



Mental Health
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du Canada

Collaborative Care for Mental Health and Substance Use Issues in Primary Health Care:

Overview of Reviews and Narrative Summaries

Prepared by:

Victoria Jeffries | Amanda Slaunwhite | Nicole Wallace | Matthew Meneer |
Julia Arndt | Jennifer Dotchin | Kathy GermAnn | Sophie Sapergia

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KEY MESSAGES

- Collaborative care is an approach to patient-centred care that emphasizes inter-professional collaboration as the bedrock for improving access, an expanded menu of services, and delivery of more appropriate mental health and substance use care.
- There is high-quality evidence that some collaborative care interventions are effective at improving symptoms and treatment adherence, while a smaller amount of studies indicate effectiveness in terms of quality of life and costs.
- Interventions with the strongest evidentiary support include: coordinated and co-located care (models of inter-professional collaboration), telehealth, supported self-management, psychoeducation, and prompts from providers to patients.
- Interventions with insufficient, inconsistent or mixed evidence include: integrated care (a model of inter-professional collaboration), enhanced referral systems, finance and payment methods, provision of feedback and inter-organizational collaboration
- Screening for mental health and substance use problems is ineffective at improving health when implemented as a stand-alone intervention. For health benefits to be realized, appropriate treatments must be provided to patients diagnosed with mental health and substance use issues.
- In primary mental health care, most research focuses on depression, anxiety disorders and risky drinking. A number of collaborative care interventions are effective at treating these issues in primary care settings. The effects however are not uniform across diagnoses.
- Most high-quality research located in this review measured symptom changes, followed by treatment adherence and cost-effectiveness. Quality of life is an important measure for chronic illnesses but was not included in most studies.
- There is little evidence of the applicability of these interventions for child and youth populations.

EXECUTIVE SUMMARY

Mental health and substance use issues are among the most commonly treated problems in primary care settings. In Canada, primary care practitioners are often the sole providers of mental health and substance use treatments, despite having varying degrees of specialized training and supports. Primary health care reform efforts are needed to improve access and availability to appropriate care and to support primary care providers to deliver this care. Collaborative care is an approach to patient-centred care that emphasizes inter-professional collaboration as the bedrock for improving access, an expanded menu of services, and delivery of more appropriate mental health and substance use care.

This overview of reviews was undertaken in order to assess and synthesize evidence on collaborative care interventions that have the potential to improve primary mental health and substance use care. The selection of interventions was based on their applicability to the Canadian healthcare delivery system, and was completed with the help of an advisory body of Canadian researchers, clinicians, and decision-makers. Together, the reviewers and advisory body identified 10 interventions, organized within the Chronic Care Model (CCM) of disease management, which can be implemented within a collaborative care arrangement. Of the 10 interventions, the review team selected four for a systematic overview of high-quality peer-reviewed and grey literature reviews. The four interventions selected for systematic review were those deemed to require more detailed review of evidence. The remaining 6 interventions were summarized by members of the review team in narrative reviews of evidence found in previously published systematic reviews.

The interventions explored in systematic overviews are:

- *Inter-professional collaboration*
- *Telehealth*
- *Enhanced referral systems*
- *Finance and payment methods for primary care services*

The narrative reviews covered the following seven interventions:

- *Self-management support*
- *Screening for mental health and substance use problems*
- *Provision of feedback about outcomes to healthcare providers*
- *Inter-organizational collaboration*
- *Prompts*
- *Psychoeducation for patients and families*

All of the reviews sought to answer the following research questions:

1. Is the intervention effective at managing mental health problems and substance use issues in primary care as measured by symptom reduction, treatment adherence, and quality of life?
2. Is the intervention cost-effective compared to other interventions and the normal care offered by primary care providers (e.g., 'usual care)?
3. What are the gaps in current research?

The overviews and narrative reviews identified the following commonalities:

- In primary mental health care, most research focuses on depression, anxiety disorders and risky drinking. A number of collaborative care interventions are effective at treating these issues in primary care settings. The effects however are not uniform across diagnoses.
- Most high-quality research located in this review measured symptom changes, followed by treatment adherence and cost-effectiveness. Quality of life is an important measure for chronic illnesses but was not included in most studies.
- There is a lack of evidence of effectiveness of collaborative care interventions for most substance use issues and mental health issues other than depression, anxiety and alcohol use.
- There is little evidence of the applicability of these interventions for child and youth populations.

Based on the overviews and narrative reviews, the following interventions were the subject of high-quality research that allows for some conclusions to be drawn regarding clinical and cost-effectiveness:

- Inter-professional collaboration is an effective means of improving patient outcomes. Coordinated care (by distance) or co-located care have similar effects. Model choices can be tailored to the province, region, community, etc.
- Telehealth can be used to facilitate access to mental health specialists and/or primary care providers, or it can be used to reduce the need for these services. Both goals can be achieved effectively but are dependent on patient preferences and to some extent on diagnosis (i.e., psychotherapy via telephone is often preferred by people with anxiety).
- Supported self-management (SSM) is clinically effective and cost-effective for many patients with mental health and substance use problems. SSM is an important treatment tool for primary care practice.
- Screening for mental health and substance use problems in primary care is only helpful when staff-supported treatments are available for diagnosed problems. Financing of stand-alone screening programs is unlikely to be cost-effective or result in positive health outcomes.
- Prompts from providers to patients regarding appointments and medications are clinically and cost-effective but may be considered intrusive. Patient preferences for privacy must be considered when implementing a program of prompts.
- Psychoeducation is generally clinically and cost-effective but more research is needed on effectiveness of various psychoeducation approaches (e.g., individual, family or group-based).

The following areas were identified as having significant gaps in the evidence base:

- Integrated care (a model of inter-professional collaboration) is understudied and the effects are mixed and inconsistent.
- Enhanced referrals are typically not implemented systematically; however, the movement to electronic health records holds promise for standardizing and enhancing the referral process. Unfortunately, the evidence on referrals based on EHRs is inconclusive regarding increased access to care, patient outcomes, processes, and cost-effectiveness.
- Finance and payment methods need to be explored to facilitate collaborative care for mental health and substance use issues. Payment approaches are needed to compensate mental health and substance use specialists in collaborative relationships and should be re-evaluated for primary care providers working with specialists. Several models are under-studied. In this area, research on 'quality' of care measures guideline adherence and neglects measures of clinical effectiveness.
- Provision of feedback is a form of clinical decision support that can be effective at changing provider behaviors and patient outcomes but evidence is inconsistent due to variable methods of implementation.
- Inter-organizational collaboration is an approach to creating more comprehensive services. Currently there is insufficient evidence on effectiveness for models of inter-organizational collaboration.

CONTEXT

Background

Mental health and substance use problems are responsible for a substantial proportion of total healthcare expenditures in Canada.¹ As of 2001, 12.2% of Canadians suffered from anxiety disorders, 4.1-4.8% suffered from unipolar depression and 2.6% and 0.7% suffered from alcohol dependence and illicit drug dependence, respectively.¹ One approach to improving access to mental health and substance use services is to expand the number and quality of services offered in primary care settings. Primary care in Canada is considered to be the first point of contact to the health care system for most people.² Primary health care refers to the organization and delivery of primary care services, and is the subject of extensive reform efforts in Canada to reduce rising health care costs.

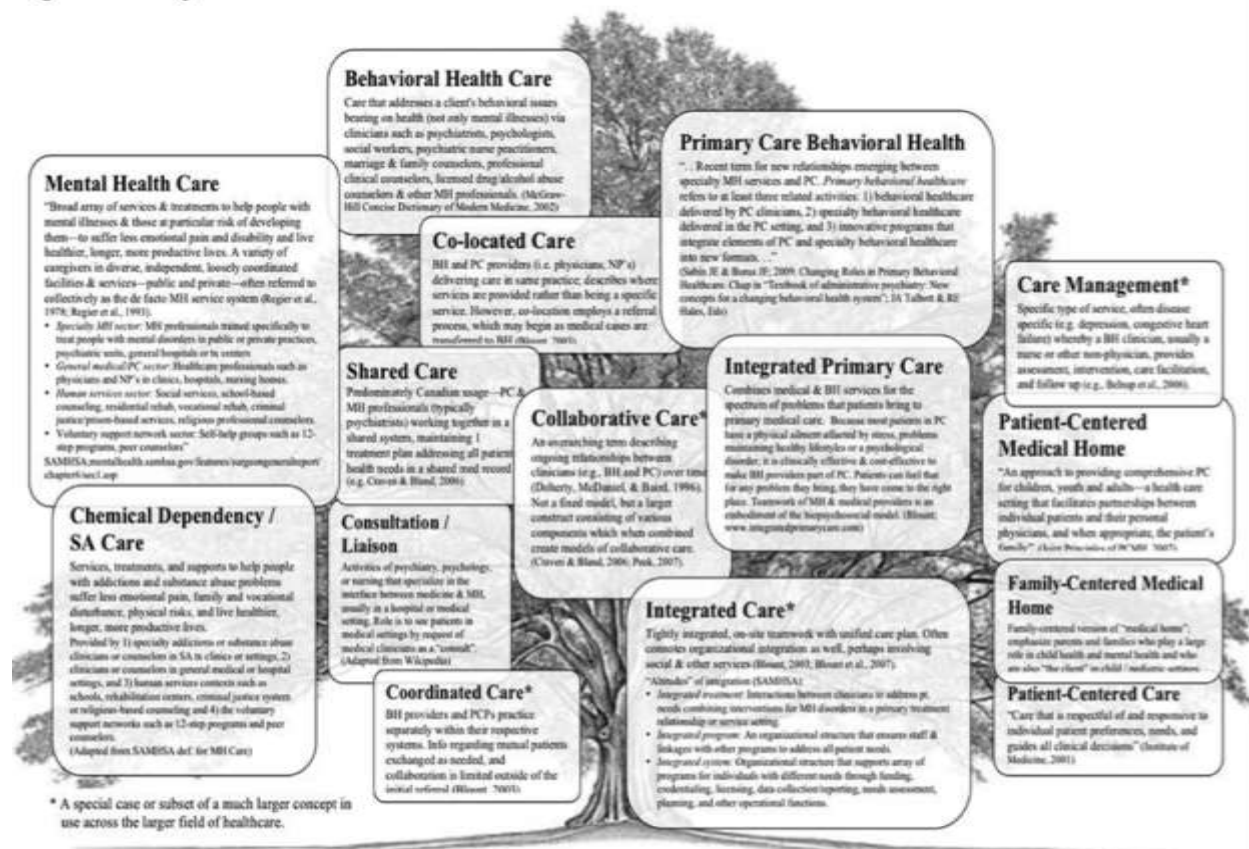
The World Health Organization (2009) prepared a blueprint for integrating primary care and mental health/substance use services and systems that identified ten key principles of best practice, based on the experience of countries around the world. Relevant to this overview the ten principles emphasize the importance of placing limits on duties and responsibilities of primary care practitioners and improving the accessibility of mental health professionals in primary care settings. In Canada, more than 60% of surveyed primary care physicians offered mental health care to patients, more than any other service surveyed, but only 4.9% reported specialization in the field.³ Similarly, substance use treatment was offered by approximately 30% of physicians with 2.5% considering themselves specialists. The disparity between services offered and degree of specialization are indicative of the demand placed on primary care physicians for mental health and substance use services in combination with a lack of support to provide specialized care. There is a need for better mental health and substance use care in Canada that includes providing support to primary care providers faced with treating a substantial majority of these problems.

Collaborative care is a broad term that encompasses a number of primary health care interventions that are fundamentally patient-centered and designed to increase access and availability to appropriate care. A recent position paper published by the Canadian Psychiatric Association and the College of Family Physicians of Canada⁴ defines collaborative mental healthcare as “care that is delivered by providers from different specialties, disciplines, or sectors working together to offer complementary services and mutual support”. A key component of collaborative care that must not be overlooked is the involvement of patients and families in treatment choices and execution. Aside from these foundational components, there are many methods and approaches to improving service delivery that are couched within the term ‘collaborative care’, leading to substantial confusion in the research and policy literature.

The Agency for Healthcare Research and Quality (AHRQ) in the US has attempted to address the confusion regarding what can accurately be described as ‘collaborative care’ through the development of a lexicon. Within this document, the authors include a “family tree” of terms to show the interconnection and overlap of language describing integration efforts.^{5, 6} The family tree of collaborative care includes several concepts and definitions in current or past use (Figure 1), all of which

have informed the modern usage of the term ‘collaborative care’ described as “ongoing relationships between clinicians” which form the foundations of a “larger construct consisting of various components which when combined create models of collaborative care”.⁵

Figure 1. Family tree of terms in use in the field of collaborative care



It can be inferred from this family tree that the quality of multidisciplinary partnerships are the foundation of effective collaborative mental health care. Other interventions can be implemented upon this foundation that are tailored to policy and funding realities for provinces, regions, communities and individual practices and providers.⁷ Also implicit is that interventions must be appropriate to identified patient needs (such as diagnosis, access to primary care, and treatment preferences) and age groups (child and youth, adults and seniors). In Canada, people with mental health problems need access to appropriate, effective care in primary care settings. Collaborative care models can provide support to primary care providers to deliver this care.

Rationale for Overviews and Narrative Summaries

The overviews of reviews and narrative summaries are intended to provide information to aid development of future research projects and policy initiatives, and the spread of effective ideas. To maximize the selection of interventions, the review team contacted an advisory group of policy partners, researchers and clinicians across Canada for suggestions. The review team conceptualized and organized interventions using the Chronic Care Model (CCM). The CCM has been influential in

transforming views on appropriate care for chronic health problems in Canada, including mental health and substance use issues⁸ and is an approach to categorizing interventions with which the advisory group was already well versed. The Improving Chronic Illness Care (ICIC) research group⁹ first developed the CCM and the Robert Wood Johnson Foundation supports its continuing development and evaluation.¹⁰ The CCM is a framework of quality improvement for chronic health problems across several areas that influence health, including not only the patient and healthcare provider but also community resources and the organization and delivery of the healthcare system. The 6 components of the CCM are: health care organization; clinical information systems; decision support; delivery system redesign; self-management support; and community support. The CCM can be considered the foundation of more recent work on the parameters and components of collaborative care.¹¹

The advisory group independently identified 10 distinct interventions of interest for Canadian primary health care reform targeted at mental health and substance use issues. Together these interventions mapped to all six CCM components. The review team then met to select interventions that might be appropriate for an overview of reviews. For an overview to be feasible, high-quality systematic reviews must exist on the interventions that have not yet been synthesized into an overview. The team selected four interventions that they believed fit these criteria, from both specific scoping of the literature and/or reviewer content expertise. These interventions may have been encapsulated under broad collaborative care reviews (e.g., Craven & Bland, 2006) but not as individual topics. The remaining six interventions were the subject of brief literature reviews to summarize the evidence base or lack thereof.

Objectives and Research Questions

The overview objectives are to evaluate and synthesize evidence from published and grey literature systematic reviews on the clinical and cost-effectiveness of four interventions that can be implemented within collaborative care models. The interventions selected for the overview are:

- *Inter-professional collaboration*
- *Telehealth*
- *Enhanced referral systems*
- *Finance and payment methods for primary care services*

These interventions were selected, in part, because they address both access to care for patients and ways to support primary care physicians and practices in delivering mental health care. This often means some level of collaboration with mental health specialists but can also encompass increasing the availability of mental health specialists based on referral processes.

The research questions focus on health outcomes and behaviors as well as evidence of cost-effectiveness. Provider outcomes, usually measures of behavior change or satisfaction, were not included in the overviews because they provide only indirect information about the effects of interventions on patient health. Other important outcomes such as patient satisfaction with care and the process of care were not included in this review. This is because the research team decided at the

outset to limit the number of reviews by the most common outcomes measured in systematic reviews of randomized controlled designs.

The research questions are:

1. Is the intervention effective at managing mental health problems and substance use issues in primary care as measured by symptom reduction, treatment adherence, and quality of life?
2. Is the intervention cost-effective compared to other interventions and the normal care offered by primary care providers (e.g., 'usual care)?
3. What are the gaps in current research?

The objective of the narrative reviews was to provide a brief literature review of collaborative care interventions that were considered important by the advisory group but were not selected for an overview. The narrative reviews cover the following interventions:

- *Self-management support*
- *Screening for mental health and substance use problems*
- *Provision of feedback about outcomes to healthcare providers*
- *Inter-organizational collaboration*
- *Prompts*
- *Psychoeducation for patients and families*

OVERVIEWS OF REVIEWS

Methods and Analysis Plan

Systematic reviews were located through extensive searching of Medline (OVID), EMBASE, HTA and DARE from 2000 to September 2011 in English and French (Appendix A for search terms). Additional searching was conducted for grey literature, experts were consulted for articles that may have been missed, and reference lists of key articles were hand searched. Articles were also subjected to forward citation searches in Web of Science. More than 8000 abstracts were collected at the end of this procedure (Appendix B for tables).

The general inclusion criteria for the overviews required that reviews consist of at least two or more randomized controlled trials (RCTs) or cluster RCTs (considered the strongest individual study design in the 'hierarchy of evidence')¹² with data from studies pooled in a meta-analysis or meta-regression. Additional inclusion criteria were reporting of patient outcomes, studies in primary care settings, patients with mental health and substance use problems (excluding psychosis), and all age groups (children and youth, adults aged 18+ and seniors aged 65+). English language titles and abstracts were screened in duplicate (where possible) to determine if the inclusion criteria were met. One reviewer (MM) screened studies, extracted data and assessed quality of French-language reviews. Abstracts that were potentially relevant were reviewed in full-text and data extracted. Quality of the reviews was assessed using the AMSTAR checklist, a validated measurement tool created to assess the methodological quality of systematic reviews.^{13, 14} The AMSTAR checklist covers 11 domains that assess criteria such as inclusion of a comprehensive literature search, detailed accounting of papers reviewed, assessment of the quality of scientific evidence and presence or absence of conflict-of-interest declarations. Only reviews considered high quality (8-11 points on AMSTAR) were included. Due to the short-time frame for completing the overviews, study selection for data extraction was predicated on three criteria: Cochrane systematic overviews and reviews, meta-analyses, and economic analyses.

Methods for combining the pooled results of studies in an overview of reviews are in their infancy. To simplify the process, the review team created categories of key forms of each intervention and determined the general direction of effects across reviews for each category. This count was used to make a general statement as to the overall effectiveness of the intervention sub-category across reviews. While similar in concept to vote-counting procedures, the authors relied on general direction of effects rather than counting 'significant' effects (as measured by p values), which is prone to several statistical errors and is a poor substitute for statistical analysis.¹⁵ The review team has made no attempt to statistically analyze the pooled effect sizes located in this study; the intent instead is to organize the range of effects located by general direction of effect. For interventions #3 (ERS) and #4 (Finance) there was insufficient data for this procedure so reviews were not synthesized but presented narratively.

Intervention No. 1 – Inter-professional Collaboration

Brief Overview

The majority of people with mental health and substance use problems are treated in primary care settings.¹⁶ Correspondingly, the proportion of primary care physicians offering mental health care is higher than for any other illness surveyed.³ These facts are due in part to the high incidence and prevalence of mental health and substance use issues in the population¹⁷ as well as long wait times for specialist care.¹⁸ As of 2009, Canada's health workforce consisted of 10% more specialists than primary care physicians.¹⁹ The number of specialists is on an upswing compared to primary care physicians in part due to higher earning potential for specialized physicians. However, the movement towards specialization has not led to improved availability or accessibility of mental health and substance use treatments.

Inter-professional collaboration is an effective method of increasing the capacity of primary care physicians to provide high-quality care through a team-based multidisciplinary approach that relies on a different use of specialists than the status-quo.²⁰ Inter-professional collaboration, as demonstrated in an extensive evidence base, improves access to specialist care for patients, better utilizes primary care and specialist care resources, and increases the number and type of services offered in primary care. In mental health and substance use, the great majority of high-quality evidence concerns clinical effectiveness of depression care as measured on standardized assessment.

There are several ways that inter-professional collaboration can be implemented such as simple coordination of treatment between primary and mental health care providers through enhanced communication by phone or email, enhanced primary care provider access to consultation with specialists, co-location of primary and mental health care providers, and the addition of care managers to the team. These model variations have made it difficult to determine the most clinical- and cost-effective components of inter-professional collaboration, such as whether simple and less resource-intensive collaboration is as effective as more complex collaborative relationships.

As discussed previously, inter-professional collaboration is theorized to be a foundational component upon which collaborative care is built. Inter-professional primary care teams have been increasingly implemented across Canadian provinces, but with significant variations.²¹ It therefore deserves a closer look to determine the impact of model variations on clinical- and cost-effectiveness for mental health and substance use issues for all age groups.

Methods

Reviews were included only if they defined the intervention as requiring collaboration between two or more professionals, at least one primary care provider and one mental health specialist. The reviews used various terms to describe this form of collaboration, including 'collaborative care' and 'integrated care'.

Two reviewers (VJ and NW) screened studies and disagreements were resolved with the assistance of a third reviewer (EG). Two reviewers (VJ, AS) assessed quality independently and in duplicate using AMSTAR criteria. Disagreements were resolved by discussion. Only reviews identified as high quality (9 or more) on AMSTAR checklists were included in the synthesis.

Several interventions were included within 'inter-professional collaboration', based on the work of Butler²² and Peek⁶ that defines the key features of collaboration and examples. Included interventions fall into one or more of the following categories:²³

- *Coordinated care* - "referral-triggered periodic exchange of info between clinicians in separate medical and behavioral settings, with minimally shared care plan or clinic culture". In this model, primary and specialist providers maintain separate office structures.
- *Co-located care* - "behavioral and medical clinicians in same space, with regular communication, usually separate systems, but some shared care plans and clinic culture". This model maintains separate administrative arrangements for primary and specialist providers.
- *Integrated care* - "shared space and systems with regular communications, mostly unified rather than separate care plans, and largely shared culture and collaborative routines". Providers in this model use the same offices and administrative arrangements.

One reviewer (VJ) determined the categories of inter-professional collaboration for each review. Reviews could be mapped to one or more categories of collaboration. Where possible, the descriptions of interventions for individual studies within each review were examined. In some cases, key features of the interventions were not discussed, making it difficult to categorize the review. Reviews with unclear intervention descriptions were placed in the category 'coordinated care', unless co-location was specifically mentioned.

Results

Seven meta-analyses and one economic review were categorized as high quality based on AMSTAR assessment (8 or more points). Of these, six reviews mapped to coordinated care, six reviews mapped to co-located care, and one review mapped to integrated care.

Qualitative Synthesis

The highest quality reviews (Gruen, Weeramanthri, Knight, & Bailie, 2004; Smith, Allwright, & O'Dowd, 2007) focused on different approaches to inter-professional collaboration (specialist outreach; shared-care) and pooled different studies, with the exception of Katon et al. (1999), which was located through different search strategies. Bower, Gilbody, Richards, Fletcher, and Sutton (2006) conducted the most comprehensive review (e.g., covering the greatest number of relevant RCTs). This review was used as the basis of determining whether other reviews closely overlapped and if so, provided any new information that warranted their inclusion.

Table 1: Inter-professional Collaboration Review Categories and Findings

Coordinated care
Definition: “referral-triggered periodic exchange of info between clinicians in separate medical and behavioral settings, with minimally shared care plan or clinic culture”
Examples of interventions: <ul style="list-style-type: none"> • Consultation-liaison
Reviews mapped to this category: Cape, Whittington, & Bower, 2010; Foy et al., 2010; Gruen et al., 2004; Smith et al., 2007; Van der Feltz Cornelis, Van Os, Van Marwijk, & Leentjens, 2010A; van Steenbergen-Weijenberg et al., 2010
Bottom-line statements of effectiveness: 3/5 studies found that coordinated care improved symptoms, primarily for depression. 2/3 studies found that coordinated care improved medication adherence. 2/2 economic evaluations found that coordinated care was cost-effective in terms of depression-free days (\$24-35 in incremental costs) but that incremental costs per quality-adjusted life year (QALY) ranged from \$2519-5037. The cost for coordinated care as opposed to co-located care can't be determined from this study without reviewing individual RCTs.
Co-located care
Definition: “behavioral and medical clinicians in same space, with regular communication, usually separate systems, but some shared care plans and clinic culture”
Examples of interventions: <ul style="list-style-type: none"> • Care management (with or without supervision) located on site with primary care practice. Care managers often with special mental health training.
Reviews mapped to this category: Gruen et al., 2004; Smith et al., 2007; Chang-Quan et al., 2009; Bower et al., 2006; Van der Feltz-Cornelis et al.,2010A; van Steenbergen-Weijenberg et al., 2010
Bottom-line statements of effectiveness: 4/5 studies found that co-located care improved symptoms, primarily for depression. 3/3 studies found that co-located care improved treatment adherence. 1/1 economic evaluation found that co-located care was that coordinated care was cost-effective but that incremental costs per QALY ranged from \$ 2519-5037. The cost for coordinated care as opposed to co-located care can't be determined from this study without reviewing individual RCTs.
Integrated- in partially or fully integrated system
Definition: “shared space and systems with regular communications, mostly unified rather than separate care plans, and largely shared culture and collaborative routines”
Examples of interventions: <ul style="list-style-type: none"> • Co-located mental health specialist and primary care providers, working with or without care managers, consulting on shared care plans and each treating patients either together or separately, followed by communication

Reviews mapped to this category: Smith et al., 2007

Bottom-line statements of effectiveness: The only study included did not find that integrated care was effective at improving depression symptoms. 1/1 review found that integrated care was effective at increasing adherence to prescribed medications. More studies are needed on interventions that can be clearly identified as integrated care.

Discussion

The majority of the seven included reviews covered interventions for adults and older adults (aged 60+) with depression in primary care. A handful of reviews covered panic disorder, somatoform disorder and comorbid depression and diabetes. No reviews for children and youth were located.

Most reviews examined more than one outcome. When looking at specific outcomes, the majority of reviews that measured symptom reduction indicate that coordinated care led to improvements in depression symptoms (60% of reviews) and for reviews that measured treatment adherence (operationalized as antidepressant use), 67% of reviews found a positive effect. Two reviews reported economic analysis that supports the cost-effectiveness of coordinated care as measured by increases in depression-free days. Coordinated care requires the least amount of inter-professional collaboration and for that reason may logically be the least expensive intervention to implement.

Six reviews indicate that co-located care can lead to improvements in depression symptoms in the short-term (<12 months). The majority of reviews was based on large samples and used objective measures to detect depression symptoms. Co-located care has also been determined to be cost-effective in economic analysis. The analysis included studies that covered both coordinated and co-located care, so independent cost-effectiveness cannot be determined. However, the findings indicate that the cost of co-located care is higher than usual care.

One review was mapped to integrated care. This review found improvements in treatment adherence but no improvements to symptoms. Without additional systematic reviews to include in analysis it is not possible to generalize the findings or evaluate discrepancies. More studies are needed on integrated care for mental health and substance use issues.

In conclusion, coordinated care and co-located care appear to be more effective than usual care at improving depression symptoms and treatment adherence, as well being more expensive but also more cost-effective than usual care. Less is known about the clinical effectiveness or cost-effectiveness of integrated care, other than one review that found improvements in treatment adherence and no improvements in symptoms.

Limitations

For the most part, the results for inter-professional collaboration were limited by short follow-up times. Fifty-percent of the reviews mapped to more than one category but it was not possible to separate out independent effects without re-analyzing the data. Instead the results were applied for each category. This method means that there was significant overlap of included studies for coordinated care and co-

located care, so the findings about equivalent effectiveness must be viewed with caution. The findings for co-located care were bolstered by an additional two reviews that provide some data on independent effects. One of the high-quality economic analyses located was also difficult to categorize, especially considering that the interventions required different resources. Methodological limitations include the lack of duplicate data extraction and development of categories for mapping of reviews.

Implications for Research

Additional high-quality research is needed on mental health problems, other than depression, and substance use issues in all categories of inter-professional collaboration. Research is also needed on children and youth. A standard approach to delineating models of inter-professional collaboration is needed to increase the usefulness of research for policy and decision-making, preferentially utilizing the categories recently published by AHRQ¹¹ and demonstrated here. High-quality research on clinical and cost-effectiveness of integrated care is needed. There is also great need for economic analyses of these programs.

Intervention No. 2 - Telehealth

Brief Overview

Telehealth is the use of communications technology to deliver treatment of mental health and substance use issues. Telehealth has been utilized for many types of mental health problems (e.g., depression, bulimia nervosa, schizophrenia) and other chronic diseases (e.g., cardiovascular diseases, diabetes, asthma).²⁴ Telehealth interventions are primarily concerned with addressing issues around access and need for mental health and substance use treatment. Telehealth applications can increase availability of professional treatment, useful for rural and remote patients who want to engage in scheduled, repeated sessions with a mental health specialist.²⁵ Conversely, telehealth applications can be designed to reduce the need for professional support for areas with limited availability of face-to-face treatments and long waitlists.

Telehealth is delivered through several types of communications technologies (e.g., telephone, internet, special computers, videoconferencing, and others) that are delivered either synchronously (e.g., live or real-time) or asynchronously (e.g. offline computer program or electronic diaries reviewed at a later time).^{26 27} The choice of synchronous or asynchronous methods and the type of communications technology are closely related to the role of the mental health and substance use specialist in treatment.

Methodology

This overview was not limited to primary care providers but included mental health and substance use specialists as the main provider of services. This is due to the focus on telepsychiatry and telepsychology in mental health and substance use care. Because the broad focus of this report is on collaborative mental healthcare practices, reviews of interventions that did not contain at least minimal contact with a mental health specialist or other healthcare provider (e.g., 'self-help') were excluded. In addition, reviews that did not provide sufficient data on the intervention effects were excluded. All forms of telehealth technology were eligible for inclusion (e.g., telephone, videoconference, internet, computer-based, synchronous or asynchronous).

Two reviewers screened titles and abstracts and selected studies (VJ and NW). One reviewer extracted data and performed quality assessment (VJ) using AMSTAR criteria. Only reviews identified as high quality (8 or more) on AMSTAR checklists were included in the results.

Results

Once the pool of included reviews had been created, the interventions examined were categorized based on the available data regarding support from a mental health specialist or other healthcare provider. Interventions were categorized as follows:

- *Minimal Support* – Minimal support interventions utilize communications technology to replace traditional face-to-face psychotherapy. Mental health specialists provide a modicum of support to patients as they complete the program.

- *Moderate Support* - Moderate support interventions provide a greater amount of support from mental health specialists in conjunction with automated therapeutic programs, often delivered via computer or internet.
- *Major Support* - Major support interventions are focused on increasing access to psychotherapy particularly for remote and rural populations and people who are not comfortable with face-to-face interactions.

Three meta-analyses^{28, 29, 30} were categorized as high quality based on AMSTAR assessment. As in the inter-professional collaboration overview, reviews overlapped between levels of support. Of the four reviews, two reviews mapped to minimal support, two reviews mapped to moderate support, and two reviews mapped to major support.

Qualitative Synthesis

The three included reviews focused primarily on computer- and/or internet-based interventions. Only one review focused on telephone delivery of treatments. Two of the reviews included adults with depression and/or anxiety, with one study including children and youth aged 8-14. One review on computer-based interventions included adults with alcohol or tobacco use issues. The review authors separated effects for clinical effectiveness by substance use, providing information on effect sizes for alcohol use sans tobacco use.

All four reviews included some form of therapist support in the intervention as well as interventions without therapist contact. Two reviews focused on telehealth to provide access to psychotherapy with mental health specialists (e.g., 'major support') including telephone, internet and videoconferencing. One review on computer-or internet-based interventions covered a range of categories from minimal support (e.g., emails, 5 minute follow-ups) to moderate support (brief or short-term sessions online or by phone) (Andersson, Cuijpers, Craske, McEvoy, & Titov, 2009).

Table 2: Telehealth Review Categories and Findings

Minimal Support
Definition: Minimal support interventions utilize communications technology to replace traditional face-to-face psychotherapy. Mental health specialists provide a modicum of support to patients as they complete the program.
Example Interventions: <ul style="list-style-type: none"> • Offline computer software that is reviewed by trained mental health specialists who monitor progress and provide feedback to patients. Also called 'asynchronous' telehealth. • Internet programs that can be accessed from any personal computer that include elements of synchronous (e.g. live) communications with mental health specialists.
Reviews mapped to this category: Rooke et al., 2010
Bottom-line statements of effectiveness: 1 /1 review on alcohol use found that minimal support was effective at reducing symptoms compared to moderate and major support.

Moderate Support
Definition: Moderate support interventions provide a greater amount of support from mental health specialists in conjunction with automated therapeutic programs, often delivered via computer or internet.
Example Interventions: <ul style="list-style-type: none"> • Brief therapeutic interventions with content and ‘homework’ delivered via internet, with support from a mental health specialist in the form of a small number of sessions (typically 2-6 sessions). • Catch-all category for review that combined minimal and major support into one category.
Reviews mapped to this category: Andersson et al., 2009; Rooke et al., 2010
Bottom-line statements of effectiveness: 1/1 review on depression or anxiety found that moderate support was more effective than no support or minimal support. 1/1 review on alcohol use found no discernable improvement with moderate support. 2/2 reviews found that computer-based telehealth was significantly effective at reducing symptoms (alcohol use, depression or anxiety). 1/1 review found that computer-based telehealth was more effective than internet-based telehealth at reducing symptoms of depression or anxiety.
Major Support
Definition: Major support interventions are focused on increasing access to mental health specialists, particularly for remote and rural populations and people who are not comfortable with face-to-face interactions. Interventions in this category support scheduled, repeated sessions with a mental health specialist.
Examples of interventions: <ul style="list-style-type: none"> • Traditional telephone communication. • Internet-based communications technology for videoconferencing or telephone service.
Reviews mapped to this category: Bee et al., 2008; Rooke, Thorsteinsson, Karpin, Copeland, & Allsop, 2010
Bottom-line statements of effectiveness: 1/1 review on depression and anxiety found that major support by mental health specialists was more effective at improving symptoms than no support and of equivalent effectiveness as traditional face-to-face therapy. 1/1 review on alcohol use found that major support was no more effective than moderate support, and less effective than minimal support. Major support involved psychotherapy and did not analyze specific communication technologies.

Discussion

The reviews reported primarily on symptom changes for depression, anxiety and alcohol use with follow-up analyses to explore impact of level of therapist support. None of the reviews reported on other outcomes of interest in the overview (treatment adherence, quality of life, economic analysis). All of the reviews focused on mental health specialists. While we had hoped to have some reviews on telehealth provided by primary care practitioners, any interventions with that to increase access to

mental health and substance use care are potentially helpful to providers. Another, more direct, form of provider support is telecommunications technology that provides access to specialists for primary care providers who may not have ready access to specialists when treating patients, such as those in rural and remote locations. This type of intervention was not covered because the decision was made to focus on access to care for patients and to leave any interventions that increase professional collaboration to overview #1 (inter-professional collaboration).

Major therapist support led to substantial reductions in symptoms for people with anxiety. The review provides some support to the notion that psychotherapy by distance is especially suited to the needs of patients with anxiety, who may have great difficulty leaving home or with disruptive symptoms. For patients with depression, major support was just as effective at reducing symptoms as face-to-face psychotherapy. This review did not directly compare these two conditions but relies on past reviews that have established clinical effectiveness of psychotherapy for depression. Moderate support had a similar pattern of findings in terms of positive changes for depression or anxiety. Minimal support appeared to be no more effective than no support for people with anxiety.

One review found that minimal support led to greater reductions in risky alcohol use compared to major or moderate support. This finding appears to fit with past research on brief interventions for alcohol use, which utilize a stepped approach. The first step is often a brief discussion with primary care physicians along with some provision of educational materials (i.e., bibliotherapy). This approach has been found to reduce risky drinking behavior although it does not appear to be effective for people experiencing alcohol abuse or alcoholism.³¹

Three reviews examined some form of computer-or-internet based interventions, although only one was able to compare between these two modalities. Computer-based interventions for depression were substantially more effective than internet-based interventions, possibly because these interventions required patient appointments to use a specialized computer with technical support available. The authors theorized that this system might encourage engagement with the program. These are especially important issues for depression because symptoms can often include lack of motivation or apathy. The remaining two reviews found improvements with computer-based treatment for alcohol use, depression, and anxiety. One review on major support interventions included telephone and videoconferencing but there were not enough comparisons between modalities to draw conclusions.

In conclusion, the evidence in this review indicates that telehealth with therapist support is an effective way to treat mental health and substance use problems. The effectiveness is highly dependent on the type of problem experienced by the patient as well as patient treatment preferences. Patients with anxiety benefit most from increased access to psychotherapy via telehealth compared to face-to-face therapy. Patients with depression achieve similar results when telehealth and face-to-face therapy are compared. Patients seeking treatment for risky drinking benefit most by telehealth with minimal or no specialist support. Computer-based telehealth was the most studied modality and was found to be an effective method of delivery.

Limitations

This review may be biased because data extraction and quality assessment were not performed in duplicate. Most of the reviews located were assessed as low –to- medium quality or did not provide quantitative data. Several reviews and grey literature overviews also located few high-quality reviews^{25, 27, 32, 33} supporting the finding from this overview regarding problems with study methodology, including small sample sizes, lack of representative populations and randomization, and limited economic analyses. Lastly, the reviews are too heterogeneous for the most part to support extensive synthesis.

Implications for Research

More research is needed on telehealth for mental health and substance use issues aside from risky drinking, depression and anxiety, and for populations other than adults. Telephone and videoconferencing were under-represented in the reviews and should be investigated further. The differences in treatment effectiveness for mental health and substance use problems should be investigated further because of a lack of suitable studies in this review.

Intervention No. 3 - Enhanced Referral Systems

Brief Overview

Referrals are a necessary part of mental health/substance use treatment when a patient requires care that goes beyond the purview of the primary care provider. In primary health care systems that incorporate some form of inter-professional collaboration, referrals are often used to engage specialists in assessment and evaluation of patients. In other primary health care systems, the referral is used to completely transition the patient to secondary or tertiary care as appropriate. The referral process is quite formal in some countries, including Denmark, the Netherlands and UK, while in others such as France, Germany, and USA the system is less structured.³⁴ Referrals in Canada tend to be made by physicians using discretionary processes, with some practice-level and regional differences. Current problems with referral approaches include patients not being referred in a timely manner or to the appropriate specialist.^{35,36} These problems are often indirectly measured by examining referral rates.

Enhanced referral systems (ERS) have been introduced as a method of improving the standard referral process. ERS have been defined along a continuum ranging from a broad characterization of systems that refer in a 'timely manner' with follow-up support³⁷ to more detailed descriptions involving multidisciplinary assessments, patient-selected providers, and letters of introduction from the primary care physician.³⁸ A key feature of enhanced referral systems is the focus on multi-faceted approaches to systematizing the referral process. Stand-alone interventions, such as referral checklists, are useful aids but cannot be considered a systematic approach without additional interventions, such as easing the process of securing referral appointments through automated computer or web-based systems, inter-professional discussion or communication regarding the appropriateness of a referral, and/or discussion with patients about preferences regarding care (e.g., shared-care).

Examples of ERS that have been utilized to facilitate the transition to mental health specialty care include: a dynamic referral system in the UK, consisting of a computerized assessment of mental health and functioning to generate personalized summary reports for both the patient and provider, followed by a patient-centered referral to the most appropriate specialist³⁹ and a Canadian approach that use specialized and highly detailed psychiatric consultation forms and inter-professional referral support.³⁹

Methods

ERS proved to be a difficult concept to operationalize and apply in searching and study selection due the extensive and variable approaches to design and implementation. Original searches for ERS were focused on mental health contexts. None of the 983 articles met inclusion criteria. Additional brief searches employed terms 'primary care', 'family doctors', and 'general practice' combined with terms 'referral and consultations', 'referral systems', and 'referral practices'. This search located an additional 731 articles that also did not meet inclusion criteria. Extensive hand searching was conducted, locating another 39 articles. During this process, the inclusion criteria were broadened to include any articles that address some form of referral process. Exclusion criteria were reviews that did not focus on multi-faceted systematic approaches to enhancing referrals (i.e., educational methods for improving guideline

adherence as a stand-alone intervention), reviews with tertiary outcomes to the process of enhancement (i.e., referral rates), reviews on referral decisions and behaviors related to standard referrals (not enhanced), and reviews that did not evaluate patient outcomes.

Two reviewers screened titles and abstracts (VJ and NW) for the original searches on mental health and addictions. The expanded searches of primary care were performed by one reviewer (VJ) and screened for study selection. One reviewer extracted data and performed quality assessment (VJ). Only reviews scoring 8 or above on AMSTAR quality assessments were included.

During the study screening process, no obvious categorical systems were located to allow for mapping of reviews to categories within the intervention. This was due to the lack of available research on the subject.

Results

One high-quality overview of reviews (AMSTAR = 11) was located. This review focused on a systematic health information system called eHealth that included ERS.

Black et al. (2011) conducted a high-quality overview of systematic reviews that explored several components of eHealth systems. Because eHealth does not refer to a predefined set of interventions, the authors created a conceptual map of key functions of eHealth. From this map, interventions were selected for this overview that directly related to storage, retrieval and transmission of data and clinical decision support. Two of these interventions were potentially relevant to enhanced referral systems, specifically EHRs and computerized provider or physician order entry. EHRs, as discussed, are key for integrating healthcare for patients and consequently provide a basis for the development of enhanced referral processes. Unfortunately, the potential for EHRs to inform referral processes was not explored. The latter intervention has been used for ordering to diagnostic procedures and medications but also for 'e-Referral' processes. Although the overview did not locate any reviews that addressed referral processes, it covered a range of eHealth applications and the results were uniformly weak and inconsistent. EHRs in particular have been touted recently as effective (and cost-effective) means of increasing quality; these findings were not supported in the overview, which found little evidence to support the claims.

Discussion

An insufficient number of reviews were located to draw conclusions about the clinical or cost-effectiveness of ERS. The one high-quality systematic overview located also was unable to locate articles on referrals in the context of eHealth applications, due to inconsistent definitions and disorganized and poor indexing in electronic databases. This finding confirms the difficulties experienced with located articles in the current review.

The pool of eligible studies was significantly limited by the inclusion criteria of patient outcomes and systematic processes. The great majority of studies were focused on referral rates or referral 'appropriateness', usually measured by whether referrals were made according to guidelines. Patient

outcomes are theorized to be indirectly related to both of these measures. Arguably in these circumstances the driver of referral enhancements will be to meet some pre-set threshold of quality that can then be inferred to relate to clinical effectiveness. But without direct measurement of clinical effectiveness, it is uncertain what relationship exists between patient outcomes and referral enhancements and whether these enhancements lead to better access to appropriate care. Additionally, reviews most often focused on an unsystematic approach to enhancing referrals, such as providing education to providers. A systematic approach according to our criteria would focus on an objective method of enhancing referrals that can be implemented on a practice and region-wide basis, such as computer or web-based programs to ease the process of referral and making appointments with specialists. Checklists could be part of a multi-faceted intervention but are not sufficient by themselves to be considered a system.

In conclusion, there is a dearth of research on ERS or any form of multifaceted intervention that is geared towards improving the referral process in a systematic way and thus increasing access to appropriate care. Although electronic integration of healthcare information is on the rise, the benefits of this technology for improving referral processes are unknown.

Limitations

The search strategies for this intervention were largely unsuccessful at locating reviews that meet the inclusion criteria. This may be because there are few reviews in this area or it may be due to the lack of standardized terms in the electronic databases to locate appropriate interventions. One solution is to create specialized search strings based on concepts rather than terms.⁴⁰ Although this was attempted in the current overview, additional time and resources would be needed to fully explore this option.

The inclusion criteria were broadened in an attempt to locate any research on enhanced referral systems. Consequently the findings of the overview are not based on research in primary care, for mental health and substance use issues, or on RCTs of interventions. Additionally quality assessment was not performed in duplicate. The findings must be viewed with caution due to these limitations.

Implications for Research

Future systematic reviews would benefit by devoting time and resources toward developing comprehensive search strings that can overcome the significant problems identified. Even with advanced searching methods, it is likely that there will be few additional studies located, and that there is a need for high-quality experimental studies with intervention-appropriate designs that specifically target the referral processes embedded in health information systems like eHealth.

Intervention No. 4 – Financial and Payment Methods For Primary Health Care

Brief Overview

Healthcare costs in Canada represent approximately half of all government spending and are increasing yearly.⁴¹ The rising cost of healthcare spending in Canada is due in part to increasing physician salaries and payments.⁴² In 2010, physician remuneration represented 13.7% of healthcare spending and is expected to increase without reforms to payment methods for physician services.

Canada currently pays most physicians for each service rendered to a patient, which is based on the cost of the service rather than the value of the service. This is commonly called ‘fee-for-service’ and has been linked to problems with delivery of appropriate care.⁴¹ High-value services, as measured by cost-effectiveness and quality of life indicators, are paid according to the cost to physicians of providing the service. This creates a culture where high-value services are not incentivized over low-value services. Aligning incentives to support high-value services is a promising approach to improving quality of health care while reigning in spiraling healthcare costs.⁴³ Incentivizing high-value services is often termed ‘pay for performance’ or P4P.⁴⁴ P4P is a method of payment that relies primarily on bonuses or targeted payments for meeting specific clinical indicators of effectiveness, such as guideline implementation, screening and immunization rates. P4P can also be based on mixed payment methods, such as capitation for providing care to people with severe mental health problems in combination with bonuses for high-quality care. P4P can be implemented at the level of physicians, practices and hospitals. In the latter two, bonuses and target payments are awarded to the practice group or hospital for overall performance, which can then use the funds to upgrade facilities and technologies or distribute the funds to individual physicians as they see fit. Capitation and salary are also recognized systems of payment, although less often used in Canada than fee-for-service. Capitation is geared towards specific patient populations, often those that are more vulnerable and in need of chronic care, while salary is payment irrespective of services delivered or patient outcomes.

Methods

Original search strategies targeted finance and payment in mental health and addictions. No relevant reviews were located. The search was broadened subsequently to include all areas of healthcare and any form of addiction or mental health problem other than psychosis. All study designs were eligible for inclusion with no restrictions on quality. Exclusion criteria were outcomes that were not related to clinical effectiveness or cost-effectiveness, focus on patients with psychosis (as this is unlikely to be treated in primary care settings), and studies in developing countries.

Study titles and abstracts were screened, and data extraction performed, by one reviewer (VJ). Two reviewers (VJ and AS) completed quality assessment independently with disagreements resolved by consensus. Only reviews scoring 8 or above on AMSTAR quality assessments were included.

Borrowing from an overview by Flodgren,⁴⁵ five categories of finance and payment schemes were created. Reviews on any of the following interventions were eligible for inclusion:

- *Salary or sessional payment* - for working a specified period of time
- *Fee-for-service* - payment for each episode, service or visit
- *Capitation* - payment for providing care for a patient or a special population
- *Target payments and bonuses* - payment for providing a pre-specified level or change in a specific behavior or quality of care
- *Mixed and other systems* – combinations of the above systems or unique systems

Results

Two reviews met revised inclusion criteria. The included reviews were high quality (10 on AMSTAR assessment) but they were quite different and are described narratively rather than synthesized qualitatively.

Scott (2011) conducted a Cochrane review on financial incentives to change primary care professional behavior but also attempted to link incentives with patient outcomes. The definition of ‘financial incentives’ in this review was based on a comprehensive list of categories of finance and payment methods and was thus relevant for this overview. The review included studies on smoking, diabetes, and screening according to guidelines. Health outcomes were reported in only two cluster RCTs on smoking cessation interventions in the US. These interventions included bonus or targeted payments and a mixed method of capitation for physicians in combination with free medications to dispense to patients. In the former study, the intervention resulted in increased rates of short-term abstinence (7 days) and intention to quit. In the latter study, 15% of patients in the intervention group were abstinent at 12 months compared to 3% in the control group. These results cannot be compared across studies because of the substantial heterogeneity of interventions. In addition both studies were low quality and the results should not be considered reliable.

Van Herck et al. (2010) reviewed P4P programs to improve quality of care. P4P was defined as “The use of an explicit financial positive or negative incentive directly related to providers’ performance with regard to specifically measured quality-of-care targets and directed at a person’s income or at further investment in quality improvement; performance measured as achievement and/or improvement”.⁴⁶ They located 111 evaluation studies in primary care settings, with the majority utilizing positive rather than negative incentives. A few RCTs were located but were not identified or analyzed separately. The majority of studies took place in Germany and UK, with the exception of acute and preventative care studies, which took place primarily in the US. The review collected a wide range of studies on both acute and chronic diseases as well as immunization rates. None of the studies included patients with mental health or substance use issues. Given these limitations, the relevance of study results for mental health and addictions can be inferred from smoking cessations studies and those on other chronic conditions, including diabetes, asthma, and heart disease. A wide range of outcome measures were used and primarily focused on objective, physiological measures. Effects of P4P were mostly positive across conditions with the exception of diabetes, which had equivocal effects in many studies. Due to the broad focus and inclusion criteria of this review, it is difficult to draw any conclusions about the effects of P4P on chronic conditions. A wide range of incentive programs was utilized across studies and the significant heterogeneity precluded meta-analysis.

Discussion

No systematic reviews or overviews were located on finance and payment methods for mental health and addictions problems in primary care settings, with the exception of two reviews on smoking cessation programs. The finance and payment methods in these reviews were bonus and targeted payments (e.g., P4P) and capitation along with free medications. The pattern across studies indicated a positive effect on smoking cessation compared to usual care, but the included studies suffered from methodological issues and incomplete analyses.

In conclusion, the evidence on finance and payment schemes on health outcomes is inconclusive for healthcare generally. There is insufficient evidence on finance and payment schemes for mental health and addictions problems.

Limitations

The reliability of the overview findings is limited because duplicate study selection and data extraction were not performed, creating the potential for relevant reviews to be missed. In addition a reviewer performed the expanded search strategies, rather than the medical librarian who performed the original searches. This was necessary due to time and resource constraints but again creates the potential for relevant reviews to have been missed.

The inclusion criteria were broadened in an attempt to locate any relevant research on finance and payment methods for healthcare. Consequently the findings of the overview are not based on research in primary care, for mental health and substance use issues, or on RCTs of interventions. The findings must be viewed with caution due to these limitations.

Implications for Research

More high-quality experimental or observational studies are needed to determine the clinical and cost-effectiveness of finance and payment methods for primary healthcare services and providers. Current research is limited by focusing on provider behaviors without linking these behaviors to patient outcomes. Mental health and addictions problems, other than tobacco smoking, are neglected topics in the field. Based on these findings, it appears that the current movement towards incentivizing quality of care is based primarily on theory and indirect measures (e.g., physician behaviors) rather than evidence of effectiveness.

Limitations to Overviews¹

This project was undertaken to add to research knowledge but also to meet the needs of policy and decision-makers who are working on solutions to problems with primary mental healthcare delivery in

¹ The overviews summary, conclusions, and implications for future research are located at the end of the document in the section titled 'Summary and Conclusions'.

Canada. This work was sponsored by the Mental Health Commission of Canada (MHCC) and was completed to provide maximum benefit to the MHCC in their work. To meet this goal, the four overviews of reviews were completed in 6 months. Systematic reviews often take 12-18 months to complete for one intervention or topic area, when the research team is working independently. It was rewarding to know that our research would be used immediately and addressed the need of our policy and decision-making partners, but it also required moving to a more streamlined and less thorough and intensive approach to completing these reviews.

In order to work within resource limitations, the decision was made at the outset to focus on systematic reviews of randomized controlled trials (RCT). RCTs are designed to eliminate or control for as many variables as possible other than those directly being investigated. Because of this, they are easier to combine quantitatively through meta-analytic techniques and can increase power substantially to detect significant effects. However, the interventions included in this review were often context-dependent, relying on different forms of technology or different practice environments, for example, which cannot be easily compared. Overall, it is a significant limitation of these overviews that RCTs and systematic reviews of RCTs may not be the most appropriate study designs for the interventions examined. However, systematic reviews of other types of designs, particularly qualitative designs which can better capture contextual variables, are time-consuming and complex to combine in a systematic way.⁴⁷ For this reason, the more commonly-used RCT design was chosen.

The search process was as exhaustive as possible to meet our time lines and was conducted with the help of an information scientist. It is possible, however, that important and relevant systematic reviews were missed due to the relatively short time frame for completing the project. For example, despite many hours of searching, it was not possible to search all available sources for grey literature. Instead, great literature was searched using snowball sampling methods. Lastly, only one review was located in French language-literature despite extensive searching. This review was low quality and not included in the analysis.

NARRATIVE REVIEWS

Narrative Review No. 1 – Supported Self-Management

Issue: Patients with mental health/substance use problems benefit from being involved in their own care and in some cases can resolve or improve their health problems through self-management and supported self-management.

Intervention: Supported self-management (SSM) (or guided self-care) is the assistance health professionals and other caregivers give individuals with mental disorders in order to encourage daily decisions that improve health-related behaviours and clinical outcomes. The aim of SSM is to help individuals acquire the knowledge and practical skills they need to build their sense of self-efficacy and manage their conditions more actively and effectively. This is usually achieved through the use of standardized tools (e.g., manuals or workbooks, online interactive programs, or structured group sessions) as well as improved collaborative partnerships with care providers.

Methods: The literature search was conducted in MEDLINE and PsycINFO using controlled vocabulary terms for mental disorders and addictions, as well as for self-management. Searches were limited to English or French-language peer-reviewed review articles published from 2000 to November 2011. The reference sections of key reviews were also examined. A total of 28 reviews were retrieved that were relevant for this narrative review.

Findings: There is a growing evidence base on the topic of self-management and SSM for mental disorders. Much of the evidence on self-management interventions focuses on cognitive behavioural therapy (CBT) as treatment modality, because interventions designed with CBT principles in mind have been shown to be more effective than those based on other approaches (e.g., educational models).⁴⁸ These interventions are often delivered using bibliotherapy (e.g., workbooks and other print media). The support component involves primary care practitioners to help individuals progress through the program, and increased support (i.e., SSM) has been associated with better outcomes than unsupported self-management.^{48, 49, 50, 51, 52}

Recent reviews have also compared SSM to face-to-face CBT for common mental disorders (e.g., anxiety, depression), finding that these two therapeutic approaches do not differ significantly in terms of their effectiveness, particularly when conditions are of mild to moderate severity.^{48, 51, 53} SSM has demonstrated modest to large effects on clinical outcomes for depression^{48, 54} and several anxiety disorders, including panic disorder, specific phobia and social anxiety disorder.^{44, 46, 50} Effectiveness of SSM for other anxiety disorders such as generalized anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder has not yet been established.^{44, 48} SSM also has shown to be beneficial for eating disorders^{55, 56} and use of unguided self-care approaches for alcohol abuse (i.e. risky drinking) has strong empirical support.^{57, 58} Additional research is needed to assess usefulness of SSM for substance abuse, bipolar and psychotic disorders, as well as appropriateness of the intervention for elderly populations and youth. Evidence suggests comparable effectiveness between written materials and computer-based approaches^{43, 44, 48} though authors note that choice of intervention modality should

take into consideration patient preferences and characteristics.^{53, 59, 60} Reviews addressing delivery of SSM in primary care settings suggest that an array of primary care practitioners can be effective at providing support for self-management, especially when adequately trained.^{50, 61}

Consensus: SSM should be considered as an early line of treatment for a range of mental disorders, particularly anxiety, depression and risky drinking. Current evidence strongly supports the use of CBT-based SSM, although SSM designed using other principles may also be effective. SSM can be effectively implemented by primary care practitioners and is an important treatment tool in primary care settings. More research is needed on other mental health and substance use issues.

Narrative Review No. 2 – Screening for Mental Health/Substance Use Problems in Primary Care

Issue: Mental health conditions may be overlooked, thereby missing the opportunity to introduce appropriate interventions earlier when they may be more effective and thus reduce morbidity associated with the condition.^{62, 63} Primary care is an appropriate setting for screening as it is the first and most regular point of contact with the health care system, as well as the gateway to more specialized treatment and support.^{64, 65}

Intervention: Screening refers to the application of particular tests or exams to detect a condition, before symptoms have been identified, among members of populations at risk.

Methods: The Medline and PsycINFO databases were searched for reviews, systematic reviews, or meta-analyses in English of studies involving human participants and published between January 2000 and September 2011. Terms searched in Medline included “mental disorders”, “mental health”, “substance-related disorders”, and “behavioral symptoms”, combined with “screen*”, “instrument*”, “tool*”, “checklist*”, or “chart*”. Terms search in PsychINFO included “mental disorders”, “emotional states” or “drug abuse” combined with “screening”, “drug usage screening”, or “health screening”. Those articles that were not reviews or meta-analyses, did not explicitly examine screening in primary care settings or that focused on post-partum depression were excluded, leaving 28 articles for inclusion.

Findings:

Children and youth.

A review by the US Preventive Services Task Force (USPSTF) of depression screening instruments⁶⁶ found insufficient evidence to draw conclusions regarding the effectiveness of these instruments in children, but found some effectiveness in adolescents.

Adults/Age unspecified.

A meta-analysis of one particular instrument (the Patient Health Questionnaire-9)⁶⁷ found good effectiveness in detection of depression, as did others examining self-report measures.⁶⁸ A number of reviews and meta-analysis supported the screening effectiveness of instruments such as the Alcohol Use Disorders Identification Test (AUDIT) and CAGE (e.g., Aertgeerts, Buntinx, & Kester, 2004; Fiellin, Carrington Reid, & O’Connor, 2000).

Seniors.

There is strong evidence supporting the effectiveness of instruments in detecting depression (e.g., the Geriatric Depression Scale; Mitchell, Bird, Rizzo, & Meader, 2010). The instrument most commonly used to detect dementia (the Mini-Mental State Exam) was found to be less effective than others designed for screening of cognitive impairment.^{69, 70, 71} Two reviews found support for the AUDIT and other instruments for detecting alcohol misuse in older adults.^{72, 73}

Other issues.

A meta-analysis of screening instruments for depression in adults found that the use of such tools did not impact detection or physician management in primary care settings.⁷⁴ Some reviews and meta-analyses found that screening programs must be followed by prompt diagnosis and appropriate treatment in order to positively impact patient outcomes (e.g., Beich, Thorsen, & Rollnick, 2003; Gilbody, Sheldon, & House, 2008; Hickie, Davenport, & Ricci, 2002; Iliffe et al., 2009; Mitchell & Coyne, 2007). Increased identification of cases may lead to greater demand on services and increased wait times. Failure to follow up with appropriate services in a timely way may lead to increased distress for individuals and their families, as may false positive results.⁶⁷

Consensus: A number of instruments are effective for detecting: depression in adolescents, adults and seniors; dementia in seniors; and alcohol misuse in adults and seniors. There is insufficient evidence related to screening instruments in children. Screening programs not accompanied by prompt diagnosis and appropriate treatment may lead to negative outcomes for patients and families. The USPSTF recommends against depression screening in primary care without staff-supported treatment, making the case for better integration of primary care and mental health care and funding mechanisms that support integration.^{75,76}

Narrative Review No. 3 - Provision of Feedback About Outcomes and Other Clinical Information

Issue: Strategies to reflect upon practice and make improvements accordingly are valuable tools for enhancing professional practice and the quality of care provided. However, it is important to know which approaches show the greatest promise for improving mental health care provider practices.

Intervention: Audit and Feedback involves furnishing providers with summaries of the results of their clinical interventions over a specific period of time.⁷⁷ This has been a longstanding approach to enhancing the quality of interventions, and thus the quality of healthcare.⁷⁸ The rationale of audit and feedback is that knowledge of the outcomes of one's interventions provides current performance information and generates motivation to improve.

Methods: A literature search was undertaken in MEDLINE, PsychINFO and the Cochrane Database of Systematic Reviews. The search included terms related to audit and feedback. Searches were limited to peer-reviewed articles published from 2000 through September 2011. See Appendix A for a detailed description of the search terms and databases accessed.

Findings: The search strategy identified 14 systematic reviews pertaining to audit and feedback. Only one review was specific to mental health care;⁷⁹ two were specific to primary health care.^{80, 81} All reviews concluded that the evidence for audit and feedback in terms of improving professional practice and patient outcomes is variable. These mixed results are attributed at least in part to differences in the specific features of feedback interventions.⁸² The audit and feedback process is influenced by multiple variables and the independent effect of these variables is not well studied.⁷² These include: the quality, intensity, specificity, mode, frequency and duration of feedback,^{72, 83, 84} the authority and credibility of the source of feedback; the nature and type of interventions and expected outcomes;⁸³ the level of baseline adherence to the targeted practice;⁸⁰ and the existence of other quality improvement initiatives.⁸³ At least two authors recommended development of theoretical models for audit and feedback in order to better conceptualize and understand the effects of these factors.^{81, 82} Others emphasized the importance of viewing audit and feedback as only one component of a systematic and integrated quality improvement system.⁸¹

Consensus: Audit and feedback as an isolated process has been demonstrated to have small to moderate impacts on professional practices and patient outcomes. That is, audit and feedback processes *can* change practices and outcomes, but are of variable effectiveness. Many factors influence the level of success of audit and feedback but little is known about the relative contribution of these factors. More research is needed to explore these in greater detail. Development of a theoretical model that incorporates these factors may help refine audit and feedback processes and enhance their efficacy in improving professional practices and patient outcomes. Research specific to audit and feedback processes in mental health services, and specifically in primary mental health care, is also needed. Audit and feedback might more appropriately be conceived as one mechanism of a comprehensive, systematic and integrated quality improvement system.⁸⁵

Narrative Review No. 4 – Inter-organizational collaboration

Issue: Comprehensive primary mental health care requires collaboration and coordination of services with other organizations and agencies such as family and social services, schools, and other community-based groups.

Intervention: Inter-organizational collaboration is a systems-level approach to providing services to people who are experiencing mental illness². Goals of collaborative efforts include improved effectiveness, avoidance of duplication, better sharing of information, greater involvement of service users in community-based services continuity of care, and smooth transition between services.⁸⁶ The degree of collaboration may vary from simple referral to other agencies and supports, to collaboration on specific aspects of service delivery (e.g., shared assessment processes), through to integrated planning and service delivery by multiple agencies. Because inter-organizational collaboration is a complex and dynamic process, appraisal of effectiveness requires sophisticated evaluation approaches.

Methods: A literature search was undertaken in MEDLINE and PsycINFO. The search included controlled vocabulary terms for mental illness and addictions as well as terms related to inter-agency collaboration. Searches were limited to peer-reviewed articles published from 2000 through September 2011. An initial search revealed no systematic reviews for this topic. A second search was completed in MEDLINE using new terms identified in the initial search. See Appendix A for a detailed description of search terms and databases accessed.

Findings: The review identified two systematic reviews of the Systems Of Care (SOC) model of wraparound services and one practice parameter for SOC that was based on an extensive literature review and clinical consensus. The SOC model^{87, 88, 89, 90, 91} is a principles-based approach that has been widely implemented in the US to serve children and youth who are experiencing serious mental health issues. The recovery-oriented SOC model emphasizes unique, tailored approaches to each person, making evaluation difficult. The two systematic reviews concluded that although the research base is expanding and the results to date are largely positive, it is nevertheless in a preliminary state of development and there are insufficient data to support the value of the wraparound approach.^{83, 85} As new multidimensional evaluation approaches are developed, empirical support may grow.⁸³ Papers that identified other models of collaboration, such as integrated service delivery, typically concluded there is insufficient evidence to assess effectiveness. However, there are some promising findings. Miller and Cameron,⁸² for example, reviewed the literature about shared inter-agency assessment across the United Kingdom and concluded there is limited evidence for improved communication, service user and caregiver involvement, and improved partnerships. Fleury⁹² reviewed existing literature and studied integrated service networks in Quebec and concluded that more research is required to determine effective models and strategies for developing these networks.

² For purposes of this review, inter-organizational and inter-agency collaboration are considered distinct from integrated services (e.g., medical care and behavioural services) provided within the same primary health care setting.

Consensus: More research is required to understand how inter-organizational collaboration in primary mental health care can be most effectively achieved, and what collaborative arrangements yield the most positive outcomes for people experiencing mental illness.

Narrative Review No. 5 – Prompts

Issue: Non-attendance at mental health related appointments can result in: increased cost of care and longer wait times for other patients;^{93, 94} missing of medication doses and delay in relapse identification;⁸⁹ deterioration of mental state;^{95, 96} and compulsory hospital admission.⁹⁷

Intervention: Prompts have been used to reduce non-attendance, encourage follow-up care and provide medication reminders.^{89, 98} Prompts may be delivered via telephone,⁹⁹ home visits,¹⁰⁰ reminder or referral letters,¹⁰¹ financial incentives¹⁰² or automated interactive voice response (IVR) systems.¹⁰³

Methods: A literature search was undertaken in the following databases: MEDLINE, EMBASE, PsycINFO. The search included controlled vocabulary terms for mental illness and addiction as well as for patient scheduling and reminders. Since the concept of *follow-up appointments* does not have its own subject heading, it was also searched as a keyword. Searches were limited to English-language peer-reviewed articles published between 2000 and September 2011.

Findings:

Mental Illness

The effectiveness of prompts in increasing attendance for individuals with mental disorders has been studied in a limited number of trials. Rowett, Reda, and Makhoul (2010) carried out a systematic review of randomized or quasi-randomized studies comparing the use of prompts in mental health care, drawing upon three trials, with a total sample of 597. This review found: (a) a lack of clarity as to whether there are significant differences in attendance between those prompted by telephone and those receiving standard appointment management; (b) text-based prompts received by a client a few days prior to an appointment increase attendance rates compared to no prompt. Swenson and Pekarik (1988) suggested that receiving a short encouraging letter one day before the appointment might be more effective than a telephone prompt; but the result did not reach statistical significance. Jayaram, Rattehalli, and Kader (2008) utilized a before-and-after design that used prompting letters to decrease non-attendance rates by patients in a community mental health setting: compared to the previous year, non-attendance rates declined significantly. Kitcheman et al. (2008) carried out a pragmatic randomized controlled trial in outpatient mental health clinics, sending out orientation letters prior to a first outpatient clinic appointment: this prompt significantly reduced non-attendance rates. MacDonald, Brown, and Ellis (2000) carried out a controlled prospective study of telephone prompts to improve attendance in a mental health center: they found that the prompt significantly improved attendance. Post, Cruz, and Harman (2006) studied the effect of small incentive payments (\$10) on attendance for depression treatment in a sample of low income individuals: they found significantly improved attendance for those receiving financial incentive compared to those who did not.

Alcohol Misuse

Jackson, Booth, Salmon, and McGuire (2009) studied the effect of telephone prompts on attendance at an alcohol treatment clinic: prompted clients were more likely to start treatment and attend sessions

than those not prompted. Mundt, Moore, and Bean (2006) conducted a feasibility study of interactive voice response systems to increase attendance, and concluded that this might well be a feasible way of delivering prompts.

Consensus: No clear guidance can be provided regarding the overall value of prompts or the conditions under which they should be utilized. The reviewed studies do suggest that prompts improve attendance rates, are easy to apply and may generate significant cost offset. But it must be noted that prompts may also be seen as intrusive. A key challenge for the practitioner is to find a balance between an individual's autonomy and privacy versus the propensity of mental illness to erode insight and cause deterioration in health status and quality of life.

Narrative Review No. 6 – Psychoeducation for patients and families

Issue: Psychoeducation has been used, with pharmacotherapy, to reduce relapse, improve adherence and support recovery in those living with mental illness. Should it be part of routine care?

Intervention: Psychoeducation supports persons with mental illness and/or their family members by increasing their understanding of mental illness, the impact of mental illness on daily life, medication use, management of mental health problems, identification of personal strengths, provision of information about relevant resources and encouragement to advocate for themselves.

Methods: The literature search included biomedical and social sciences databases, such as MEDLINE and PsycINFO. The searches included controlled vocabulary terms (for example, the Medical Subject Headings [MeSH] terms “Mental Disorders”, “Emotional States”, “Drug Abuse* or “Patient Education”, “Psychoeducation”, to name a few). Searches were limited to English language publications, systematic reviews of the evidence, and articles that were published from January 2000 to September 2011.

Findings:

Bipolar Disorder

Psychoeducation (used in combination with pharmaceutical therapy) is: cost effective; reduces relapse of bipolar symptoms; improves medication adherence and reduces hospitalization.¹⁰⁴⁻¹¹⁴ Successful psychoeducation focuses upon acceptance of mental disorders, identification of the signs of relapse, effective communication, and healthy sleep and activities.¹⁰¹ Fountoulakis, Gonda, Siamouli, and Rihmer (2009) found that psychoeducation programs effective in reducing suicide risk in bipolar disorder are tailored to whether the person is in an acute, stabilization or maintenance phase, and build problem-solving abilities and tolerance for stress. Cognitive behaviour therapy strengthens the ability to detect early warning signs of relapse.^{100, 108, 109, 115, 116} One review concludes that there is insufficient information to determine the effectiveness of family oriented psychoeducation programs;¹¹⁷ another review concludes that such programs show comparable effectiveness to other types of psychoeducation;¹⁰⁰ and two other reviews conclude that this form of psychoeducation is particularly beneficial for reducing relapse.^{105, 109} Group psychoeducation is cost effective and best introduced during the recovery stage.^{100, 105, 106, 112}

Other Findings

Two reviews of medication adherence^{102, 103} agreed that psychoeducation improves rates of treatment compliance. Two reviews^{118, 119} found that psychoeducation had no impact on hospital readmission rates; but Xia, Merinder, and Belgamwar (2011) found that relapse and readmission were lower for persons with schizophrenia who received psychoeducation. A review by Barsevick, Sweeney, Haney, and Chung (2002) found that psychoeducation improved the mental health of persons with cancer and depression. A review by Ong and Caron (2008) found that psychoeducation for parents of children with mood disorders has not been adequately evaluated. A review by Montoya, Colom, and Ferrin (2011)

found that psychoeducation improved medication adherence, child and parent satisfaction, children's knowledge of ADHD and opinion of medications.

Consensus: The available evidence suggests that psychoeducation is cost effective, improves medication adherence and reduces relapse rates. More research into the effectiveness of specific types of psychoeducation (e.g., individual, family or group based) is needed to develop clear guidelines for the use of psychoeducation in clinical practice.

SUMMARY AND CONCLUSIONS

The overviews and narrative reviews uncovered a number of high-quality research reports on ten collaborative care interventions applicable to Canadian primary mental health care. Overall, there was sufficient evidence on some of the interventions to indicate their effectiveness at improving symptoms and treatment adherence. There is less evidence to support effectiveness in terms of costs and quality of life. A number of the interventions selected for review did not have sufficient evidence to draw conclusions and are areas where additional research is needed.

The overviews and narrative reviews identified the following commonalities:

- In primary mental health care, most research focuses on depression, anxiety disorders and risky drinking. A number of collaborative care interventions are effective at treating these issues in primary care settings. The effects however are not uniform across diagnoses.
- Most high-quality research located in this review measured symptom changes, followed by treatment adherence and cost-effectiveness. Quality of life is an important measure for chronic illnesses but was not included in most studies.
- There is a lack of evidence of effectiveness of collaborative care interventions for most substance use issues and mental health issues other than depression, anxiety and alcohol use.
- There is little evidence of the applicability of these interventions for child and youth populations.

The following interventions were the subject of high-quality research that allows for some conclusions to be drawn regarding clinical and cost-effectiveness:

- Inter-professional collaboration is an effective means of improving patient outcomes. Coordinated care (by distance) or co-located care had similar effects. Model choices can be tailored to the province, region, community, etc.
- Telehealth can be used to facilitate access to mental health specialists and/or primary care providers, or it can be used to reduce the need for these services. Both goals can be achieved effectively but are dependent on patient preferences and to some extent on diagnosis (i.e. psychotherapy via telephone is preferred by people with anxiety).
- CBT-focused supported self-management (SSM) is clinically effective and cost-effective for many patients with mental health and substance use problems. SSM is ideally implemented within stepped-care interventions so that patients who do not benefit are transitioned to more intensive interventions.
- Screening for mental health and substance use problems is only helpful when treatments are accessible for diagnosed problems. Financing of stand-alone screening programs is unlikely to be cost-effective or result in positive health outcomes without complementary financing to ensure availability of treatments.
- Prompts from providers to patients regarding appointments and medications are clinically effective and cost-effective but may be considered intrusive. Patient preferences for privacy must be considered when implementing a program of prompts.

- Psychoeducation is generally clinically and cost-effective but more research is needed on effectiveness of various psychoeducation approaches (e.g., individual, family or group-based)

The following areas were identified as having significant gaps in the evidence base:

- Integrated care (a model of inter-professional collaboration) is understudied and the effects are mixed and inconsistent, in large part due to issues of language and model description, and variations in model implementation.
- Enhanced referrals are typically not implemented systematically; however, the movement to electronic health records holds promise for standardizing and enhancing the referral process. Unfortunately, the evidence on referrals based on EHRs is inconclusive regarding patient outcomes, processes, and cost-effectiveness.
- Finance and payment methods need to be explored to facilitate collaborative care for mental health and substance use issues. Payment approaches are needed to compensate mental health and substance use specialists in collaborative relationships. Several models are under-studied. In this area, research on 'quality' of care measures guideline adherence and neglects measures of clinical effectiveness.
- Provision of feedback can be effective at changing provider behaviors and patient outcomes but evidence is inconsistent due to variable methods of implementation.
- Inter-organizational collaboration is an approach to creating more comprehensive services. Currently there is insufficient evidence on effectiveness for models of inter-organizational collaboration.

In conclusion:

- There is high-quality evidence that some collaborative care interventions are effective at improving symptoms and treatment adherence, while a smaller amount of studies indicate effectiveness in terms of quality of life and costs.
- Interventions with the strongest evidentiary support include: coordinated and co-located care (models of inter-professional collaboration), telehealth, supported self-management, psychoeducation, and prompts from providers to patients.
- Interventions with inconsistent, weak or mixed evidence include: integrated care (a model of inter-professional collaboration), enhanced referral systems, finance and payment methods, provision of feedback and inter-organizational collaboration.
- Screening for mental health and substance use problems is ineffective at improving health when implemented as a stand-alone intervention. For health benefits to be realized, appropriate treatments must be provided to patients diagnosed with mental health and substance use issues

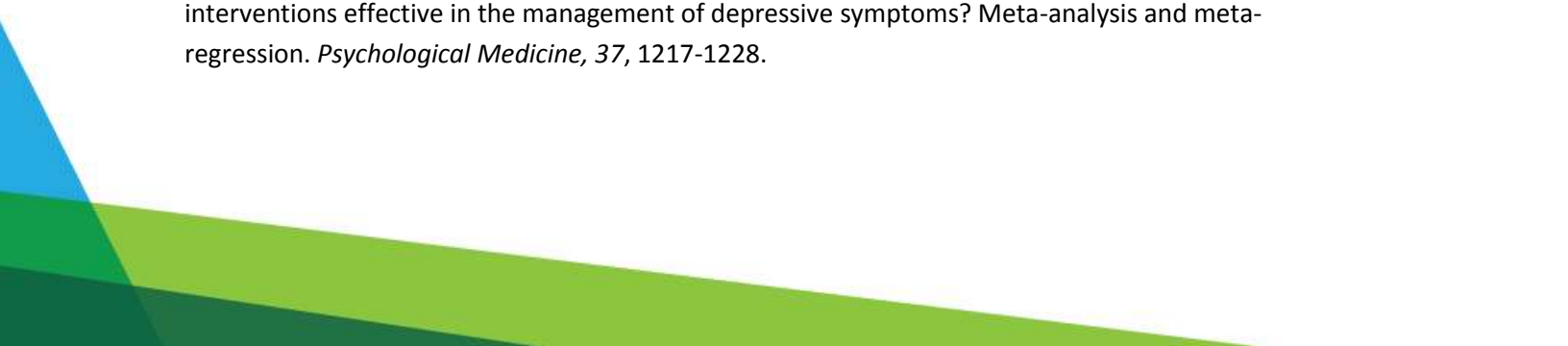
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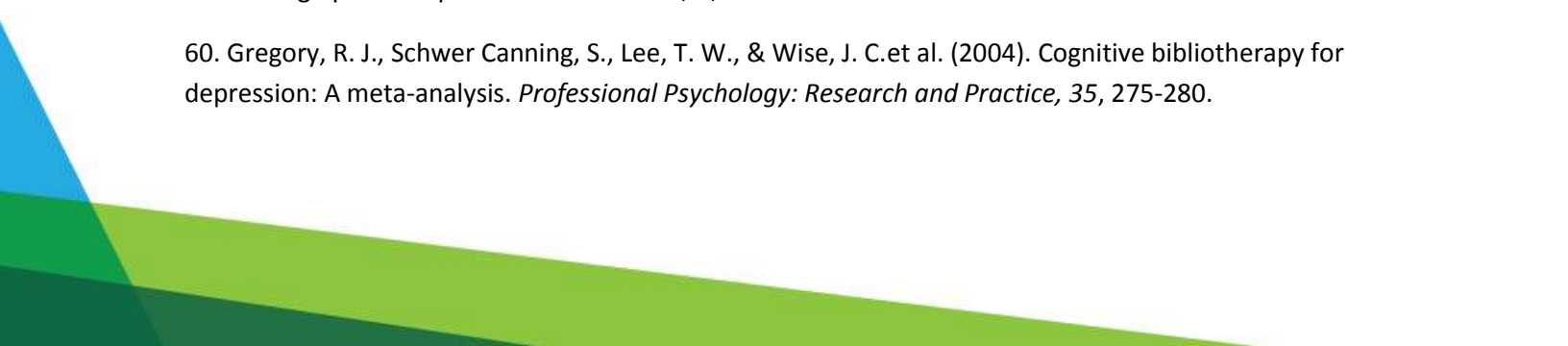
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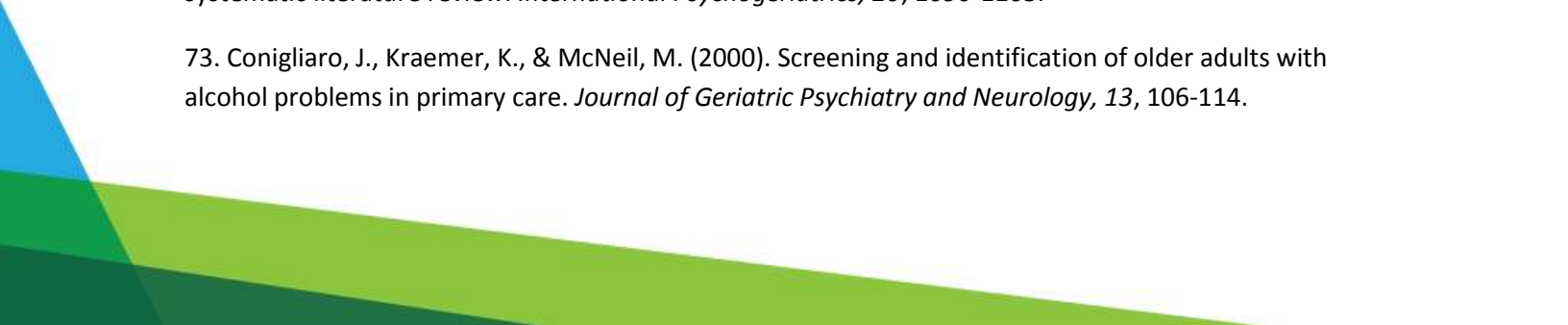
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Appendix A

Search Strategies

MEDLINE

Base Mental Illness/Addictions Search Strategy:

1. exp Mental Health/
2. exp Mental Health Services/
3. exp Mental Disorders/
4. exp Alcohol Drinking/
5. exp Substance-Related Disorders/
6. exp Drug-Seeking Behavior/
7. behavioral symptoms/ or exp affective symptoms/ or exp depression/ or exp mental fatigue/ or exp obsessive behavior/ or exp paranoid behavior/ or exp self-injurious behavior/ or exp stress, psychological/
8. exp Impulsive Behavior/
9. Risk-Taking/
10. (risky drink* or problem drink* or alcohol* or liquor).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier]
11. (mental illness* or mental disorder* or mentally ill).mp.
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11

Enhanced Referral Systems string

1. "Referral and Consultation"/
2. exp "Appointments and Schedules"/
3. exp Management Information Systems/
4. Information Systems/
5. exp Medical Records Systems, Computerized/

6. (enhanced referral or integrated referral or referral model*).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier]

7. 1 or 2 or 3 or 4 or 5 or 6

Results when combined with base mental illness string and limits: 1027

Telehealth string

1. Telemedicine/

2. telecommunications/ or exp electronic mail/ or exp telephone/ or exp videoconferencing/

3. exp Internet/

4. Online Systems/

5. exp Computers/

6. (telemedicine or tele-medicine or telehealth or tele-health or telepsych* or tele-psych*).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier]

7. 1 or 2 or 3 or 4 or 5 or 6

Results when combined with base mental illness string and limits: 639

Finance and Payment Methods String

1. financial support/ or health planning support/

2. exp "Fees and Charges"/

3. exp Financing, Organized/

4. Managed Care Programs/

5. exp Reimbursement Mechanisms/

6. exp Physician Incentive Plans/

7. (comprehensive payment or capitation or resource-based relative value scale or RBRVS or compensat* or global payment or packed pricing or microcapitation or risk-based contracting or bundled payment* or episode-of-care payment* or comprehensive care payment* or episode-based payment or reimburs* or financ* or physician incentive plan*).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier]

8. 1 or 2 or 3 or 4 or 5 or 6 or 7

Results when combined with base mental illness string and limits: 2091

Inter-professional Collaboration String

1. exp Patient Care Planning/
2. exp Interprofessional Relations/
3. exp Interdisciplinary Communication/
4. exp Cooperative Behavior/
5. exp Behavioral Medicine/
6. exp Health Services Accessibility/
7. exp Patient-Centered Care/
8. exp Physician-Patient Relations/
9. exp Nurse-Patient Relations/
10. exp Patient Care Team/
11. (collaborative care or coordinated care or co-location or shared care or medical home or integrated care).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier]
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11

Results when combined with base mental illness string and limits: 4423

EMBASE

Base Mental Health Search

1. exp mental health/
2. exp mental health service/
3. exp mental health care/
4. exp mental disease/
5. exp drinking behavior/
6. exp drug abuse/
7. exp stress/

8. exp automutilation/

9. exp high risk behavior/

10. (risky drink* or problem drink* or alcohol* or liquor).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

11. (mental illness* or mental disorder* or mentally ill).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11

13. exp primary health care/

14. 12 and 13

Enhanced Referral Systems String

1. exp patient referral/

2. exp patient scheduling/

3. information system/ or exp clinical data repository/ or exp computerized provider order entry/ or exp decision support system/ or exp electronic medical record/ or exp hospital information system/ or exp medical information system/ or exp nursing information system/

4. (enhanced referral or integrated referral or referral model*).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

5. 1 or 2 or 3 or 4

Results when combined with base mental illness string and limits: 125

Finance and Payment Methods String

1. exp mental health/

2. exp mental health service/

3. exp mental health care/

4. exp mental disease/

5. exp drinking behavior/

6. exp drug abuse/

7. exp stress/
8. exp automutilation/
9. exp high risk behavior/
10. (risky drink* or problem drink* or alcohol* or liquor).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
11. (mental illness* or mental disorder* or mentally ill).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13. exp primary health care/
14. 12 and 13

Results when combined with base mental illness string and limits: 1835

Telehealth String

1. exp telemedicine/
2. exp telecommunication/
3. exp Internet/
4. exp e-mail/
5. exp online system/
6. exp computer/
7. exp telepsychiatry/ or exp teleconsultation/
8. (telemedicine or tele-medicine or telehealth or tele-health or telepsych* or tele-psych*).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8

Results when combined with base mental illness string and limits: 274

Interprofessional String

1. exp telemedicine/
2. exp telecommunication/
3. exp Internet/
4. exp e-mail/
5. exp online system/
6. exp computer/
7. exp telepsychiatry/ or exp teleconsultation/
8. (telemedicine or tele-medicine or telehealth or tele-health or telepsych* or tele-psych*).mp.
[mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8

Results when combined with base mental illness string and limits: 3058

Cochrane Database of Systematic Reviews

Hand-searched in the categories of Child Health; Consumers and Communication; Dementia and Cognitive Improvement; Depression, Anxiety and Neurosis; Developmental, Psychosocial and Learning Problems; Drugs and Alcohol; Health Care of Older People; Primary Health Care; Schizophrenia.

DARE

1. (addict* or alcohol* or substance or drug abus* or drug us*).ti,kw.
2. (mental disorder* or mental health or mental illness* or mentally ill or schizophreni* or depress* or anxi* or bipolar or eating disorder* or anorex* or bulimi* or dementia or Alzheimer*).ti,kw.
3. 1 or 2

Number of results: 1442

Health Technology Assessment Database

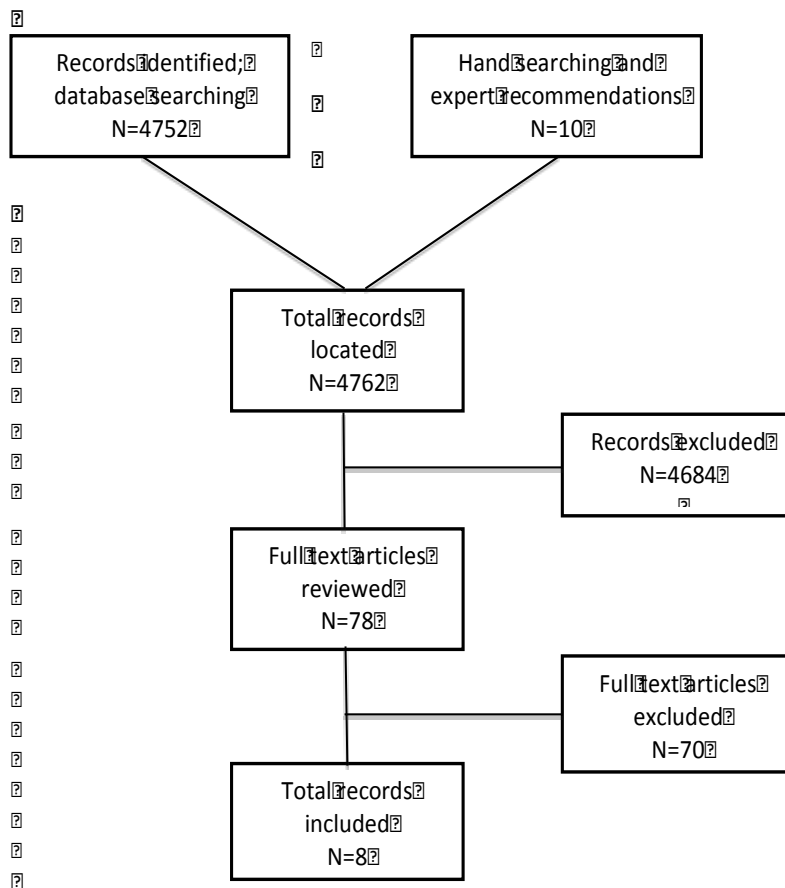
As this database uses Medical Subject Headings, I just re-ran my MEDLINE base mental health search string. I did not add in the other strings, as the HTA database is very small, and I did not want to risk excluding relevant results with a too-specific search strategy. I then limited to English or French (database does not allow to limit to years, reviews, etc.)

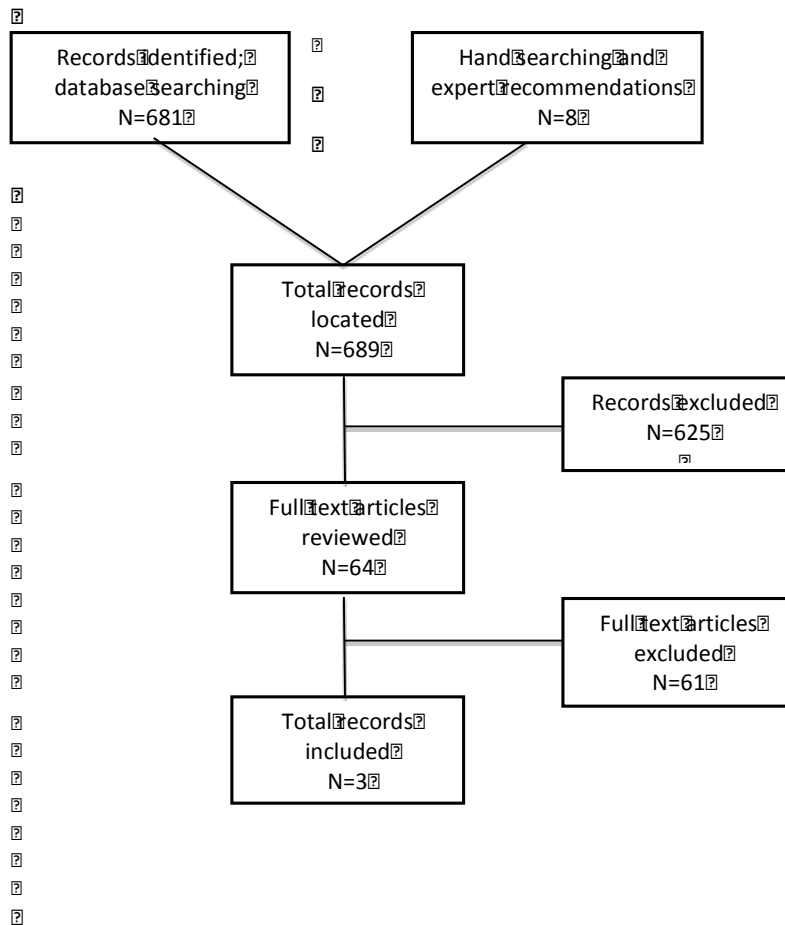
Number of results: 515

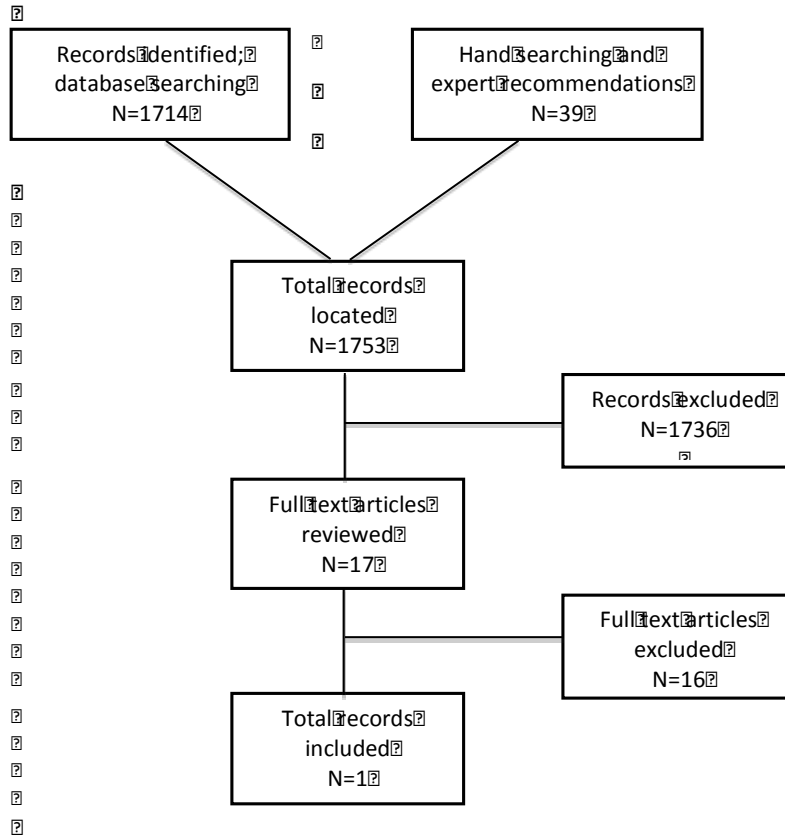
Appendix B

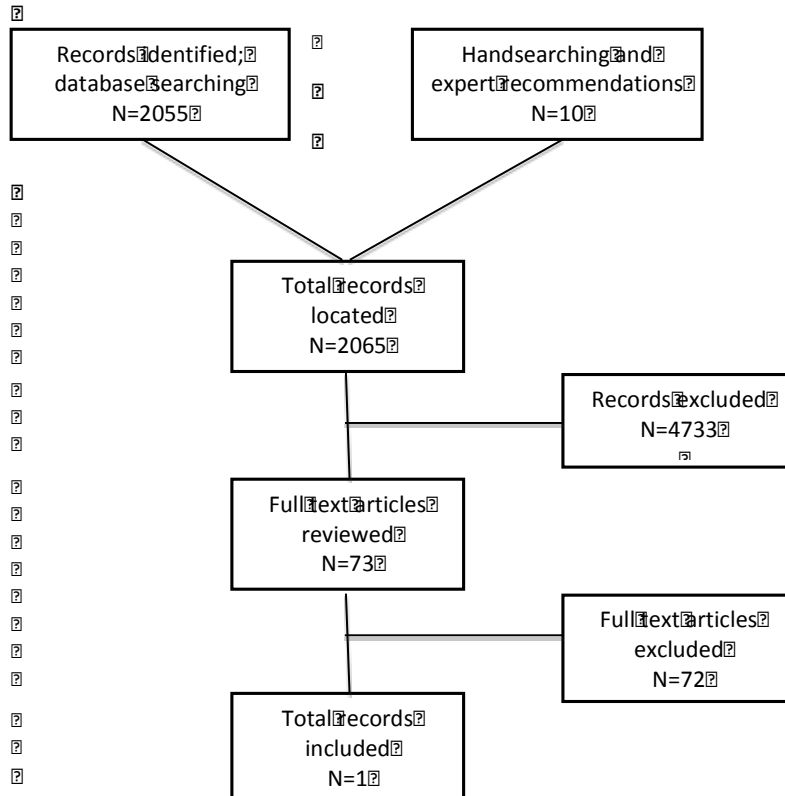
PRISMA Flow Charts

Flow Chart 1: Inter-professional Collaboration



Flow Chart 2: Telehealth

Flow Chart: Enhanced Referral Systems

Flow Chart: Finance and Payment Methods

Appendix C

Characteristics of Included Studies, organized according to AMSTAR rating.

Inter-professional Collaboration

	Objective	Number and design of studies ³	Interventions	Countries	Participants ⁴	Outcomes ⁵⁶	AMSTAR Quality (out of 11)
Smith (2007)	To determine the effectiveness of shared-care health service interventions designed to improve the management of chronic disease across	5 cluster RCTs 3 patient-level RCTs	A defined, shared-care service provided by primary and specialty care practitioners	Not provided.	Adults with depression or chronic mental illness.	Remission. N = 2642. RR = 1.49, CI: 0.92-2.43, I ² = 95% Treatment adherence.	11

³ Only studies relevant to the outcomes of interest are listed. In most cases, reviews included additional, non-relevant studies.

⁴ Sample sizes and length of follow-up noted when available.

⁵ SMD = Standardized mean difference, OR = odds ratio, RR = risk ratio, ES = effect size. Higher effect sizes indicate improvement unless otherwise noted.

⁶ Control group is usual care unless otherwise noted.

	the primary-specialty care interface.					<p>N=2776</p> <p>RR = 1.29, CI: 1.21-1.36, I² = 0%</p> <p>Incremental cost-effectiveness per depression-free day.</p> <p>\$24 - \$35</p>	
Chang-Quan (2009)	To determine the effective components and the feasibility of collaborative care interventions (CCIs) in the treatment of depression in	3 cluster RCTs; only 2 cluster RCTs were pooled.	CCIs were defined as the models of care in which both mental health providers and the primary care providers were included.	USA (2 RCTs) UK (1 RCT)	Older people (>60 years) with depression. N = 2399. Follow-up of 3-4 months, 6-8 months and 12	1) 50% reduction in symptoms and 2) remission of depression. 3-4 month follow-up.	10

	older patients.				months	1) OR = 2.28, CI: 1.55 – 3.35 2) OR = 2.30, CI: 1.24-2.55 6-8 month follow-up. 1)OR = 1.95, CI: 1.53-2.48 2) OR = 1.79, CI: 1.67-2.44 12 month follow-up 1)OR = 2.30, CI: 1.03-5.15 2)OR = 2.57, CI: 1.61-3.33	
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Gruen (2009)	To undertake a descriptive overview of studies of specialist outreach clinics and to assess the effectiveness of specialist outreach clinics on access, quality, health outcomes, patient satisfaction, use of services, and costs.	3 RCTs included in meta-analysis.	Psychiatric outreach to primary care practices. Basic collaboration on-site and at a distance.	USA	Adults with depression, persistent major depression, and panic disorder	Treatment adherence. RR = 0.62, CI: 0.49-0.78. Chi2=0.82, df=2, P=0.67	10
Bower (2006)	To use meta-regression to identify 'active ingredients' in collaborative care models for depression in primary care.	28 RCTs with data on antidepressant use; 34 RCTs with data on depressive symptoms	Care delivered by primary care provider, mental health specialist and case manager. Tested mix of case manager variables.	USA (27 RCTs) UK (4 RCTs) Sweden (1 RCT) Chile (1 RCT) The Netherlands	Adults with depression, some co-morbid conditions.	Depression symptoms. SMD = 0.24, CI: 0.17-0.32, I ² = 54%	9

				(1 RCT)		Treatment adherence. OR = 1.92, CI: 1.54-2.39, I ² = 80%	
Van der Feltz-Cornelis (2010)	To review systematically the effects of consultation by a psychiatrist actually seeing the patient, resulting in advice to the family physician in the primary care practice setting, vs. usual care, and perform a meta-analytic synthesis.	6 RCTs on depression 4 RCTs on somatoform disorders. RCT by type of intervention. 1) 4 RCTs 2) 4 RCTs 3) 2 RCTs	(1) Integrated care (2) Co-location (3) Basic collaboration at a distance.	Not provided.	Adults with depression or somatoform disorders	Depression symptoms (somatoform symptoms not measured). Results for depression symptoms were not broken down by type of model. The overall effect of psychiatric consultation was small.	9

						ES = 0.253, CI: 0.111-0.396	
Van Steenberg-Weijenberg (2010)	This review therefore evaluates the cost-effectiveness of collaborative care for major depressive disorder in primary care.	8 RCTs on costs per depression-free days. 4 RCTs reported costs per Quality Adjusted Life Years (QALYs).	Stepped collaborative care with a care manager, primary care provider and mental health specialist	USA (7 RCTs) Chile (1 RCT)	Adults diagnosed with major depressive disorder. Follow-up from 6-24 months.	Results are descriptive in nature. All studies claimed that collaborative care for the treatment of depressive disorder is more effective than care as usual in terms of depression-free days and QALYs.	9
Cape (2010)	To assess the effectiveness of	5 RCTs total; 2 cluster RCTs and 3	Consultation-liaison was defined as an intervention where	Italy (1 RCT) Taiwan (1	Adult patients with depressive	Depression symptoms.	8

	consultation-liaison services, involving mental health professionals working to advise and support primary care professionals in the management of depression.	individual RCTs	patients were seen once or twice by a mental health professional for assessment (consultation), and with advice to the primary care professional about management (liaison), where no treatment was provided by the mental health professional.	RCT) UK (1 RCT) USA (2 RCTs)	disorders (1 RCT), high levels of depressive symptoms (3 RCTs) and distressed high utilizers of care (1 RCT). N=1,065	Short-term (less than 12 mos.). ES = -0.04, CI: -0.21-0.14, I ² = 0% Long-term (more than 12 mos.). ES = 0.06, CI: -0.13-0.26, I ² = 0% Treatment adherence RR = 1.23, CI: 0.91-1.66, I ² = 53.6%	
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Foy (2010)	To assess the effects of interactive communication between collaborating primary care physicians and key specialists on outcomes for patients receiving ambulatory care	11 RCTs total; 6 cluster RCTs and 5 patient-level RCTs	Patients treated in primary care, with interactive communication with a collaborating psychiatrist. Several studies took place in 'integrated health systems' although authors specifically excluded studies based on co-location. This is coordinated care.	USA (8 RCTs) The Netherlands (2 RCTs) Canada (1 RCT)	Adults with depression (9 RCTs) Adults with various mental health problems (1 RCT) Adults with distress (1 RCT) Length of follow-up: 2 – 36 mos.	Depression symptoms ⁷ ES = -0.41, CI: -0.73 to -0.10, I ² = 91%	8
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⁷ Negative effect size indicates improvement.

Telehealth

	Objective	Number and design of studies	Interventions	Countries	Participants	Outcomes	AMSTAR Quality (out of 11)
Bee (2008)	To determine the effectiveness of remotely communicated therapist-delivered psychotherapy	11 RCTs and 2 quasi-RCTs	Any form of remote communication to deliver one-to-one psychotherapy Modalities: Telephone (10) Internet (2 RCTs) Videoconference (1 RCT) Comparisons for analysis: 1. Remote communication therapy vs.	US (8 RCTs) UK (2 RCTs) The Netherlands (2 RCTs) Canada (1 RCT)	Adults with depression N = 7 RCTs Children with depression N = 1 RCT Adults with anxiety N = 5 RCTs Follow-up was dichotomized into short-term (0- 6 mos) and long-term (7 months and over).	Depression and anxiety symptoms. Only results for comparison group #1 were reported. Depression: ES = 0.44, CI: 0.29-0.49, I ² = 0.0% Anxiety: ES = 1.15, CI: 0.81-1.49, I ² =	10

			<p>waitlist or usual care,</p> <p>2. remote communication therapy vs. conventional therapy</p> <p>3. different types of remotely communicated therapy.</p>			0.0%	
Rooke, et al. (2010)	To quantify the overall effectiveness of computer-delivered interventions for alcohol and tobacco use.	<p>34 RCTs with effect sizes;</p> <p>20 RCTs on alcohol use, 10 RCTs on tobacco use</p> <p>Some studies are apparently cluster RCTs but these are not identified. Also no</p>	Moderators of computer delivered interventions	Unclear	Adults with alcohol or tobacco use N=10,632.	<p>Overall effectiveness for alcohol use:</p> <p>ES = 0.22, CI: 0.14-0.29, non-significant Q</p> <p>Level of therapist</p>	9

		mention of correction for unit-of-analysis				<p>contact:</p> <p>Minimal</p> <p>ES = 0.23, CI: 0.16-0.31, non-significant Q</p> <p>Non significant effects for moderate or major contact</p> <p>These findings are likely negatively biased because ES for tobacco use were much lower than for alcohol</p>	
Andersson (2009)	To summarize the effects of computerized and internet-based treatments for	12 RCTs with effect sizes; 8 RCTs included some form of	Methods of therapist support included email (3 studies),	US (5 studies); The Netherlands (4 studies);	Adults with depression or anxiety n = 2446	Internet-based ES = 0.37, CI: 0.24-0.49, I ² = 54%	8

	depression and to investigate characteristics of studies related to the effects.	therapist contact.	Telephone calls by practitioners (1 study), unspecified help (3 studies), postcards (1 study), unspecified asynchronous contact (1 study)	Sweden, UK, Australia (1 each)	Older adults (1 RCT) N=126 Young adults (1 RCT) N=263	Computer-based Professional support No support	ES = 0.85, CI: 0.27-1.43, I ² = 61% ES = 0.61, CI: 0.45-0.77, I ² = 24% ES = 0.25, CI: 0.14-0.35, I ² = 10%
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Enhanced Referral Systems

	Objective	Number and design of studies	Interventions	Countries	Participants	Outcomes	AMSTAR Quality (out of 11)
Black (2011)	To conduct a systematic review of systematic reviews assessing the effectiveness and consequences of various eHealth technologies on the quality and safety of care.	55 systematic reviews	Two dimensions of eHealth (and specific categories within): Data storage, management and retrieval systems (Electronic Health Records, Picture Archiving and Communication Systems); Supported Clinical Decision Making (computerized provider or physician order entry,	Not provided.	Relevant to referrals: Electronic health records: 11 reviews Computerized provider or physician order entry: 11 reviews	Impact on patients, providers or organizations. None specifically on referrals. However, overall results indicated that there is weak and inconsistent evidence that eHealth improves quality of care or cost-effectiveness. This is especially interesting in the case of EHRs because	11

			ePrescribing, computerized decision support systems)			a number of studies find that they are effective. The authors however believe that these studies mostly assessed sub-components rather than EHRs directly.	
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Finance and Payment Schemes

	Objective	Number and design of studies	Interventions	Countries	Participants	Outcomes	AMSTAR Quality (out of 11)
Scott (2011)	<p>To examine the effects of changes in the method and level of payment on the quality of care provided by primary care physicians and to identify:</p> <ol style="list-style-type: none"> 1. the different types of financial incentives that have improved quality 2. The characteristics of patient populations for whom 	2 cluster RCTs relevant	<ol style="list-style-type: none"> 1. Bonus payments vs. enhanced access to interventions vs. usual care 2. Mixed (capitation, free meds for patients) 	US (2 RCTs)	Smoking cessation	<p>Results are descriptive in nature.</p> <ol style="list-style-type: none"> 1. Patient smoking cessation behavior 2. Smoking abstinence at 12 months <p>The two smoking studies with patient outcomes found higher rates of intention to</p>	10

	<p>quality of care has been improved by financial incentives</p> <p>3. The characteristics of PCPS who have responded to financial incentives</p>					<p>quit and short-term abstinence, and 12% more patients abstinent at 12 months compared to control.</p>	
<p>Van Herck (2010)</p>	<p>To summarize evidence concerning P4P effects on clinical effectiveness, access and equity, coordination and continuity, patient-centeredness, and cost-effectiveness</p>	<p>128 evaluation studies, 111 in primary care, 9 RCTS not analyzed separately</p>	<p>Pay-for-performance (target and bonus payments)</p>	<p>Majority in UK and Germany</p>	<p>Wide range of chronic or acute conditions and immunization rates</p>	<p>Clinical effectiveness varied widely depending on context, location and methodology.</p> <p>Authors suggest that overall clinical effectiveness improved by 5% across</p>	<p>10</p>

						studies. Cost-effectiveness demonstrated in 4 studies	
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