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)

Level III-2 - evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group

Level III-3 - evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group

Level IV - evidence obtained from case series, either post-test or pre-test and post-test