Collaborative Care Literature Review

Addiction & Mental Health in Primary Care

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Project sponsors

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Introduction

Objectives

The goal of this literature review was to gather information related to collaborative care to support the development of collaboration addiction and mental health (AMH) services, and primary care teams. Specifically, the objectives of this review were to address the following questions:

1. What is collaborative care?
2. What are collaborative care best practices?
3. What contributes to the effectiveness of collaborative care teams?
4. What is the impact of collaborative care on patient outcomes?
5. What is the impact of collaborative care on organizational outcomes?
6. How can Telehealth be used to support collaborative care teams?

Methods

Academic literature searches were conducted in the following electronic databases: CINAHL, EBM Reviews (including Cochrane DSR, ACP Journal Club, Dare, CCTR, CMR, HTA, and NHSEED), Embase, Emerald Management Xtra, Google Scholar, MEDLINE, PsychINFO, ProQuest Public Health, and PubMed. Search terms relating to the aforementioned research topics were used (Appendix A). The search was limited to peer-reviewed articles from the last 11 years (2007-2018) in the English language, and focused on Canada and similar international health systems. Study designs comprised of systematic reviews, meta-analyses, randomized controlled trials, literature reviews, rapid reviews, discussion papers, government reports, and guidelines, among others. Case studies were not included.

A secondary search of guidelines, reports, and other grey literature was also undertaken using the electronic database search terms. Databases and websites searched included: the Institute for Healthcare Improvement (IHI), the Canadian Mental Health Association (CMHA), the Canadian Medical Association (CMA), the American Psychiatric Association (APA), the College of Family Physicians of Canada (CFPC), the Centre for Addiction and Mental Health (CAMH), the SAMHSA-HRSA Center for Integrated Health Solutions (CIHS), and the Patient-Centered Primary Care Collaborative (PCPCC). A Google search using the same search strategy was also conducted to find additional literature.

All articles identified in the search were screened first by title, abstract, or summary findings against the inclusion/exclusion criteria listed in Table 1. Reviewers considered study quality, design, population, methods, and limitations, as well as relevancy, scope, and applicability to

Alberta's healthcare system. Full text copies of relevant items were retrieved and appraised, the results of which are presented in this report. In total, 63 academic articles and 15 grey literature documents were included in the literature review (Appendix B).

Table 1: Study inclusion and exclusion criteria

Inclusion	Exclusion
1. English language 2. Published between 2007-2018 3. Patients experiencing addiction and/or mental health concerns 4. Primary care setting 5. Canadian-based studies and/or international settings with comparable health care systems	1. Non-English language 2. Published previous to 2007 3. Patients not experiencing addiction and/or mental health concerns 4. Not focused on primary care settings (i.e., schools, businesses, inpatient care, etc.) 5. International settings not comparable to Canada's health care system

Limitations

Due to time constraints, a systematic review of the literature was beyond the scope of this report. As the purpose of this report was to provide an overview of current literature, the included studies were not thoroughly assessed for quality.

Findings

Collaborative Models of Care

Rationale for Collaborative Care

Concurrent addiction, mental health, and physical issues are both common and complex to address. Stigma, and differing mental health and addiction service capacities in areas across Alberta can make it difficult for quick and responsive access to services. For many people who seek help for addiction and mental health (AMH) related concerns, primary health care settings often serve as a first point of contact or a familiar setting where other health-related concerns have been previously addressed (Addiction and Mental Health Collaborative Project Steering Committee, 2014; Findlay & Sunderland, 2014).

Around 20% of Canadians experience a mental illness or addiction issue in any given year (Smetanin et al., 2011). Over half (57%) of Canadians who first seek professional care for their mental health do so by consulting with a family doctor or general practitioner (Statistics Canada, 2017). Patients are also more likely to see a primary care physician over a mental health specialist each year, which makes primary care settings useful in recognizing and improving appropriate treatments over time (Butler et al., 2008). Efforts are being made to better connect mental health and primary care providers in order to meet the physical and psychological needs of patients. Collaborative care is viewed as an effective approach to improving patient care (American Psychiatric Association and the Academy of Psychosomatic Medicine [APA-APM], 2016).

Defining Collaborative Care

At its core, collaborative care is a multi-professional, patient-centered approach to care that is team-driven, population-focused, measurement-guided, and evidence-based (APA-APM, 2016). Collaborative care involves interdisciplinary professionals working in a coordinated, complementary and seamless fashion to ensure patients receive appropriate care (Kates et al., 2011; Lillico & Yip, 2016; Stephenson, Campbell, Lisy & Aromataris, 2017). The model includes screening, structured management plans, scheduled follow-ups, education, and developments in practice and information technology in order to support successful patient and organizational outcomes (Archer et al., 2012; Dham et al., 2017).

Collaborative care can also be seen as a continuum, whereby collaborative and integrative techniques of service delivery strengthen as the severity of AMH concerns increase (SAMHSA-HRSA, 2013). The flow of service aligns to the patient's particular set of needs and is adjusted accordingly (B.C. Ministry, 2012). Collaborative models set within primary care settings can be implemented in a variety of different ways depending on accessibility to tools and services, levels of service provider coordination, and the severity of patient or population needs. This approach ensures that professional partnerships enhance organizational capacity and patients

can be supported more effectively, independent of where a person seeks care or the severity of their health concerns (Addiction and Mental Health Collaborative Project Steering Committee, 2014).

Although collaborative care aims to connect fragmented knowledge and skills of interdisciplinary professionals, terminology around the model remains somewhat unclear. Because a wide range of terms are used among health professionals to describe different levels of collaborative care, words like ‘integrated care’ and ‘collaborative care’ have been used interchangeably in the literature, yet often reflect key differences in strategy or structure (Addiction and Mental Health Collaborative Project Steering Committee, 2014; APA-APM, 2016; B.C. Ministry, 2012; Nancarrow et al., 2013). In order to clearly define collaborative care, the British Columbia Ministry of Health (2012) has described collaborative models linking primary care with AMH care through these three approaches: 1) communicative, 2) co-located and collaborative, and 3) integrated.

Collaborative Care Design

Communication or coordinated models represent more traditional linkages between primary care and AMH care providers and suit milder to moderate AMH needs (Table 2). These models can involve communication between practices in separate facilities, where physicians have informal access or involvement with mental health practitioners and contact is usually referral-based. They can also involve a process of medically-provided AMH care, where primary care services may be enhanced through physician training in AMH assessment and treatment.

Co-located and team-based approaches to collaborative care connect providers in a way that supports individual and coordinated practice for all levels of AMH patient needs (Table 2). A key element of this approach is not only communication, but the frequency and type of communication used among multiple service providers (SAMHSA-HRSA, 2013). Providers using this model usually have independent services and care plans, but also align their work to provide more comprehensive treatment for patients, which suits mild to severe and/or complex needs. This approach can involve co-location, where providers work in the same facility but may not share the same work space. It can also involve shared care or reversed shared care, where aspects of mental health care (e.g., specialized consultation, assessment, self-management tools) are provided within a primary care setting, or primary health care is provided in an AMH setting (Heath, Wise, Reynolds, 2013; Skillman et al., 2016). High levels of specialized assessment or treatment can also be provided in this model through multidisciplinary teams who provide education, consultation, or direct care planning for all providers included.

Integrated team models address moderate to severe and/or complex AMH needs by creating one care plan to address the overall care of a patient (Table 2). These specialized, multidisciplinary teams work together to address needs within an individual’s life that stem beyond addiction or mental health concerns (Heath et al., 2013; Skillman et al., 2016).

Care can be unified, which includes total integration of services such as location, billing, and patient files. The care may include primary care AMH teams who focus on at-risk individuals and solution-focused care independent of occupational specialties (Addiction and Mental Health Collaborative Project Steering Committee, 2014). Unified care and primary AMH teams can also be combined to create a fully-integrated system of care, which encompass all aspects of primary and AMH care, while also encouraging the involvement of other organizations and providers, such as housing workers or occupational therapists.

Although collaborative care may be designed using these three approaches, collaborative models in practice do not have to be bound to a single approach. Depending on the needs of patients and the accessibility of staff, tools, and settings, collaborative care approaches can be individualized in a way that best serves patients and providers in their communities.

Table 2: Six levels of collaboration of primary care and addiction & mental health

Model	Six Levels of Collaboration	Setting	Severity of Need
Coordinated	**L1** Patients are referred to network providers at another site **L2** Providers periodically share communication about shared patients	In separate facilities	Mild to moderate
Co-located	**L3** PC and AMH providers share a facility but develop separate treatment plans for patients **L4** Providers share patient records and maintain some systems integration	In same facility, but not necessarily same space	Mild to severe and/or persistent/complex
Integrated	**L5** PC and AMH providers develop and implement collaborative treatment for shared patients but not for other patients **L6** PC and AMH providers develop and implement collaborative treatment for all patients	In same space within same facility	Moderate to severe and persistent/complex

PC= primary care

Source: Adapted from British Columbia Ministry of Health, 2012; Heath et al., 2013; Skillman et al., 2016

Best Practices in Collaborative Care

A number of studies have identified components of care that should be considered when implementing a collaborative care model (Bullock, Waddell & Wilson, 2017; Dartmouth-Hitchcock Knowledge Map, 2017; Kroenke & Unetzer, 2017; Raney, 2015). These components of collaborative care include: 1) team-based driven care, 2) population-focused care, 3) measurement-guided care, 4) evidence-based care, and 5) quality improvement (Bullock et al., 2017; Kroenke & Unetzer, 2017; Raney, 2015). Each of these components have associated best practices, which can help to ensure that collaborative care is implemented successfully, efficiently, and with a high standard of care.

Team-Based Driven Care

Healthcare professionals need to work together as a team for collaborative care to be successful (Dartmouth-Hitchcock Knowledge Map, 2017; Kates et al., 2011; Lillico & Yip, 2016; Stephenson et al., 2017). Generally, core members of a collaborative mental health team include: 1) primary care providers, 2) consulting psychiatrists, and 3) a care manager (Dartmouth-Hitchcock Knowledge Map, 2017; Kates et al., 2011; Lillico & Yip, 2016; Stephenson et al., 2017). The role of primary care providers is to manage the overall health of the patient. The consulting psychiatrist is responsible for providing proper diagnosis pertaining to a mental health condition and provides treatment recommendations (Dartmouth-Hitchcock Knowledge Map, 2017; Kates et al., 2011; Lillico & Yip, 2016; Stephenson et al., 2017). The care manager follows up with patients to ensure they are adhering to their treatment plans, collect outcomes, and communicate with the health care team.

In team-based driven care, effective communication that is relevant, timely, understandable and reciprocal was found to be a facilitating factor for enhancing collaborative care (Kates et al., 2011; Stephenson et al., 2017). Part of effective communication involves having an agreement on the preferred mode of communication and frequency that is sustainable (Stephenson et al., 2017; Kates et al., 2011). A number of team based programs usually start well in terms of communication, but taper off as time goes on (Stephenson et al., 2017). It is therefore important that teams establish a strong communication and engagement plan to ensure sustainability and consistency. Furthermore, the team needs to communicate not only effectively but, efficiently with the use of up-to-date technology (Lillico & Yip, 2016; Stephenson et al., 2017). In addition to communication, clear roles and responsibilities need to be established to avoid misunderstanding and unrealistic expectations (Bullock et al., 2017; Stephenson et al., 2017). There has to be an agreed upon and transparent leadership and decision making process that links to the team's shared goals. Joint decision making is beneficial, as it considers different perspectives; however, it can also create conflict, so developing a conflict resolution process is critical (Provincial Council for Maternal and Child Health [PCMCH], 2015; Stephenson et al., 2017).

Population-Focused Care

Collaborative care should be population-focused (Dartmouth-Hitchcock Knowledge Map, 2017; Kroenke & Unetzer, 2017; Raney, 2015). This involves being proactive in identifying and screening patients with the highest needs to ensure resources are allocated accordingly (Dartmouth-Hitchcock Knowledge Map, 2017).

Having a shared electronic medical record (EMR) is key to implementing effective collaborative care programs (Addiction and Mental Health Collaborative Project Steering Committee, 2014). It allows care providers to share patient information and serves as a useful tool to keep providers up-to-date on a patient's health status. It also lets the care manager monitor patient progress and follow-up accordingly (Bullock et al., 2017).

Measurement-Guided Care

Standardized screening and assessment tools should be used to drive clinical decision making and to track response to treatment (Raney, 2015). Many mental disorders, such as depression and anxiety, rely on patient-reported outcomes to guide treatment. Self-reported tools should therefore be brief and "multi-purpose (i.e., effective for screening, severity assessment, and monitoring treatment response)", and easy to score and interpret (Kroenke & Unetzer, 2017). According to the Dartmouth-Hitchcock Knowledge Map (2017), there are six components of effective patient outcome measurement:

- Measurement alone is not enough; outcomes must be incorporated into the clinical encounter.
- Patient-reported outcomes are more accurate than clinician-reported outcomes.
- Measures must be collected frequently to accurately assess the most recent clinical state.
- Measures must be closely correlated to the illness state and are typically diagnosis-specific.
- Instruments must be reliable and sensitive to change.
- Methods must be relatively simple to implement and are low cost.

Evidence-Based Care

It is imperative for the collaborative care team to provide reliable, evidence-based treatments (Kroenke & Unetzer, 2017). This is most effective when there is a standardization of treatment algorithms that have been adopted by clinicians as a standard of care (Dartmouth-Hitchcock Knowledge Map, 2017). It is also critical to ensure clinicians have access to up-to-date treatment guidelines and training to support their clinical decisions. Treatment plans should be contextualized to the patient's needs and proven to have worked in primary care settings (Raney, 2015).

Quality Improvement

A monitoring and evaluation plan should be established in the beginning to ensure the success of collaborative care programs (Dartmouth-Hitchcock Knowledge Map, 2017). Having a structured, continuous quality improvement process will help determine if the program is providing quality care that is safe and effective (Bullock et al., 2017; Franx et al., 2013). Evaluation also allows a program to measure its success in reaching desired outcomes. If certain goals are not being met, having a continuous quality improvement process will help inform the changes that would need to occur in order to meet them and will help undo barriers to achieving those goals. Additionally, a quality improvement process ensures accountability, transparency and proper resource allocation (Dartmouth-Hitchcock Knowledge Map, 2017; Franx et al., 2013; Raney, 2015).

Barriers to Implementing Collaborative Care Programs

There are three categories of barriers to implementing collaborative care programs:

- clinical barriers
- organizational barriers, and
- financial barriers (Sanchez, 2017)

Clinical barriers can include primary care physicians' limited training in mental health, which can affect their ability to screen patients. There is also the challenge of keeping up-to-date on treatment guidelines and measurement-based care. Stigma linked to mental health can also hinder communication between patients and care providers (Kathol, Butler, McAlpine, & Robert, 2010; Sanchez, Thompson, & Alexander, 2010).

A common organizational barrier is lack of clarity and understanding of roles between primary care providers, care managers and mental health specialists (Sanchez et al., 2010; Sanchez, 2017). Cultural change is another barrier within this category (Kathol et al., 2010). Primary care providers, mental health specialists and care managers can find it difficult to adjust to cultural shifts of cross-disciplinary services (Kathol et al., 2010). This is often due to a lack of resources and training in supporting the adoption of integrated collaborative care (Kathol et al., 2010). Strong leadership, extensive buy-in, and champions can facilitate cultural change and reduce practitioner resistance (Wood, Ohlsen & Ricketts, 2017).

Financial barriers can include discrepancies in reimbursement to primary care physicians for medical versus mental health services, as well as for their time in consulting with care managers and mental health specialists (Sanchez, 2017). Financial challenges can be particularly problematic to the sustainability of collaborative care programs due to "segregated physical and mental health reimbursement practices" (Kathol et al., 2010).

Effective Collaborative Care Teams

Facilitators of Effective Collaborative Teamwork

Patients today may visit primary care providers, multiple specialists, and providers of diagnostic, pharmacy and other services in a single year (Bodenheimer, 2008). The complexity of modern healthcare has forced providers to connect with one another to optimize patient care. Providers working in isolation face a difficult task by relying on solitary resources and opinions that may not be to the benefit of the patient (Mitchell et al., 2012). Providers that work together can strive towards giving patients the best care possible by sharing their expertise and relying on one another for information (Mitchell et al., 2012). An effective collaborative team can be crucial to delivering holistic, patient-centered care. As such, it is important to understand the facilitators and barriers to collaborative practice.

Effective communication is the principal facilitator of successful collaborative care teams in healthcare settings (Association of American Medical Colleges, 2011; Mitchell et al., 2012; Szafran, Torti, Kennett, & Bell, 2018). Formal communication processes such as regular meetings, as well as frequent, informal shared communication, are vital factors in achieving and sustaining interprofessional collaboration (Morgan, Pullon, & McKinlay, 2015; Nancarrow et al., 2013; Suter et al., 2009). Clear lines of communication between team members facilitates knowledge creation, development of shared goals, and clinical decision making (Mitchell et al., 2012; Morgan et al., 2015). Effective communication practices also help teams to discuss and resolve conflict as well as improve care coordination (Suter et al., 2009; Szafran et al., 2018).

Understanding and respecting roles and responsibilities was another important factor identified in the literature (Association of American Medical Colleges, 2011; Mitchell et al., 2012). Clear role definitions enable team members to be interdependent while maintaining professional autonomy (RAND Europe, 2012; Suter et al., 2009). This is closely linked to team members' desire to feel involved and needed during the care process (RAND Europe, 2012; Szafran et al., 2018). Team members are more likely to be able to identify and define their role on a team and recognize the strengths of others if there is an environment of mutual trust and respect (Nancarrow et al., 2013; RAND Europe, 2012; Suter et al., 2009).

Other key facilitators of effective interdisciplinary teamwork include:

- strong leadership
- staff training and development
- shared vision, values, and goals (Nancarrow et al., 2013; RAND Europe, 2012; Supper et al., 2014)

Many of the critical success factors for interdisciplinary teamwork discussed above align with the Canadian Medical Association's (2008) policy regarding patient-centered collaborative care. Notably, these include: mutual respect and trust, clear communication, clarification of roles and scopes of practice, and clarification of accountability and responsibility (Canadian Medical

Association, 2008). Achieving these critical success factors can improve interdisciplinary care and, by extension, patient-centered care.

Barriers to Effective Collaborative Teamwork

Most of the barriers to effective interdisciplinary teamwork are related to the previously discussed facilitators. In particular, undefined roles and responsibilities are recognized as a major barrier to effective teamwork. Without defined roles, team members are unaware of the strengths and competencies of others (Supper et al., 2014; Szafran et al., 2018). Issues with definition, awareness and recognition of roles and responsibilities are typically linked to a lack of trust and integration among team members (Supper et al., 2014).

Failure to engage staff, especially physicians, makes it difficult for team members to share the vision, values, and goals of a collaborative initiative (Nancarrow et al., 2013; RAND Europe, 2012). Furthermore, a lack of engagement can make it difficult for staff to see the benefits of proposed changes and also leads staff to believe that they are not involved in the initiative (RAND Europe, 2012).

Other barriers to effective interdisciplinary team work include:

- frequent staff turnover
- communication issues
- culture of power and control
- absence of long-term funding
- lack of team building and training (Nancarrow et al., 2013; Supper et al., 2014; Szafran et al., 2018)

Patient Outcomes

The collaborative model can lead to improved patient outcomes across large variations of patient groups and settings. The model has been shown to be effective across differences in age, sex, location, physical condition, and disorder type. Regarding specific mental health disorders, collaborative care has been found to be beneficial in reducing symptom severity in depression and anxiety, as well as panic, substance use, bipolar, posttraumatic stress, and attention deficit hyperactivity disorder (ADHD).

Outcomes by Mental Health Disorder

Collaboration among clinicians and mental health professionals has led to successful health outcomes among those with various levels of depression, including subthreshold and major depressive disorder, at multiple points in treatment. Collaborative care has been found to improve depression outcomes in both short- and long-term follow-ups compared with usual care

(Archer et al., 2012; Coventry et al., 2015; Esala, Vukovich, Hanbury, Kashyap, & Joscelyne, 2018). Trials evaluating depressive symptom scores have shown that collaborative care interventions lead to favorable outcomes at 4 and 12 month follow-ups (Gilbody et al., 2017; Johnson et al., 2014; Lewis et al., 2017).

Studies have also shown that the benefits of collaborative care on depression also applies to patients with medical comorbidities, cognitive defects, and comorbid anxiety disorders (Dham et al., 2017). In Chan, Fan, & Unützer (2011), it was found that patients in collaborative care with and without post-traumatic stress disorder (PTSD) had significantly lower levels of depression compared with patients receiving usual care. It was also found that this reduction in symptom severity lasted and remained stable beyond the end of the intervention (Chan et al., 2011).

Collaborative care has also shown to improve depressive symptoms in youth. Richardson, McCauley, & Katon (2009) found that at six months, 74% of patients who had been given an assessment had a 50% or greater decrease in depressive symptoms and a 32% decrease in functional impairment symptoms. In a separate collaborative youth study, child depression scores of patients receiving collaborative care decreased significantly more than those in usual care (Richardson et al., 2014).

Studies have also shown the benefits of collaborative care interventions in youth with disruptive behavior and/or ADHD (Asarnow, Rozenman, Wiblin, & Zelter, 2015). In particular, collaborative care has been found to significantly improve symptoms and goal attainment scores relating to ADHD at 6-, 12-, and 18-month follow-ups (Bosanquet et al., 2017; Gilbody et al., 2017; Kolko et al., 2014).

Collaborative care has also had success treating anxiety; long-term reductions in symptom severity have been shown at 6, 12, and 24 months (Archer et al., 2012; Esala et al., 2018). Additionally, the physical and mental health of patients receiving collaborative care treatment for anxiety has also been found to improve at 4- and 12- month follow-ups (Gilbody et al., 2017). Moderate effects on panic disorder symptoms have also been documented (Muntingh, van der Feltz-Cornelis, van Marwijk, Spinhoven, & van Balkom, 2016).

Individuals with serious mental illnesses (SMI), such as schizophrenia, have also benefited from collaborative care interventions. Schmit, Watson, & Fernandez (2018) found that an integrated behavioral and primary care approach led to positive treatment gains across a wide range of health indicators compared with usual care. Indicators included risk behaviors, behavioral health needs, and life domain functioning. Limited research has also indicated that using collaborative care for the treatment of bipolar disorder may be beneficial (Bauer, Biswas, & Kilbourne, 2009).

Patients enrolled in collaborative care for the treatment of opioid use disorder (OUD) and/or alcohol use disorder (AUD) have reported greater improved outcomes compared with those in usual care (Watkins et al., 2017). One study showed that more patients in the collaborative care group reported abstinence from opioids or alcohol at 6 months than those in usual care (Watkins et al., 2017). Patients in collaborative care also had improved abstinence rates from cocaine, methamphetamines, and cannabis (Watkins et al., 2017). Collaborative care patients

were also more likely to initiate treatment for OUD and/or AUD within 14 days of diagnosis and engage in two or more additional treatment services within 30 days of their initial visit compared with usual care (Watkins et al., 2017).

Other Measured Improvements

Social, holistic, and life domain functioning, as well as health-related quality of life of those with mental health issues have all been improved with the use of collaborative care (Lewis et al., 2017; Schmit et al., 2018; Woltmann et al., 2012). Collaborative care has been shown to improve quality-adjusted life-year and quality of care measures (Green et al., 2014; Lewis et al., 2017; Nielsen, Gibson, Buelt, Grundy, & Grumbach, 2015). A Cochrane Review found that mental health quality of life at 6-, 12-, and 24-months and physical health quality of life at 24 months in patients with depression or anxiety improved more in collaborative care than treatment-as-usual (Archer et al., 2012). Positive effects on suicidal ideation and subjective distress have also been seen with the use of collaborative care (Asarnow et al., 2009; Butler et al., 2008; Dham et al., 2017).

Concurrent Chronic Diseases and Mental Health Conditions

A particular concern among those with AMH issues is that comorbid chronic diseases are experienced at a higher rate than those of the general population (Addiction and Mental Health Collaborative Project Steering Committee, 2014; Scott et al., 2016). Mental illnesses, like depression, often worsen the self-care and overall health of patients with chronic diseases; health care costs can also increase if left untreated (Atlantis, Fahey, & Foster, 2014; Johnson et al., 2014; Katon et al., 2010). Primary care settings may provide a comfortable or familiar space for patients and allow multidisciplinary professionals to have the ability to treat both body and mind through collaborative efforts. A recent meta-analysis found that there is evidence that collaborative care is effective for individuals with depression and certain chronic physical conditions (Panagioti et al., 2016).

Collaborative care has been found to significantly improve depression outcomes in patients with diabetes, as well as reduce glycated haemoglobin (HbA1c) levels (Atlantis et al., 2014). In one randomized controlled trial, clinically important recovery from depressive symptoms occurred in 61% of collaborative care patients, compared to 44% of control patients (Johnson et al., 2014). Collaborative care has also been shown to produce greater reductions in diabetes-specific distress in those with concurrent depression, as well as greatly improve systolic blood pressure, LDL cholesterol, glycated haemoglobin, and depression outcomes in those with major depression and concurrent diabetes and/or coronary heart disease (Johnson et al., 2014; Katon et al., 2010). Coventry et al. (2015) found that in collaborative interventions focusing on patients with these chronic illnesses, satisfaction levels and several health measures, including patient activation, delivery system design/decision support, goal setting, problem solving/contextual counselling and follow-up/coordination were higher than those in usual care. Patients also

showed improvements in most measures related to self-management (Coventry et al., 2015). Li et al. (2016) found that collaborative care interventions were significantly more effective than usual care in reducing depression in patients with cancer.

Overall, collaborative care has proven to be successful in treating complex cases without compromising the treatment of either physical health or addiction and mental health concerns.

Wait Times and Access to Treatment

A critical feature of the collaborative care model is the coordination of multidisciplinary care providers to streamline services and ensure that patients are receiving care that is most helpful to them. Wait lists for mental health services are shorter for newly referred patients in collaborative care than in traditional care settings (Cordeiro, Foroughe, & Mastorakos, 2015; Haggarty, Jarva, Cernovsky, Karioja, & Martin, 2012). Cordeiro et al. (2015) found that of newly referred collaborative care patients, wait lists into mental health services were shorter than in traditional settings, with nearly 80% receiving help from a mental health professional. Similarly, a Canadian study determined wait times in shared care (mental health care provided within a primary care setting) to be about half as long as wait times in non-shared care (41.8 days vs 84.2 days) (Haggarty et al., 2012). This is important as having at least one follow-up meeting within four weeks of initial contact can significantly improve outcomes and shorten time to improvement in patients with mental health needs in primary care (Bao, Druss, Jung, Chan, & Unützer, 2016).

Patients in collaborative care have access to more mental health professionals, and receive mental health screening and psychotherapy more quickly than those in usual care (Cordeiro et al., 2015; Dham et al., 2017; Richardson et al., 2014). Earlier access to interventions like cognitive behavioral therapy, brief psycho-oncological support, and short-term psychodynamic psychotherapy have also been noted (Li et al., 2016).

Treatment Response and Remission

Collaborative care has been particularly effective in helping patients start antidepressant and anxiety medications and remain adherent (Archer et al., 2012; Coventry et al., 2014; Esala et al., 2018; Miller et al., 2013). In a study examining bipolar disorder among veterans, adherence to lithium and risperidone medication in collaborative care were also shown to be higher than in usual care (Bauer et al., 2009).

Literature examining symptom remission rates has found that collaborative care is more effective than usual care (Dham et al., 2017; Richardson et al., 2014; Sighinolfi et al., 2014). In a study conducted by Garrison, Angstman, O'Connor, Williams, & Lineberry (2016), it was found that the median time to depression remission in the collaborative care group was significantly faster than usual care (86 vs. 614 days). Furthermore, this study found that collaborative care patients were more than twice as likely to experience remission sooner than usual care patients

and the median duration of persistent depressive symptoms was 31 days, compared to 154 days in usual care (Garrison et al., 2016). A randomized trial on youth with depressive symptoms showed that collaborative care patients had a mean recovery time that was 27 days shorter than those in the control group (Asarnow et al., 2009).

Other collaborative care youth studies have found treatment response and remission rates to be 10-15% higher than comparison groups and one evaluation found that at six months, youth indicating a “need for services” had decreased by 33% (Richardson et al., 2009; Shippee et al., 2018). One study examining adolescents with depression found that of those receiving the intervention, 68% had a clinically important depression response, in comparison to 39% of youth in the control group (Richardson et al., 2014). In another trial, remission rates for behavioral problems and internalizing problems associated with ADHD were 20% higher for youth receiving collaborative care over enhanced usual care (Kolko et al., 2014). Parent ratings of ADHD remission, as well as ratings regarding inattention, hyperactivity, and behavioral and internalizing problems of their children were also higher (Kolko et al., 2014).

Another benefit of collaborative interventions is a decreased use in outpatient behavioural and non-behavioural care, which includes hospital admissions/readmissions, ambulatory care, and emergency department visits (Nielsen et al., 2015; Nielsen, Buelt, Patel, & Nichols, 2016; Reiss-Brennan et al., 2016). It has also been found that collaborative care patients who have needed to access the use of mental health services, have done so at a lower cost than those in usual care (Yu, Kolko, & Torres, 2017).

Satisfaction

The majority of patients receiving collaborative care have reported being satisfied or very satisfied with treatment after their first and last sessions (Archer et al., 2012; Richardson et al., 2009; Richardson et al., 2014). In one study, 81% of youth and their parents reported that they were satisfied or very satisfied with the intervention and another found that 82% of patients enrolled in collaborative care reported improved levels of functioning and well-being at the end of therapy (Cordeiro et al., 2015; Richardson et al., 2009). Self-rated measurements indicate that clients receiving collaborative care report improved levels of functioning and wellbeing (Cordeiro et al., 2015).

Patients report high ratings on several satisfaction measures, including:

- listening to the patient
- explaining things in an understandable way
- explaining side effects of medication
- inclusion of family and friends
- giving sufficient condition management information
- spending enough time with the patient (Deen, Fortney, & Pyne, 2011)

Responses from youth indicated that collaborative care provided a space that increased their feelings of being listened to and cared about in a non-judgmental environment. It also allowed clinicians to follow-up with them and provide suggestions (Richarson et al., 2009). Parents and youth also appreciated that collaborative care felt available, took place in a primary care setting, and appointments were easy to arrange (Richardson et al., 2009). Parents of children with ADHD have also reported greater reductions in parental stress, parent-child dysfunction, and difficult child behavior (Kolko et al., 2014). A greater perceived competence and effectiveness in delivering ongoing behavioral health services in primary care was demonstrated in clinicians using collaborative care (Kolko et al., 2014).

Organizational Outcomes

As mentioned previously, the use of collaborative care has been shown to be effective in increasing patient treatment response and adherence, while reducing wait times and lowering the use of outpatient behavioural and non-behavioural care, including hospital admissions/readmissions and emergency department visits. Collaborative care has also been found to be effective in reducing mental health service and community mental health care costs.

Cost Effectiveness

In comparison to usual care, collaborative care may appear to have increased costs due to factors such as increased visits, augmented treatment from providers, as well as new utilization of medications and increased meetings among the collaborative team (Jacob et al., 2012). Despite these factors, evidence shows that collaborative care has good economic value and lower costs over time than usual care (Katon et al., 2012). Overall, collaborative care has been found to be cost-effective, as it reduces the amount of services being duplicated across providers and matches patients to a level of care that will improve positive outcomes (Addiction and Mental Health Collaborative Project Steering Committee, 2014).

In a long-term cost-analysis trial by Unützer et al. (2008), collaborative care was found to represent cost savings of $3,363 per patient on an average of four years when compared to patients in usual care. In a separate study, collaborative care was found to have lower mean outpatient health costs of $594 per patient and lower mean inpatient costs of $965 compared with usual care over a two-year period (Katon et al., 2012). When compared with enhanced usual care, such as receiving screening, assessment, brief psychoeducation, and referral to specialty mental health providers, collaborative care maintains lower mental health service and community mental health care costs (Yu et al., 2017). Research also suggests that collaborative care is favourable in reducing costs associated with utilization of health services over time (Green et al., 2014; Nielsen et al., 2015; Nielsen et al., 2016; Unützer et al., 2008; Yu et al., 2017). This includes lower use of outpatient and inpatient behavioral and nonbehavioral care (Unützer et al., 2008; Katon et al., 2012).

Use of Telehealth in Collaborative Care

Introducing telehealth (TH) technology into collaborative care may be a viable option for providing adequate addiction and mental health services, independent of location and resources. Telehealth can involve the use of telephones, videoconferencing, and electronic records to reach, engage, and impact health indicators of patients, and ensures a high quality of care (Bauer, Miller, Osser, Brandt, & Fleming, 2016; Fortney et al., 2012). By integrating telehealth technology into collaborative care, face-to-face contact with clinicians can be reduced, more effective treatment can be delivered, care can be better managed and monitored, and patient outcomes can be improved (Salisbury et al., 2016).

Collaborative care via telehealth technology has been comparable to practice-based collaborative care in terms of number of primary care, depression-related primary care, and mental health visits, as well as number of medications prescribed and adherence to medication (Fortney et al., 2012; Salisbury et al., 2016). Evidence has shown that collaborative telehealth intervention patients are less likely to go to the emergency room two or more times within the first 12 months following enrollment (Rollman et al., 2017). Small but nonsignificant decreases in the rate of mental health hospitalizations one year after intervention among patients using technology-based collaborative care has also been observed (Bauer et al., 2016).

In terms of symptom reduction, collaborative care given through technology, like telehealth, has led to significant improvements within manic, depressive, and anxiety symptoms, as well as small to medium overall improvement when compared to usual care (Bauer et al., 2016; Fortney et al., 2012; Salisbury et al., 2016; Rollman et al., 2017). Likewise, mental quality of life, quality of wellbeing, and mood have all shown improvement (Bauer et al., 2016; Fortney et al., 2012; Rollman et al., 2017). In one study examining children with ADHD, larger improvements in inattention, hyperactivity, total ADHD symptoms, and combined ADHD and oppositional defiant disorder (ODD) were seen when using telehealth in collaborative interventions throughout multiple follow-up assessments (Myers, Vander Stoep, Zhou, McCarty, & Katon, 2015).

Markedly enhanced patient satisfaction has been found with the use of telehealth collaborative care, which included positive attitudes towards access to health care, treatment, and amount of support received (Fortney et al., 2012; Salisbury et al., 2016). In two studies, results showed that more patients using telehealth-based collaborative care had achieved their self-management skills, as well as had improved their health literacy at 6 and 12 months compared with practice-based collaborative care and usual care (Fortney et al., 2012; Salisbury et al., 2016). In Fortney et al. (2012), telehealth patients reported more patient-centered care and collaboration between their primary care provider and mental health specialists at 6- and 12-months following intervention compared with patients receiving practice-based collaborative care.

The benefits of telehealth-utilized collaborative care include decreased utilization in hospitalization and emergency service use, increased cost efficiency, symptom

reduction/remission, medication use and compliance, and patient satisfaction; however, perceived barriers to using telehealth through a collaborative framework exist (Pyne et al., 2015).

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Appendix A: Literature Search Terms

Table 3: Literature search terms

Concept	Key Terms
Collaborative Care	collaborative care, collaboration, care coordination, professional collaboration, team based care, integrated care, integrative, integration, interprofessional team, interprofessional care, multidisciplinary care team, multidisciplinary team, medical home, shared care, shared services
Setting	primary health care, primary care, behavioural health, behavioural health services
Addiction/Mental Health	mental health, mental illness, mental health disorders, mental disorders, serious mental illness, anxiety, depression, mood disorders, bipolar disorder, addiction, substance use disorder, alcohol use disorder, drug abuse, ADHD, PTSD
Best Practices	best practices, clinical practices, better practices, clinical guidelines, toolkit, framework, standards
Effective Collaborative Teams	teamwork, team effectiveness, effective team, partnership, alliance, multidisciplinary team, interdisciplinary team, cooperation, communication, coordination, joint effort, joint operation
Patient Outcomes	outcomes, patient outcome, impact, patient impact, effect, effective, effectiveness, clinical effectiveness, improvement, treatment, treatment initiation, treatment adherence, remission, symptoms, reduced symptoms, functioning, satisfaction, care, follow-up
Organizational Outcomes	cost, cost-effective, cost-effectiveness, cost-utility, cost metrics, economics, efficiency, quality, quality improvement, operations, organization, wait, wait times, referral, treatment, outpatient care, inpatient care, utilization, hospitalization, emergency department, emergency room, hospitalization, relapse, readmission
Telehealth	telehealth, telecare, telemedicine, telemental health, telephone-delivered, technology-delivered, technology-based, telepsychiatry, digital treatment

Appendix B: Article Selection Flowchart

Figure 1: Article selection flowchart