Centre for
Mental Health

Collaborative Care:
An Exploration into
Core Tenets, Fidelity, and Policy

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Shivam carried out this work during a summer placement with Centre for Mental Health in 2017.

This dissertation forms part of his MSc in International Health Policy (Health Economics) at the London School of Economics and Political Science.

Collaborative care: an exploration into core tenets, fidelity and policy

Nearly half of all people with a diagnosable mental health problem also have a long-term physical condition such as diabetes, asthma or coronary heart disease. Such co-existence of mental and physical health problems has a number of serious adverse consequences, both for patients and for the health system. These include poorer clinical outcomes, lower quality of life, reduced ability to manage physical symptoms effectively and significantly increased costs of care.

The co-existence of health problems calls for a whole-person approach to intervention which seeks to integrate treatment for mental and physical health needs in a seamless way. The strongest evidence for such integration relates to the collaborative care model, which has now been the subject of more than hundred trials, mostly in the US but with a small number in NHS settings.

Collaborative care is a form of systematic team-based care with a number of ingredients, including: a case manager responsible for the coordination of different components of care; a structured care management plan, shared with the patient; systematic patient management based on protocols and the tracking of outcomes; delivery of care by a multidisciplinary team which includes a psychiatrist; and collaboration between primary and secondary care.

Further information and analysis of the collaborative care approach, including a review of the evidence on its effectiveness and cost-effectiveness, is set out in the attached paper by Shivam Shah, written during a summer placement at Centre for Mental Health and submitted as a dissertation towards an MSc degree in International Health Policy and Health Economics at the London School of Economics and Political Science.

Michael Parsonage, January 2018

CONTENTS

GLOSSARY

ACO	Accountable Care Organization
AIMS	Advancing Integrating Mental Health Solutions
APA	American Psychological Association
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CMS	Centers for Medicare and Medicaid Services
DALY	Disability Adjusted Life Year
DSM	Diagnostic and Statistical Manual of Mental Disorders
EMR	Electronic Medical Records
MHIP	Mental Health Integration Program
NCQA	National Council of Quality Assurance
NICE	National Institute of Health and Care Excellence
NIMH	National Institute of Mental Health
PCP	Primary Care Physician
PHQ-9	Patient Health Questionnaire
PREM	Patient-Reported Experience Measures
PROM	Patient-Reported Outcome Measures
RCT	Randomized Controlled Trials
SAMHSA	Substance Abuse and Mental Health Services Administration
VA	Veterans Affairs
VHA	Veterans Health Administration
WHO	World Health Organization

ABSTRACT

Mental health is a key component of overall health, with illnesses such as depression having one of the largest burdens of disease globally. While treatment for mental illnesses has historically been suboptimal, innovative models of care are being tested. One prominent example is the collaborative care model. Through various implementations across the United States, core tenets ranging from team-based care to measurement-guided treatment have been identified that have contributed to the success of collaborative care. This analysis found that though this model has enjoyed some success in treating depression, further policy changes and research are needed for collaborative care to effectively achieve the Triple Aim of health care: reduce per capita costs of care, improve population health, and improve care experience. More thorough cost-effectiveness analysis is needed as well as more incentives to integrate collaborative care is needed in the United States. As more effort is required in the US, more study and experimentation on this model is required for satisfactory implementation in the UK NHS, as current literature shows hesitance from patients and care providers. This report aims to explore the core tenets of collaborative, evaluate its performance in achieving the Triple Aim of health care, and propose policy recommendations for greater integration of this model in both the United States and the United Kingdom.

1. INTRODUCTION

Mental health constitutes a key dimension to health, according to the World Health Organization (WHO), as "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 2001). Mental health can be subject to diseases and illnesses as described in the Diagnostic and Statistical Manual (DSM). Mental health disorders such as anxiety disorder or depression are amongst the most common diseases in the world. Depression, a common mental illness, affects more than 300 million people every year globally (WHO 2017). The burden of mental illnesses can be expressed through costs, economic activity loss, and human lives.

The costs, economic and health care related, of mental illness are difficult to capture as they manifest in various forms. Directly, mental health costs are captured through hospitalization charges, medications, and visitations while the indirect costs arise through labor output loss, reduced educational attainment, and further public payer burden in the form of incarcerations and homelessness (Insel et al, 2008). Mental illnesses are the leading cause of disease burden, impacting disability-adjusted life years (DALYs) worldwide (WHO, 2011). Projected to rise to six trillion dollars in 2030 from 2.5 trillion dollars in 2010, the global cost of mental illness will be 1 trillion dollars more than the total global health spend in 2009 (Bloom et al, 2011). The 2012 United States sum of direct and indirect mental health costs is projected to be $467 billion, or $498 billion accounting for inflation in 2017 (Insel et al, 2008). In addition to the high monetary and economic costs is the impact of mental illness on populations. For example, depression has the heaviest burden of disability among mental illnesses globally with 16.1 million people having at least one depressive episode in the past year in 2015 in the United States (WHO 2010; NIMH 2016).

Due to the incredible cost of mental illness, significant effort has been dedicated to understanding and assuaging mental disorders in greater depth. Examples include cost containment measures, patient safety and education tools, accountability instruments, and innovative models of care. Specifically, one such example is the model of collaborative care. Collaborative care is a set of health intervention models amalgamating mental health services in a primary care setting. These models are on a spectrum referring to varying levels

of health care provider input to offer holistic treatment interventions and to varying level of community involvement such as patient families, colleagues, and friends. Many variants are being developed aiming to elucidate the optimal treatment model, measured by numerous indicators, discussed presently. Due to the flexible nature and application of collaborative care models, the current report refers primarily to models of care for depression treatment. Reducing payer and system cost burden, de-stigmatizing treatment of mental health issues, increasing access to services, and improving intervention outcomes are among the goals of implementing a collaborative care model. Largely developed and studied in the United States, collaborative care for this report refers to a specific type of integrated care that leverages a coordinated team of health care providers to improve access to evidence-based mental health treatments for primary care patients with depression (Katon et al, 1995; 1996; APA, 2016).

The team of health care professionals typically consists of a primary care physician, a psychiatric consultant, and a care manager. The care manager may be a nurse, social worker, or psychologist who supports treatment plans, provides case management, and evidence-based care coordination, as necessary. In addition to care coordination is proactive monitoring with treatment-to-target based on clinically-derived scales, such as the PHQ-9 for depression, and consistent consultation for patients lacking clinical improvement (Unutzer et al, 2013; Arroll and Goodyear-Smith, 2010). Treatment-to-target based care means that in cases where patients are not meeting improvement targets, treatment is stepped up or adjusted. The primary care team receives input from the psychiatric consultant and patient follow-up is consistent, often on a weekly basis. Because treatment steps and updated patient prognosis are monitored actively, collaborative care overcomes clinical inertia "often responsible for ineffective treatments of common mental disorders in primary care" (Henke et al, 2009).

Demonstrated to be impactful in managing mental health care, especially in the presence of comorbid physical chronic diseases in the United States, collaborative care has been recommended elsewhere. For example, it was recommended by the National Institute for Health and Care Excellence (NICE) for treatment in mild-moderate depression, but only where a patient's existing chronic physical health condition creates difficulty in performing daily tasks (NHS 2016). In addition, though the Royal College of General Practitioners has

created toolkits and provided planning support in implementing collaborative care, general practitioners (GPs) mainly still provide usual care. As the UK National Health Service (NHS) continues further exploration of collaborative care as the main, viable treatment model in primary care settings, the current report seeks to explore the history, impetus, advantages, and lessons of collaborative care in the United States. Having a holistic understanding of the collaborative care model is imperative for determining its national, strategic implementation insofar as NICE clinical guideline updates or national roll-outs encouraging collaborative care adaptation.

By conducting a thorough literature review, the current report aims to confer a comprehensive understanding of the collaborative care model for depression treatment, as the vast majority of literature includes depression treatment. This dissertation will explain core components necessary for successful collaborative care models and assess its ability to achieve the Triple Aim of health care: reduce per capita costs of care, improve population health, and improve individual experience of care (Berwick et al, 2008). In addition, collaborative care cost-effectiveness literature will be analyzed along with clinical efficacy and patient outcomes. There will be a discussion of necessary next steps and policy changes for greater collaborative care model integration for the United States and a summary of key components necessary for implementation in the United Kingdom. Examples will be mentioned throughout to provide empirical evidence. This report explores literature ranging from cost effectiveness to quality improvement and benefits afforded by collaborative care to aid policy makers both in the United States and abroad who are seeking to implement related policy.

2. METHODOLOGY

For the literature search, several databases including PsycINFO, Google Scholars, and PubMed were utilized to collect academic papers. As the collaborative care model was sufficiently developed in the 1990s, the literature search was conducted between the years of development till present day. In addition, memos from national mental health conferences were analyzed to understand expert consensus beyond academic papers. Search queries most commonly used "collaborative care" with "cost effectiveness", "quality improvement", "management", "model", "cost", "United States", and "United Kingdom".

Initial research suggested a bulk of literature from the United States as pioneers from the University of Washington conducted numerous early RCTs. Available literature on cost effectiveness and clinical efficacy of collaborative care has steadily been rising (PubMed). Increasingly, greater specificity is involved in newer studies, i.e. cost effectiveness of collaborative care with patients with acute cardiac illness and depression.

3. ANALYSIS
3.1 Development

In the 1970's and 1980's, over half of patients with depressive or anxiety disorders were treated in primary care settings, leading the primary care system to be labelled the 'de facto United States mental health care system' (Katon & Unutzer, 2013; Regier et al, 1978). Treatment for depression was limited as many health plans did not include sufficient patient follow-ups within the first 90 days. Subsequently, approximately 40% of patients discontinued antidepressant usage within 4-6 weeks of treatment (Katon & Unutzer, 2013). 40-50% of patients that were referred to a specialist also failed to complete the referral, leaving approximately 40% of primary care patients with depression (that were accurately diagnosed and provided appropriate follow-up) to recovere over a 4-6 month period (Katon &Unutzer, 2013; Grembowski et al, 2002). Patients with major depressive disorder were shown to have a greater number of comorbidities, more medically unexplained symptoms, and were up to twice as costly as patients with common physical disorders (Simon et al, 1995; Katon et al, 1986; 1995).

In the 1990's, US Government-funded trials began with the aim of better understanding how to improve mental health care. From RCT's experimenting with follow-up visits, adherence monitoring, self-management training, and decision support, strategies relating to patient education, advanced screening, furthering clinical guidelines, additional primary care provider education, and even increasing mental health specialty care referrals were elucidated (Wagner et al, 2001). Though these strategies are facets of effective intervention, individually or grouped, they have been shown to not improve patient outcomes or reduce costs significantly on a population level (Unutzer et al, 2006; 2013). Furthermore, patients with serious mental health disorders that were appropriately identified with more rigorous screening were often not followed-up with by their health care provider due to lack of

resources or capacity (Druss et al, 2008). Alternatively, co-located care has been used as a strategy to improve mental health care. Co-located care is an intervention model in which mental health specialists are placed in primary care settings or primary care providers are placed in mental health clinics to improve access to these services. Co-located care alone has been found to improve patient outcomes at a patient level and not on a population level (Uebelacker et al, 2009). Lastly, and most recently, tele-health care options have emerged due to advancing technology. Relevant telephonic disease management offers centralized nursing treatment support. These types of programs have generally been shown not to improve patient outcomes nor are they effective in reducing health care costs (Peikes et al, 2009; McCall et al, 2011).

The goals of health care systems: chiefly improving care experience, improving population health, and reducing per capita health care costs are known as the "Triple Aim", prominently developed by Berwick and colleagues (Berwick et al, 2008; 2011). The collaborative care model's ability to achieve these goals is analyzed by assessing relevant literature and the core components of the model are detailed presently.

3.2 Core Tenets

After analyzing multiple collaborative care implementation programs and memos from the APA, core tenets of collaborative care are presently identified in the hope that policy makers emphasize them when integrating and further developing collaborative care programs in various settings. These tenets are: providing team-based care, measurement-guided treatment, population-based care, evidence-centered care, and instituting accountability measures.

3.2.1 Team-Based Care

As discussed previously, a unique facet of collaborative care is the interplay between various health care providers. This truly team-based approach to mental health treatment is critical in achieving the Triple Aim of mental health care. Team-based care can be defined as a multidisciplinary group of health care professionals working closely together to provide personalized, appropriate treatment. Typically, this team consists of three caregivers per

case: a primary care physician (PCP), a consulting psychiatrist, and a case manager (Unutzer et al, 2002). Often, the case manager may a psychologist, a nurse, or another related health care professional, such as a licensed therapist. This approach can be seen in Figure 1 as the patient maintains a relationship with multiple people throughout the care delivery process.
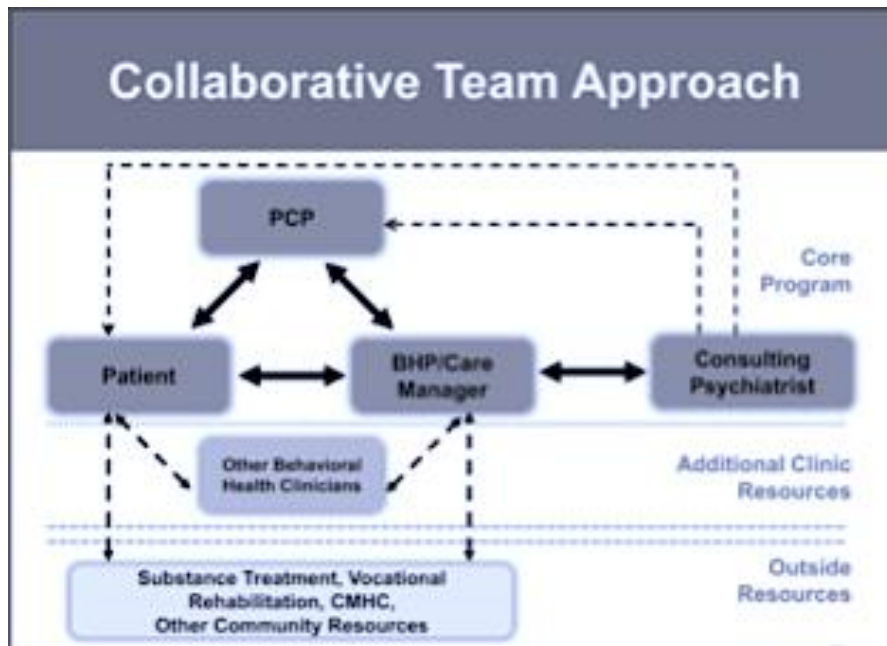

Figure 3.1 Collaborative Care Team Schematic (source: www.aims.uw.edu)

The PCP is the main caregiver, with whom the patient visits for appointments and follow-ups. They are also responsible for making referrals to specialists as necessary. The consulting psychiatrist advises the PCP and the case manager on relevant diagnostic challenges on a case-by-case basis. This consultation is done routinely and requires a unified health information technology system. On the basis of the PCP's appointment, the consulting psychiatrist may provide recommendations in regards to the stepped care such as changing drug dosage, the addition of cognitive behavioral therapy, or suggest to the PCP that the patient should seek specialist care. Notably, the majority of patients in a collaborative care system do not seek out specialists (Unutzer et al, 2013).

While the consulting psychiatrist is important, the role of the care manager is integral to the team-based approach. The care manager is a link between the PCP and the patient, the consulting psychiatrist and the patient, and external resources (Figure 3.1). The care

manager also delivers the measurement tool that is needed to provide stepped care. For example, for depression treatment, the care manager assesses a patient's PHQ-9 outcome and uses the unified health information technology system to maintain records. The care manager often follows-up with the patient after the PCP visitation via telephone and email to continue exploring treatment options. The care manager then relays this information to the rest of the health care team. Through meta-analyses, it has been shown that care managers with patient management experience and mental health treatment experience are linked to improved patient outcomes (Gilbody et al, 2016; Bower et al, 2006). In addition, there also exists a link to greater patient outcomes when treating depression when the care managers are nurses (Thota et al, 2012). There may be other members in the health care team as well such as a social worker or counselor. These team members may be responsible for emergencies or providing enhanced psychotherapies.

This collaborative approach "promotes a systematic, planned approach to care" (Wagner et al, 2001) providing greater access to and facetime with health care professionals. In addition, consistent follow-up from various health care providers further informs the patient on their diagnosis. Having a team of caregivers also maximizes the specific expertise of each person, as they can divide the requisite tasks for each case individually. It is also possible that by having multiple caregivers, patients who may not respond in one setting, may respond better elsewhere. For example, a follow-up phone call with a care manager or therapist may be less stressful than an appointment with the PCP, especially if the patient has moderate anxiety disorder or depression. This further diversification of health care professionals maximizes care delivered, allows caregivers to divide up tasks for each case (potentially preventing health care worker burnout), and helps improve patient outcomes.

3.2.2 Measurement-Guided Treatment

Also known as treatment-to-target care, measurement-guided treatment consists of health care provisions based on outcomes from consistent, disease-specific patient-reported outcome measures (PROMs) such as the GHQ-12 or PHQ-9 questionnaire (Arroll and Goodyear-Smith, 2010). These outcome-based surveys and questionnaires are taken by the patient consistently throughout the treatment process (Harding et al, 2001). This feedback, therefore, occurs longitudinally and allows the team of caregivers to adjust patient treatment

plans as necessary. These measurements, taken by the care manager, are passed on to the PCP and the rest of the team to base treatment plan changes on and are thus also helpful in facilitating teamwork in care delivery. This ability to modify treatment to reach target outcomes reduces the possibility for clinical inertia, defined as the failure to modify treatment when outcomes are not achieved, which has been proven to be a significant barrier to optimal treatment and outcomes (Schmittdiel et al, 2008). This delivery of care flow can be summarized in Figure 3.2.
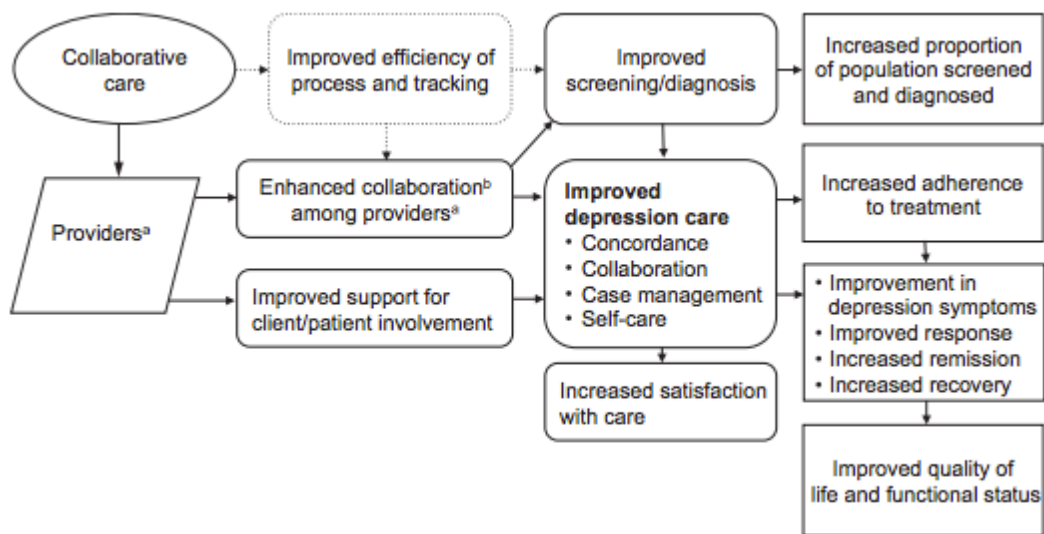
Figure 3.2 Collaborative Care Delivery Framework (Thota et al, 2012)

The treatment is altered at least till the patient has a 50% improvement in outcomes. This usage of "individualized treatment regimens guided by treat[ment]-to-target principles improved both medical outcomes and depression in depressed patients" (Katon et al, 2010).

Consistent measurement-guided treatment works to operationalize PROMs. These assessments allow patients to see a longer-term perspective of their health care trajectory and "the regular use of rating scales has been considered integral to some forms of psychotherapy, such as cognitive-behavioral therapy", itself being a treatment option for mental health issues (Valenstein et al, 2009). It is important that PROMs are used in delivery measurement-guided care, rather than clinician ratings of patient symptoms as these have been shown to be often biased and unable to accurately detect deteriorating patient symptoms (Hatfield et al, 2009). There is evidence that annual depression screenings are

not effective in improving patient outcomes and that for the measurement-guided care and its positive patient-education side-effect to be effective, the measurements should occur multiple times, such as once every two weeks (Gilbody et al, 2008; Schmidt et al, 2006; Fihn et al, 2004). In addition to 100% of psychiatrists indicating that these rating scales are helpful for monitoring patient response in a study with over 3,000 patients, a meta-analysis concluded that 38% of patients with a measurement-guided care system improved their symptoms versus only 22% of patients with usual care (Sachs et al, 2003; Shimokawa et al, 2010). Because of the widespread importance of this tenet (seen not only in collaborative care), the National Committee for Quality Assurance (NCQA) has recently added PHQ-9 monitoring as a measure in their most commonly used performance improvement tool (NCQA 2017).

3.2.3 Population-Based Care

Models of care for mental health, such as co-located care, only improve outcomes on an individual level. Following the definition that population health is "the health outcomes of a group of individuals, including the distribution of such outcomes within the group", collaborative care helps to ensure that patients do not fall through the cracks of care delivery (Kindig and Stoddart, 2003). When applying a population health perspective to collaborative care, three main principles should be discussed: Health outcomes and population distributions, outcome determinant patterns, and relevant further interventions.

The health outcomes and the distributions of these outcomes within a population are the key pillar of population health. When relating this to collaborative care, the electronic medical record (EMR) is significant as a registry of cases enables the health care team to triage patients based on their needs rather than their level of clinical engagement. In other words, patients in greater need of changing their medication dosage or starting a CBT booster session may be followed-up sooner than other patients, even if they have had multiple visitations. Alternatively, patients who are demonstrating clear lack of interest or have multiple unexplained missed appointments may also be identified in a weekly case review, allowing the health care team to focus treatment resources elsewhere (or intensify patient outreach). Though patient adherence to follow-up treatment for behavioral health conditions is known to be poor, treatment adherence in collaborative care settings is known to be

significantly better (Wang et al, 2005). It has been suggested that the population-focused care management trademark of collaborative care may be a main contributor to this heightened treatment adherence (Lin et al, 2004; 2012). Further, due to the team-based nature and measurement-guided treatment efforts of collaborative care, a focus on the distribution of health outcomes is integral to case management.

Outcome determinant pattern tracking is becoming more popular as advancing IT systems and medical technology collects and analyzes greater amounts of data. As social determinants of health can have significant impacts on mental and physical health outcomes, understanding trends in patient data can help identify the impact of these social determinants such as social isolation, lack of exercise, or surrounding crime on mental health. By leveraging medical metadata, it is possible to begin to understand how financial barriers to medications affect prognosis. This analysis may also provide novel insight into treatment delivery optimizations. Understanding the impacts of social determinants of health can have significant implications elsewhere and can further link primary care with community supports and resources (Hensley et al, 2016).

Aggregate treatment management and patient data provide a greater understanding of directions for future legislation or evidence for systemic changes. Specifically for collaborative care, analyzing average course of moderate depression with a specific chronic comorbidity for a large sample may provide an impetus for building greater external support for patients during various levels of their treatment.

To ingrain these principles in a collaborative care model, there must first be a consensus on what measures will be included in the triaging process, for example the PHQ-9 and specific treatment utilization costs. After these measures have been standardized, time must be blocked off in a practice to follow-up with patients who need more attention. Patient trend analysis should also be consistently done to ensure that non-evidence-based practices are not occurring. All members of the team should be present and provide input in the caseload reviews so agile, real-time treatment alterations can be made, if necessary. In this regard, stepped care is an essential element of population-based care because it enables a judicious use of limited specialty resources, keeping the larger population in mind. Indeed, with a focus on population health, collaborative care not only reduces the burden on overloaded

specialty care but also improves access to specialty care for those that may benefit the most from it. Thus, with an emphasis on population health, collaborative care helps mitigate large wait times and improves access to care for difficult-to-manage patients. The integration of the population health, specifically the three pillars stated above into collaborative care settings, is a core tenet of successful collaborative care models.

3.2.4 Evidence-Centered Care

Evidence-centered care is the delivery of care based on scientifically proven treatment in order to improve health. This pillar is closely related to the tenet of measurement-guided treatment in that it leverages the evolving nature of medical academia in caring for individual patients (Sackett et al, 1996). The amalgamation of research into the provision of health care is universal among both physical and mental care. Often times, however, the evidence preferred by health care professionals are key performance indicators relating to QALYs or generalized risk scores which may encapsulate multiple sociological and biological factors. Collaborative care models must successfully use evidence-centered care by placing importance on PROMs or clinical endpoints such as HbA1c. Often, these clinical endpoints are more reliable and less expensive to determine. By using evidence-centered care in collaborative care models, stepped care can be administered safely and effectively as the dosage and modifications are made based on existing literature and medical knowledge.

The usage of evidence-centered care has been a well-established phenomenon in medicine. The initial developers of the collaborative care model integrated the usage of evidence-centered care from the Chronic Care Model (Wagner et al, 1996). In Figure 3.3, the Chronic Care Model is shown to utilize six main system level tools to improve outcomes including community linkages, self-management support, delivery system design, organization of health care, decision support, and information systems (Wagner et al, 2001). With the combination of clinical information systems and decision support, the usage of research to aid clinical diagnosis is integral to assessing and treating chronic physical diseases as well as mental health.
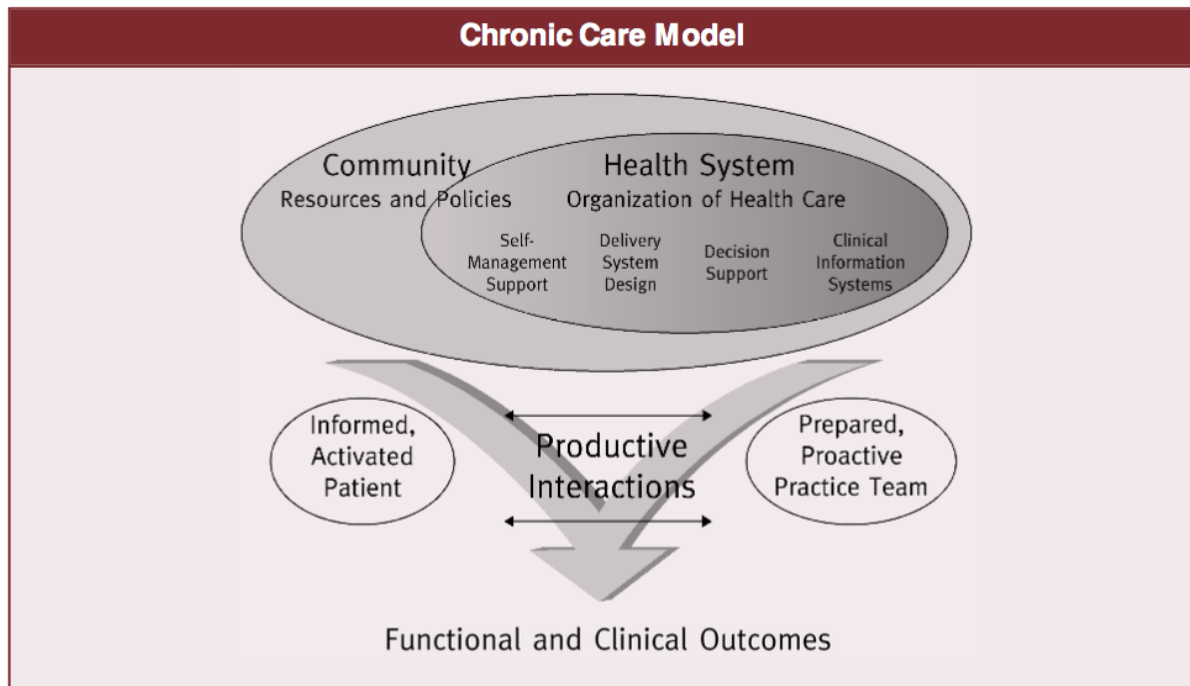
Figure 3.3 Chronic Care Model. (Wagner et al, 2001)

In addition to clinical endpoints, collaborative care models should also incorporate evidence-based decision-making in other parts of the treatment process, such as through further educating the health care team or providing further educational materials to patients. Finally, maintaining up-to-date trainings for the health care team can ensure that clinically driven decision-making is occurring. The usage of evolving medical evidence to base treatment delivery is an integral facet of collaborative care.

3.2.5 Accountability Measures

PROMs are important measurement and accountability tools as they provide self-reported outcomes. The NCQA has included PROMs in their health plan performance measurement (NCQA 2015). As the health care team works closely with patients, PROMs afford new opportunities to further develop collaborative care. The patient and physician can review PROM endpoints together and identify which treatment options are most effective and are therefore both influencers of quality assurance (APA 2016).

While PROMs are important, other types of accountability are also necessary, specifically

relating to process measures and quality of care-based reimbursement. Other accountability tools are necessary to ensure the fidelity of health care delivery and the prerequisite processes required to achieve clinical outcomes.

Firstly, accountability relating to process measures has been shown to be associated with improved outcomes (Gilbody et al, 2008). Accountability surrounding process measures helps to ensure steps are taken for programmatic success and financial solvency. The United States Veterans Health Administration (VHA) is the nation's largest health system that provides collaborative care (Perlin et al, 2004). Formerly infamous as an epicenter for inert bureaucracy, the VHA has implemented an integrated health system and has reinvented itself as a system that is patient-centered, providing high-quality and high-value care. By defining value as the relationship of quality to cost, the Department of Veterans Affairs (VA) includes 6 dimensions of effectiveness in its value domains to which it now holds itself accountable (Figure 3.4) (Nelson et al, 1996; Perlin et al, 2004). These domains each have measures, some outcome-based and some process-based, which serve as the basis for performance improvement and for both internal and external accountability (Perlin et al, 2004). While the interplay of outcome and process measures in assessing health systems is fiercely discussed today, more study is needed on these measures for collaborative care models. From a 2011 AHRQ conference, the lack of a singular lexicon for collaborative care was identified as a key reason for limited process and outcome benchmarks for increased systemic accountability (Miller et al, 2011). Also, identifying the need to target the Triple aim of health care, Miller provides elements that need to be measured and their corresponding metric (Appendix I). These metrics can be used to measure the value afforded by collaborative care and its ability to achieve the Triple aim of health care.

Value Domain	Representative Measures
Quality (effective, safe)	• Prevention index (immunization, cancer and substance use screening) • Chronic disease index (heart, lung, endocrine diseases, including heart failure, COPD, diabetes) • Palliative care index (pain screening and management)
Access (timely)	• Wait times for new primary care appointments • Wait times for new specialty care appointments • Percentage of patients seen within 20 minutes of scheduled appointment
Satisfaction (patient centered)	• Perception of quality as very good or excellent • Performance on Picker-based satisfaction survey†
Function (patient centered)	• Percentage of spinal cord injury patients discharged to independent living • Percentage of homeless patients discharged to independent living
Community health (equitable)	• Accreditation of research programs • Learner perception survey
Cost-effectiveness (efficient)	• Days in accounts receivable and other fiscal measures • Value equation

Figure 3.4 Measures to which the VA holds itself accountable (Perlin et al, 2004).

Secondly, accountability through quality-based reimbursement is necessary. Through value-based purchasing and pay-for-performance, financial incentives emphasize quality of care delivered. To reflect this, the Centers for Medicare and Medicaid Services (CMS) began reimbursing clinicians separately for providing collaborative care, as of January 1, 2017 (Press et al, 2017). Four new codes were created to allow this payment, of which three are specifically for the Psychiatric Collaborative Care Model (here, collaborative care) (Appendix II). This policy change will result in clinicians already offering collaborative care to be reimbursed more and more accurately. Providing quality-based reimbursement, especially on a federal level, is a large step and one that will improve accountability and access to treatment (Press et al, 2017). Accountability is a core tenet of collaborative care models to ensure quality improvement, increased access to services, and successful achievement of the Triple Aim of health care.

3.3 Collaborative Care and the Triple Aim

Though there is development of collaborative care and "the concept of the Triple Aim is now widely used, both in the United States…and around the world", there is a need for further study on explicitly how it fulfills the Triple Aim of health care systems (Whittington et al, 2015). The Triple Aim, originally put forth by Donald Berwick and colleagues, was created to link improvement initiatives to broader linked objectives with the goal of achieving high-value health care (Berwick et al, 2008). These goals: reducing per capita cost of care for populations, improving population health, and improving individual experience of care have become part of national models in the United States.

The goals of the Triple Aim are interdependent and pursuing one goal can affect pursuit of the others, negatively or positively. Improving the experience of care can increase costs if new technology or procedures are costly. Alternatively, replacing misused or overly expensive testing with cheaper options can lead to both reduced per capita costs and potentially improved outcomes. Therefore, the pursuit of each goal must be balanced. Herein lies a significant barrier to attaining the Triple Aim: though this achievement is integral on a macro-level, it is not in the immediate self-interest of individual stakeholders within health care to achieve all three simultaneously (Berwick et al, 2008). Though there are obstacles to achieving the Triple Aim, there is evidence that collaborative care can be and indeed has been successful in this pursuit on some level (APA 2016).

The remainder of this report will focus on how the model of collaborative care attempts to achieves the Triple Aim of health care, providing examples where this model is successfully incorporated into a health system. Reduction in population per capita health care costs and cost-effectiveness of collaborative care are considered, followed by its impact on population health and its ability to improve care experience. Present limitations of collaborative care in achieving the Triple Aim broadly are considered followed by a discussion on potential policy changes and next steps.

3.3.1 Financing Collaborative Care

As a goal of the Triple Aim, reducing per capita costs of health care for populations is an

integral component of a health care system. This cost reduction is a function of the model's cost-effectiveness. Therefore, the cost-effectiveness is assessed and reimbursement options to lessen payer burden are considered in the policy discussion.

Numerous RCTs have been conducted to study the cost-effectiveness of collaborative care. The TEAMcare RCT led by Wayne Katon (often credited with developing collaborative care) explored cost-effectiveness of collaborative care intervention for comorbid patients (Katon et al, 2012). 65% of total US health care spending is a result of 27% of adult Americans with comorbidities, more than 1 in 5 of whom have comorbid mental health issues (Katon et al, 2012). Comorbid depression itself can increase medical costs by 50% to 70% (Simon et al, 2005). The group receiving collaborative care had mean cost savings of $594 (and $1,116 when diabetes nurse visitation was included) over 24 months and a savings of $3,297 per QALY when compared to patients receiving usual care (Katon et al, 2012) (Figure 3.5). In addition, patients receiving collaborative care had an average 114 additional depression-free days over 24 months compared to patients receiving usual care (Katon et al, 2012).

While this (and other) studies show the cost-effectiveness of collaborative care, meta-analyses and systematic reviews have found other conclusions. An early systematic review identified 11 full economic evaluations including 4757 patients with collaborative care for depression management (Gilbody et al, 2006). In the earliest economic evaluations of collaborative care, incremental costs increased (Katon et al, 1995). Indeed, as Figure 3.6 shows, almost all early economic evaluations described an increase in health care costs with collaborative care (Gilbody et al, 2006).

	Incremental 24-mo Value, Mean (95% CI)				
	DFDs[a]	QALYs[b]	Total Outpatient Costs, $[c]	Outpatient Costs/DFD, $	Outpatient Costs/QALY, $
Primary analysis	114 (79 to 149)	0.335 (–0.18 to 0.85)	–594 (–3421 to 2053)	–5.26 (–29.76 to 19.17)	–1773 (–2878 to 2878)
Sensitivity analysis based on Medicare reimbursement of $54 per diabetes nurse visit	114 (79 to 149)	0.335 (–0.18 to 0.85)	–1116 (–3768 to 1536)	–9.88 (–34.97 to 14.16)	–3297 (–4014 to 2722)

Abbreviations: DFD, depression-free day; QALY, quality-adjusted life-year.
[a] The incremental depression-free estimate was adjusted for age, sex, and baseline depression score.
[b] The QALY estimate was based on baseline to 24-month changes in hemoglobin A_{1c}, systolic blood pressure, and low-density lipoprotein cholesterol levels.
[c] Estimated incremental 24-month total outpatient costs were adjusted for age, sex, and 12-month prebaseline total outpatient costs.

Figure 3.5 Incremental Effectiveness, Outpatient Costs, and Cost-Effectiveness (Katon et al, 2012)

This systematic review concluded that collaborative care is a strong approach to improving depression outcomes. However, this improvement will result in higher health care costs (Gilbody et al, 2006). This increase in costs arises through increased primary care visits due to increased access to care and increased antidepressant medication usage. This increased costs arise over the short term, requiring an up-front investment in collaborative care. Importantly, none of the studies in the systematic review captured the benefits of unemployment or lost earnings as a consequence of illness, nor were non-health care costs such as social security benefits considered. However, as Gilbody states, "these effects deserve to be incorporated into future randomized economic evaluations" (2006). The futility of addressing only patient education was also identified as this type of intervention provided no improvement in depression and only increased costs (Thompson et al, 2000; Gask et al, 2004). As a result, collaborative care models may have been less likely to incorporate predominantly educational-based intervention, as evidenced by a lack of this technique in subsequent economic evaluations and systematic reviews.

INCREMENTAL EFFECTIVENESS

	−	0	+
+	**A** Katon et al (1995): minor depression, collaborative care	**B** Thompson et al (2000): primary care depression education Gask et al (2004): primary care depression education	**C** Katon et al (1995): major depression, collaborative care Katon et al (1996): major and minor depression, collaborative care Katon et al (1999): treatment-resistant depression, 6 months, collaborative care Katon et al (2001a,b): relapse prevention, depression, collaborative care Katzelnick et al (2000): distressed high utilisers, collaborative care Hedrick et al (2003): newly diagnosed depression in veterans, collaborative care Wells et al (2000): depression in primary care, collaborative care
0	**D** No study	**E** No study	**F** Katon et al (1999): treatment-resistant depression, 28 months, collaborative care
−	**G** No study	**H** No study	**I** No study

(Left axis label: INCREMENTAL COSTS)

☐ (dark) Decision strongly favoured (A, reject treatment; I, accept treatment)

☐ (light) Decision less favoured (B, D, reject treatment; F, H, accept treatment)

☐ (white) No obvious decision (C, is added effect worth the extra cost? G, is reduced effect acceptable at reduced cost? E, neutral cost and effect: other reasons to adopt treatment?)

Figure 3.6 Permutation Matrix (Cost: +, higher & Effectiveness: +, better) (Gilbody et al, 2006).

In a future systematic review, two out of the eight studies incorporated production losses and traveling expenses (van Steenbergen-Weijenburg et al, 2010). Six out of eight studies found an increased incremental cost (Figure 3.7) (van Steenbergen-Weijenburg et al, 2010). Similar to the previous systematic review, the authors conclude that collaborative care is a promising model for delivering appropriate treatment for mental health depression and simultaneously call for further assessment of direct and indirect non-medical costs (van Steenbergen-Weijenburg et al, 2010).

Incremental effectiveness

A
Von Korff et al [33]
Simon et al [34]
Simon et al [35]
Schoenbaum et al [36]
Katon et al [39]
Liu et al [37]

B

C
Araya et al [38]
Simon et al [40]

D

Decision strongly favoured (B= Reject treatment, C= Accept treatment)

No obvious decision (Is the effect worth the costs?)

Figure 3.7 Permutation Matrix (van Steenbergen-Weijenburg et al, 2010).

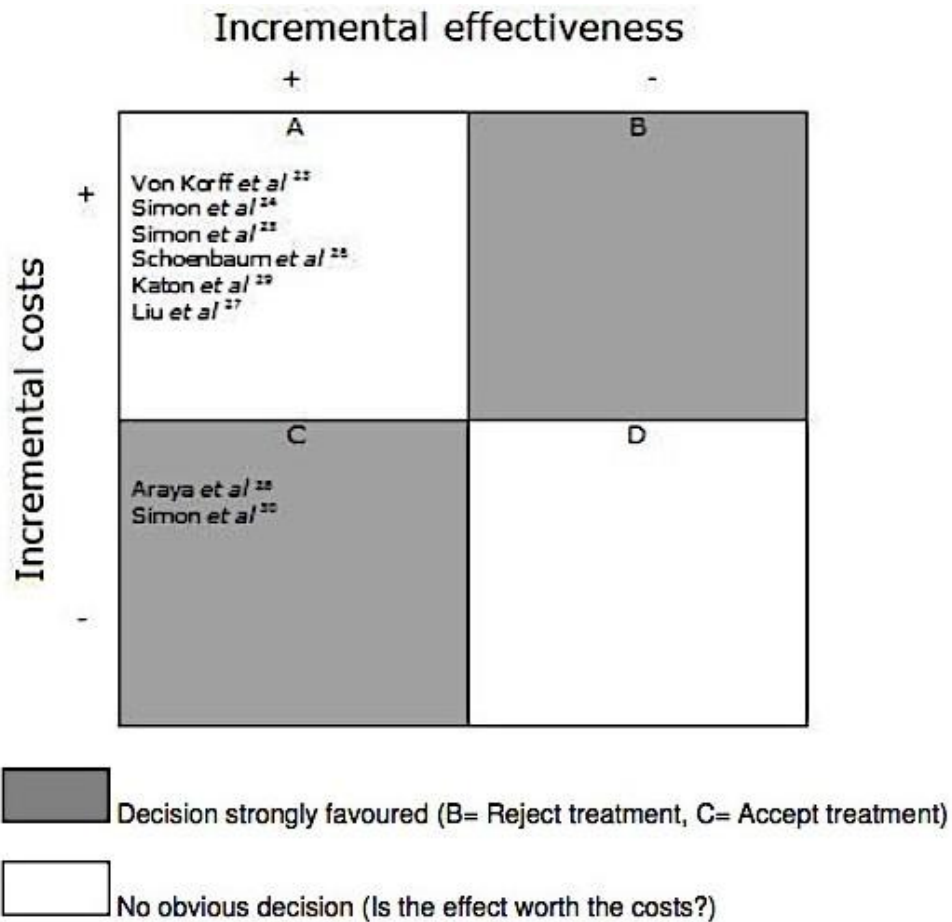After this 2010 systematic review, the latest relevant systematic review published in 2015 analyzed 19 studies and had similar conclusions to prior studies (Figure 3.8) (Grochtdreis et al, 2015). Out of the 19 studies, one reported mean indirect costs regarding temporary disability leave from work, one reported mean productivity costs as a result of absenteeism, and three studies included patient time and travel costs as indirect costs (Grochtdreis et al, 2015). Although more studies are including various costs, only two studies provided indirect productivity loss costs. However, the lost productivity (missing from the vast majority of studies) has been reported as the largest component of total costs of patients with depression (Wang et al, 2003; 2006; Grochtdreis et al, 2015). While the quality of the studies included in the systematic review has improved over time, Grochtdreis concludes that the cost-effectiveness of collaborative care is ambiguous as current literature provide inconsistent results (2015). The systematic review concludes with a call for more studies accounting for indirect costs with an extended time horizon to improve decision-making.
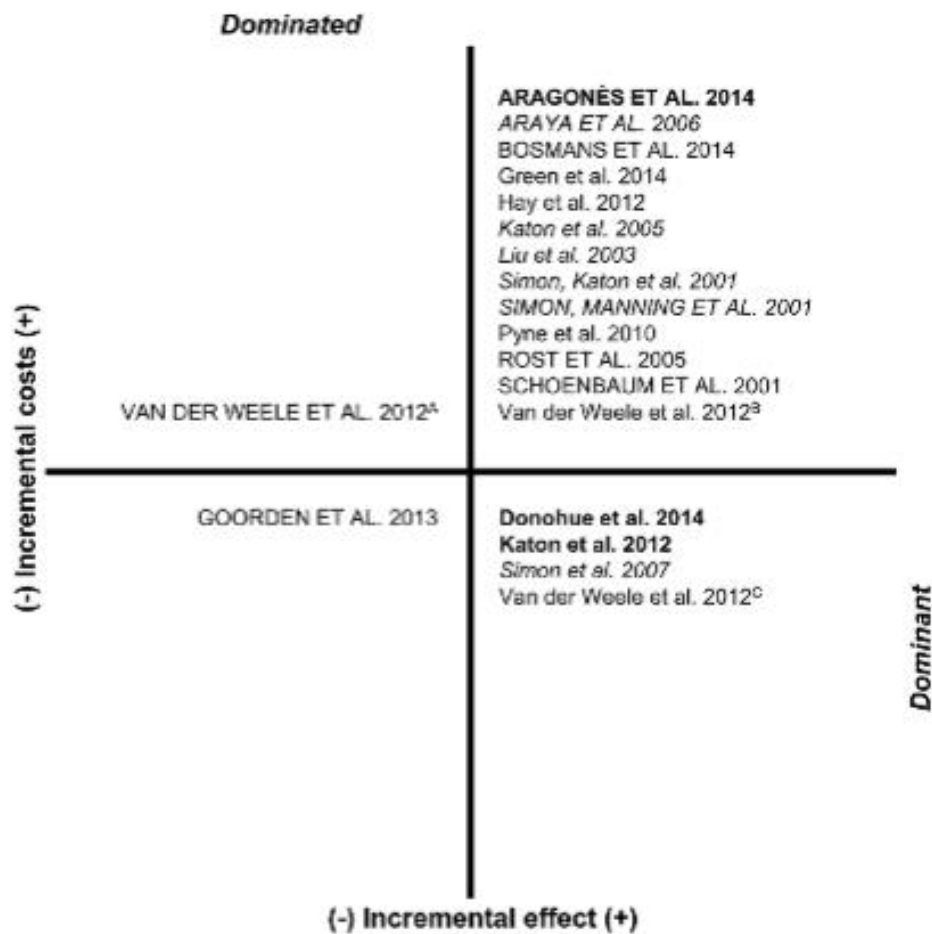
Figure 3.8 Cost- Effectiveness Plane (Grochtdreis et al, 2015).

In the three systematic reviews assessing the cost-effectiveness of collaborative care, the consensus is that this model is cost-effective for the patient, but health care costs and indirect costs are not well-defined. The majority of the 38 studies examined throughout these systematic reviews, do not account for indirect costs, which are key in determining cost-effectiveness (Grochtdreis et al, 2015). While some studies may claim to reduce per capita health care costs in certain individuals, these analyses present evidence that a reduction in per capita costs of care for populations has not been proven.

3.3.2 Improving Population Health

As discussed earlier, population health is "the health outcomes of a group of individuals, including the distribution of such outcomes within the group (Kindig and Stoddart, 2003). When attempting to improve population health, Berwick claims that the two preconditions

are: to have an identified particular population of concern and have an 'integrator' which coordinates services to aid the population (2008).

The population does not need to be only geographically related but should be identified based on health status or other factors, such as "all depressed people in New York" or "all people living 200% below the poverty line in Scotland". This added specificity is integral in beginning to understand the population's health status. These populations may be recognized by health registries that track people over time, such as the Swedish registry system. The function of these registries to track populations, identify health trends, and provide data on care experience is integral to improving population health.

In addition to the tracking of population health is the need for an integrator. The integrator accepts responsibility for improving the health of a population (in addition to lowering per capita care costs and improving care experience) (Berwick et al, 2008). Importantly, the integrator cannot exclude subgroups or members of the population for which it is responsible. To make sure no exclusion occurs, macro-level integrators, such as health systems and purchasers, should form strong partnerships with micro-level integrators, such as community-based organizations and individual care providers (McCarthy & Klein, 2010). For example, a large integrated health care system, Genesys Health System in Michigan, USA partnered closely with affiliated PCPs and other community organizations and was able to effectively extend access to primary care services to their identified population of low-income uninsured residents (McCarthy & Klein, 2010). The identification and tracking of population health trends and the presence of an integrator organization are key conditions in achieving an improvement in population health. Understanding these preconditions, the impact and design of the collaborative care model will be assessed.

Collaborative care models identify patient populations with mental health issues (often with chronic comorbidities) in specific areas (Katon et al, 2010). One of the core tenets of collaborative care is the delivery of population-focused care. A prerequisite of collaborative care models is patient population measurement and tracking to change treatments with agility. As being population-based is in the very nature of collaborative care models, if successfully implemented, the goal of population health improvement can be achieved.

In selecting the specific population, collaborative care models split patients that present and that do not present with physical chronic disease comorbidities. Clinical guidance in the United States limits usage of collaborative care to patients in the former group. However, a recent meta-analysis reviewed RCTs that studied both groups and found that "collaborative care is an equally effective way to deliver depression care for patient with and without comorbid chronic physical conditions (Panagioti et al, 2016). Analyzing 31 RCTs with a 10,962 total participants, collaborative care affords significant improvements across all people with or without physical comorbidities (Figure 3.9) (Panagioti et al, 2016).
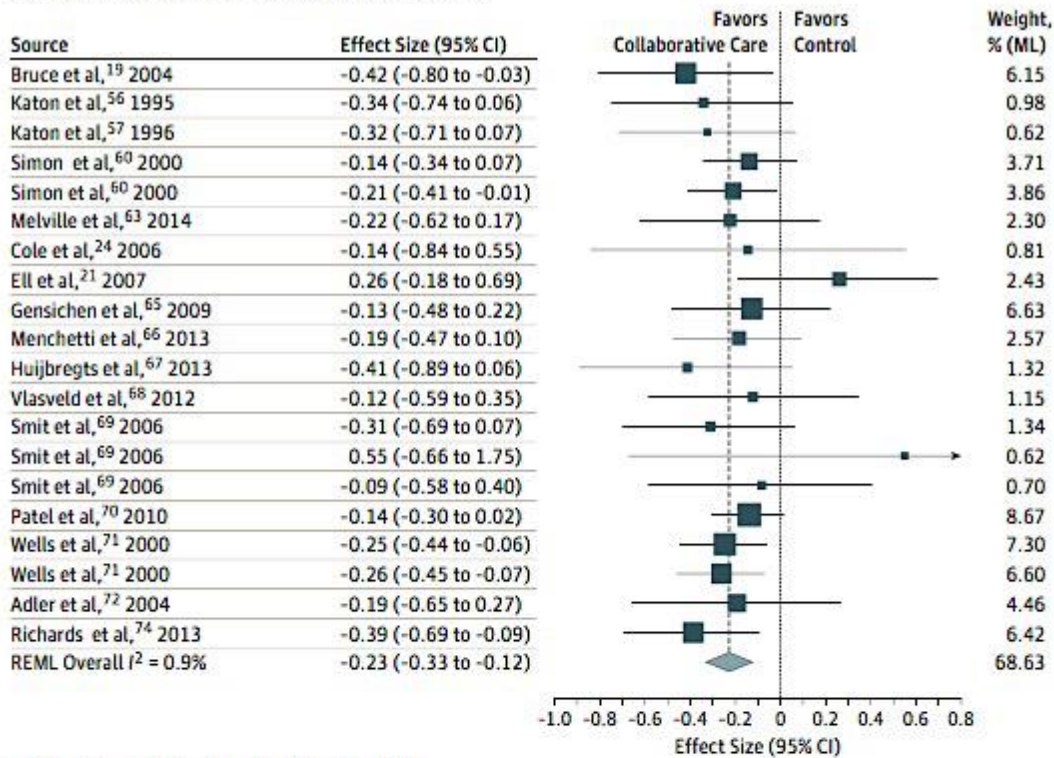
Studies have often identified specific populations in the United States northwest region in collaborative care models. Through the Mental Health Integration Program (MHIP), over 50,000 individuals receive collaborative care services. The target population is high-risk, uninsured adults with mental health issues residing within multiple counties of Washington State (Advancing Integrated Mental Health Solutions (AIMS) Center 2017). The MHIP also uses a unified patient registry to track patient progress and goals, allowing for trend analysis and treatment optimization. Clearly identifying and tracking population health, the MHIP also is a macro-integrator that has strong relationships with primary care clinics. The MHIP is a rich example of how collaborative care models prioritize population health management (along with the other goals of the Triple Aim).

As many studies exist depicting similar programs, comprehensive meta-analyses suggest the widespread use of collaborative care ranging from small, rural populations to large populations with comorbidities have been effective in improving population health (Thota et al, 2012). 37 RCTs published from 1993 to 2004 found an improvement in the health of patient populations (Bower et al, 2006). In addition, almost all studies published between 2004 and 2009 were found to favor collaborative care treatment (Thota et al, 2012). From an individual RCT perspective to meta-analyses perspectives, collaborative care has been shown to be an effective treatment mechanism for improving the health of various populations.

The MHIP is an example of an Accountable Care Organization (ACO) and is just one type of integrator that can improve population health. Government-sponsored or owned health care systems are also potentially viable integrators. By identifying a specific population in

need of mental health treatment, these integrators could employ collaborative care models to improve population health. The NHS is an example of an integrator that records and monitors large populations. By readily incorporating collaborative care into the NHS for the care of mental health in the absence and presence of physical chronic comorbidities, the health of populations in need of mental health treatment could improve.

A Participants did not have chronic physical conditions

Source	Effect Size (95% CI)	Favors Collaborative Care / Favors Control	Weight, % (ML)
Bruce et al,[19] 2004	-0.42 (-0.80 to -0.03)		6.15
Katon et al,[56] 1995	-0.34 (-0.74 to 0.06)		0.98
Katon et al,[57] 1996	-0.32 (-0.71 to 0.07)		0.62
Simon et al,[60] 2000	-0.14 (-0.34 to 0.07)		3.71
Simon et al,[60] 2000	-0.21 (-0.41 to -0.01)		3.86
Melville et al,[63] 2014	-0.22 (-0.62 to 0.17)		2.30
Cole et al,[24] 2006	-0.14 (-0.84 to 0.55)		0.81
Ell et al,[21] 2007	0.26 (-0.18 to 0.69)		2.43
Gensichen et al,[65] 2009	-0.13 (-0.48 to 0.22)		6.63
Menchetti et al,[66] 2013	-0.19 (-0.47 to 0.10)		2.57
Huijbregts et al,[67] 2013	-0.41 (-0.89 to 0.06)		1.32
Vlasveld et al,[68] 2012	-0.12 (-0.59 to 0.35)		1.15
Smit et al,[69] 2006	-0.31 (-0.69 to 0.07)		1.34
Smit et al,[69] 2006	0.55 (-0.66 to 1.75)		0.62
Smit et al,[69] 2006	-0.09 (-0.58 to 0.40)		0.70
Patel et al,[70] 2010	-0.14 (-0.30 to 0.02)		8.67
Wells et al,[71] 2000	-0.25 (-0.44 to -0.06)		7.30
Wells et al,[71] 2000	-0.26 (-0.45 to -0.07)		6.60
Adler et al,[72] 2004	-0.19 (-0.65 to 0.27)		4.46
Richards et al,[74] 2013	-0.39 (-0.69 to -0.09)		6.42
REML Overall I^2 = 0.9%	-0.23 (-0.33 to -0.12)		68.63

-1.0 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8
Effect Size (95% CI)

B Participants had a chronic physical condition

Source	Effect Size (95% CI)	Favors Collaborative Care / Favors Control	Weight, % (ML)
Bruce et al,[19] 2004	-0.38 (-0.55 to -0.21)		6.15
Katon et al,[56] 1995	-0.47 (-1.23 to 0.29)		0.98
Katon et al,[59] 2001	-0.10 (-0.29 to 0.10)		4.56
Katon et al,[75] 2004	-0.23 (-0.43 to -0.03)		3.55
Simon et al,[60] 2000	-0.20 (-0.49 to 0.08)		3.71
Simon et al,[60] 2000	-0.05 (-0.35 to 0.25)		3.86
Katon et al,[76] 2010	-0.64 (-0.88 to -0.40)		2.49
Melville et al,[63] 2014	-0.02 (-0.33 to 0.29)		2.30
Cole et al,[24] 2006	-0.14 (-0.68 to 0.39)		0.81
Davidson et al,[77] 2013	-0.26 (-0.54 to 0.01)		1.77
Ell et al,[78] 2008	-0.13 (-0.35 to 0.08)		4.11
Ell et al,[79] 2010	-0.49 (-0.70 to -0.27)		3.91
Ell et al,[21] 2007	-0.01 (-0.33 to 0.30)		2.43
Gensichen et al,[65] 2009	-0.23 (-0.41 to -0.06)		6.63
Huffman et al,[80] 2011	-0.23 (-0.53 to 0.07)		1.77
Huffman et al,[81] 2014	-0.24 (-0.62 to 0.13)		1.33
Menchetti et al,[66] 2013	-0.06 (-0.39 to 0.28)		2.57
Huijbregts et al,[67] 2013	-0.32 (-0.77 to 0.13)		1.32
Vlasveld et al,[68] 2012	-0.20 (-0.67 to 0.26)		1.15
Smit et al,[69] 2006	0.05 (-0.59 to 0.68)		1.34
Smit et al,[69] 2006	-0.27 (-0.83 to 0.29)		0.62
Smit et al,[69] 2006	-0.23 (-0.73 to 0.28)		0.70
Rollman et al,[82] 2009	-0.25 (-0.48 to -0.03)		3.35
Patel et al,[70] 2010	-0.15 (-0.38 to 0.08)		8.67
Wells et al,[71] 2000	-0.11 (-0.28 to 0.06)		7.30
Wells et al,[71] 2000	-0.16 (-0.34 to 0.01)		6.60
Adler et al,[72] 2004	-0.09 (-0.28 to 0.10)		4.46
Richards et al,[74] 2013	-0.19 (-0.37 to -0.02)		6.42
Coventry et al,[12] 2014	-0.28 (-0.45 to -0.11)		4.52
REML Overall I^2 = 0.9%	-0.21 (-0.27 to -0.15)		99.38

-1.0 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8
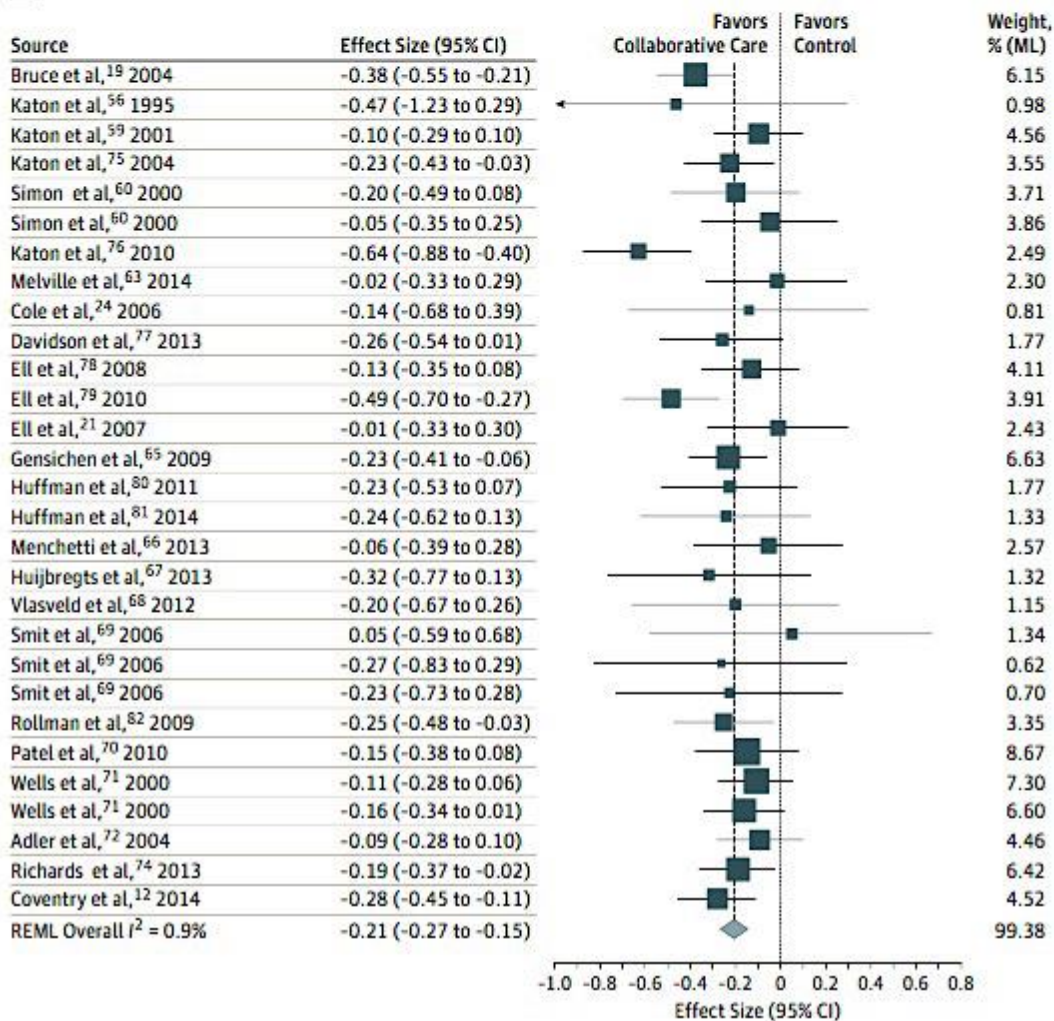Effect Size (95% CI)

Figure 3.9 Examining Effect of Chronic Physical Comorbidity on Collaborative Care Effectiveness (Panagioti et al, 2016)

3.3.3 Improving Care Experience

First, it is important to explain the difference between care experience and care outcomes. Care outcomes relate to a clinical prognosis, are specific to patient symptoms, and involve health-related quality of life. Care experience, on the other hand, relates to the humanity of care, the patient's opinion of how care was delivered, and the dignity with which they were treated (Black, 2013). More focus was put on care experience after the Institute of Medicine proposed patient-centered health care as a health care quality aim (Wolfe et al, 2001). Improving care experience as a goal of the Triple Aim underscores this focus and patient-centeredness today is widely considered as a standard for interpersonal care (Wolfe et al, 2001).

Patients value effective communication with their health care providers, staff responsiveness, and the feeling of being treated with respect (AHRQ 2004). As a measure of patient-centeredness, patient experience provides information regarding what patients experienced or did not experience in their interaction with providers and/or the health care system (Browne et al, 2010). This information can be captured through patient reported experience measures (PREMs). Care experience surveys, such as the Consumer Assessment of Healthcare Providers and Systems (CAHPS), ask patients to assess parts of their interaction such as scheduling appointments, perceived care coordination, information availability (Goldstein et al, 2001; Keller et al, 2005).

Improving patient experience has been related to greater improvements in medical conditions (Beach et al, 2006). An improved patient care experience has been linked to better diabetes outcomes, via improved blood sugar control and decreased functional limitations (Greenfield et al, 1988). More recently, a large-scale study focusing on patient-centeredness evaluated the association between patient perception and medical outcomes related to HIV, specifically regarding receiving highly active antiretroviral therapy (HAART), adherence to HAART, and HIV patient health outcomes (Beach et al, 2006). Patient-centeredness includes an "understanding each patient is a unique human being" and it was concluded that patient-centeredness, measured by patient perception, is "significantly" and "independently associated" with better health outcomes (Figure 3.10) (Beach et al, 2006).
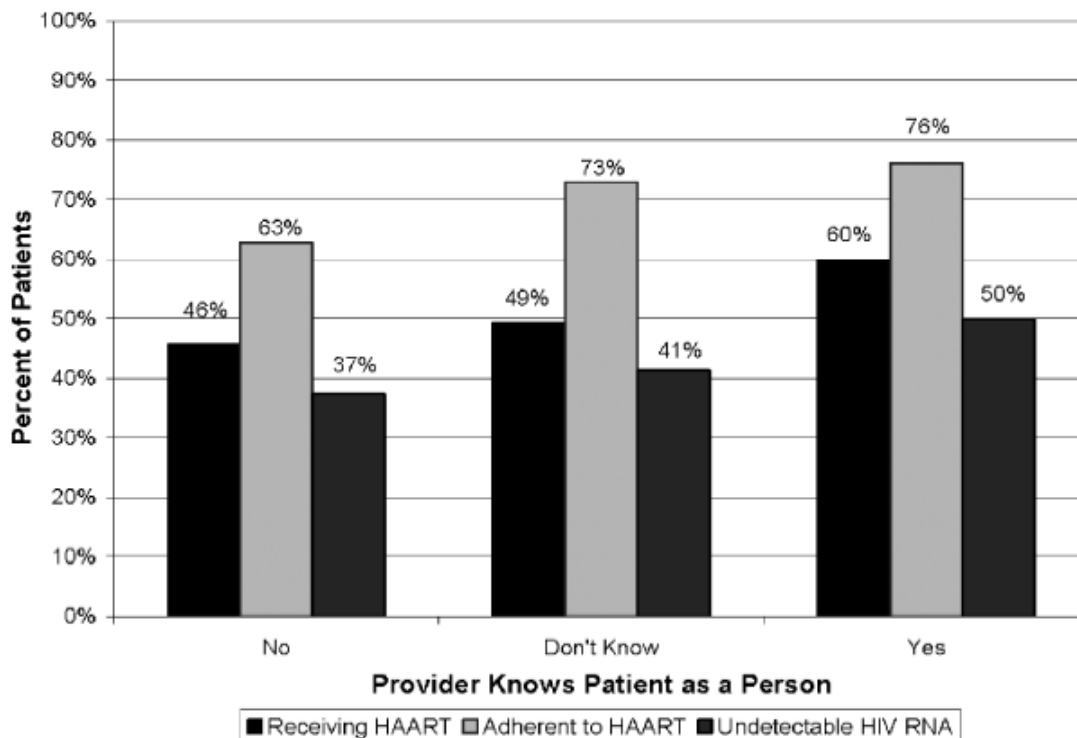
Figure 3.10 Association between Measure of Patient-Centeredness and Patient Outcomes (Beach et al, 2006)

While the link between care experience and some condition prognoses have been defined, be it related to diabetes or HIV, the explicit use of PREMs within collaborative care is lacking. In general, collaborate care adopts a broader definition of care experience with the inclusion of patient-reported outcomes. Moreover, with close attention by a network of providers, to telephonic and in-person case management, the collaborative care model prioritizes this broader patient experience. With a focus on PROMs, collaborative care looks to provide comprehensive, individualized condition tracking, provider comparison, and population health monitoring. In this context, collaborative care effectively targets the goal of improving care experience. In a qualitative study assessing collaborative care patient experiences, "most of the protocol elements were supported by patients" and the added patient responses "allow[ed] for greater delivery flexibility and more attention to therapeutic alliance and relapse prevention" (Simpson et al, 2008). Patients reported that time spent with their case managers demystifying their illness and receiving treatment support aided patients overcome stigma, develop trust with their care delivery team, and believe that

treatment could be effective (Simpson et al, 2008).

While the broader definition of care experience is used, improving care experience is a focus of collaborative care. Thus, while collaborative care uses outcome-based measures, it does not explicitly use PREMs. Integration of PREMs into collaborative care may therefore provide novel insight, such as systemic issues within a health system, or supplement the PROMs as a key mechanism for further improving mental health outcomes.

4 DISCUSSION

4.1 Policy Recommendations & Future Directions

With a strong framework, collaborative care provides a compelling solution to issues in mental health treatment today and, when implemented robustly, shows promise to target the goals of the Triple Aim (APA 2016). However, more effort is needed to realize the large-scale potential impact collaborative care may have on reducing the incredible burden of mental health issues in the US and elsewhere. Suggested policy shifts and recommendations for greater integration of collaborative care in the US are provided, along with directions for future research. A description of collaborative care in the UK context follow.

4.2 Recommendations for the United States

Collaborative care can more proficiently reduce per capita health care costs for populations, improve population health, and improve care experience. Both implementation-based and fiscal-based policy changes are needed to improve collaborative care. Recommendations on changes are offered followed by a short description (Summarized in Figure 4.1).

4.2.1 Implementation-Based Policy Recommendations

1. Establish and adopt a unified lexicon surrounding collaborative care.
While the benefits of collaborative care have been discussed in numerous studies, it has proven difficult to ascertain the specific components that lend to the model's success (Miller et al, 2013). Understanding the impact of specific components can be invaluable to integrator organizations and policymakers as this information could drive investment. A key

impediment to better understanding these components is the lack of a unified lexicon, which leads to semantic confusion when discussing dimensions of collaborative care (Peek 2011). Identifying a clear lexicon for collaborative care can advance the goals of macro-level and micro-level integrators and provide clarity in delivering evidence-based care.

2. Stimulate large and small-integrator partnerships.

As emphasized by Berwick, the existence of macro-level and micro-level partnerships are integral to achieving the Triple Aim (2008). Kaiser Permanente is an integrated network that provides care to over 3 million Southern Californians by fostering relationships with smaller clinics and providers throughout the region (Katon et al, 2010). Kaiser Permanente also took part in original trials of collaborative care and integrated its usage after the trials ended. Kaiser Permanente is one of the largest integrated health organizations, providing collaborative care and is a prime example of the benefit of macro-level – micro-level partnerships. Genesys, the Michigan-based integrated health system, is also an example of the benefits of these partnerships. By engaging with affiliate PCPs and other community organizations, the system was able to reduce payer cost burden and reduce significantly hospital admissions and emergency department visits (McCarthy and Klein, 2010).

3. Develop different collaborative care team options, population-specific.

While the key players in a collaborative care model are constant, there are varying types and make-ups of care teams. Clinical social workers, nurses, psychotherapists, and other health care providers can play major roles in treatment. After identifying the impact of specific dimensions of collaborative care, options for team size and specific roles necessary should be created to aid systems in implementing these models. Variations in team size and roles should be based on specific population characteristics as some roles are better suited to fit population needs than others and further research is needed here. The creation of team options could provide systems more direction when integrating collaborative care.

4. Develop process measures specific to collaborative care.

Accountability and quality improvement often focus on process measurement. These tools allow for treatment optimization and failed treatment detection. Using process measures specific to collaborative care may encourage quality improvement and an advancement in delivering evidence-based care (APA 2016). Beyond this, usage of these process measures

should be unified between macro-level and micro-level integrators to ensure robust delivery of care.

5. Increase unified disease-tracking and update EMR.

The variation in epidemiological resources detracts from potential population-focused team efforts, ultimately impacting individual patient follow-up. When using collaborative care models, a unified disease-tracking system should be in EMR. Currently, these disease-tracking resources are external to EMR, duplicating significant amounts of data and being especially time intensive (APA 2016). The assimilation of collaborative care-specific information into EMR can greatly increase the delivery of evidence-based care.

6. Incorporate process and quality improvement teaching in medical education.

A key step to achieving the Triple Aim is changing professional medical education to enable providers to identify and improve upon processes of care (Berwick et al, 2008). This pedagogy is still lacking and is commonly suggested as a necessary change (APA 2016).

7. Coordinate training for all team members and incentivize professional certification.

For current providers, trainings and professional certifications should be encouraged. For example, the AIMS Center and the Substance Abuse and Mental Health Services Administration (SAMHSA) have collaborative care trainings (Ratzcliff et al, 2012). By incentivizing these trainings and certification programs, more providers will become equipped with delivering and improving collaborative care.

4.2.2 Fiscal-Based Policy Recommendations

1. Incentivize comprehensive payer schemes to appropriately reimburse providers.

Collaborative care requires dynamism and agility from providers. Moreover, providers are required to sometimes provide care outside of their typical reimbursable duties, such as telephonic follow-ups for nurses or care managers. Pay-for-performance schemes should be fully operationalized to properly incentivize this modicum of care and to provide a disincentive to non-evidence-based care. On the other hand, fee-for-service inconsistencies are barriers to receiving mental health treatment (Brown-Levey et al, 2012). By incorporating blended payments and moving away from fee-for-service, adequate

collaborative care utilization can be incentivized. Notably, risk adjustment and risk sharing must also be incorporated into these payment models (Goodrich et al, 2013).

2. Incorporate dispersion of cost savings to payers and invest in improvements.

Financial gains from cost saving should be appropriately divided so patients can realize savings and those who invest in the model can enjoy a return on their investment (Berwick et al, 2008). Here, investors are typically governments, ACOs, or other large scale systems but may also include micro-level integrators such as community clinics.

3. Expand Medicare coding.

The inclusion of Medicare codes specifically for collaborative care (Appendix II) is an important step in improving access to collaborative care and should be expanded to include more services. The inclusion of detailed reimbursement options for PCPs, care managers, and other providers should be considered as a way of incentivizing care delivery previously non-reimbursable. For care managers, patient education and extensive follow-up should be coded. For PCPs, stepping up treatment options, entailing resources spent on understanding the real-time patient prognosis, should be coded. Medicare codes should also exist for clinical social workers or case management by nurses.

4. Increase provider financial literacy regarding collaborative care.

The AIMS Center has created a financial modeling workbook to provide financial literacy for practices looking to integrate collaborative care. The tool also offers insight into staffing models and payments, and provides accuracy in estimating revenue and expenses relating to collaborative care (AIMS 2017). This and similar tools should be promoted broadly to educate medical professionals about the feasibility of collaborative care.

5. Provide recognition and financial incentive for collaborative care investment.

Investment in early stage programmatic settings can relieve associated financial risk and reduce overhead for projects to come to fruition. Recognition of these investments (a rarity in health care investments) and early financial incentive are innovative methods of promoting wide-scale implementation of collaborative care in the health care sector. Moreover, the prospect of financial incentive can foster competition and increase innovation in developing such programs.

Implementation-Based Policy Recommendations	
1. Establish and adopt a unified lexicon surrounding collaborative care.	
2. Stimulate large and small-integrator partnerships.	
3. Develop different collaborative care team options, population-specific.	
4. Develop process measures specific to collaborative care.	
5. Increase unified disease-tracking and update EMR to include collaborative care specifics.	
6. Incorporate process and quality improvement pedagogy in professional medical education.	
7. Coordinate training for all team members and incentivize professional certifications.	
Fiscal-Based Policy Recommendations	
1. Incentivize comprehensive payer schemes to appropriately reimburse providers.	
2. Incorporate measured dispersion of cost savings to payers and future investments in improvements.	
3. Expand Medicare coding.	
4. Increase provider financial literacy regarding collaborative care.	
5. Provide recognition and financial incentive for collaborative care investment.	
Directions for Future Research	
1. Include indirect health care costs when studying the cost-effectiveness of collaborative care.	van Steenbergen-Weijenburg et al, 2010
2. Study the inclusion of PREMs as a way of improving care experience.	Browne et al, 2010
3. Identify which parts of the collaborative care model are most impactful in order to further develop these components.	Bower et al, 2006
4. Understand externalities afforded by innovative partnerships between various integrators.	Berwick et al, 2008
5. Identify the ideal process and outcome measures needed to maintain and enhance collaborative care models.	Black 2013
6. Understand long term (greater than 5 years) impact of collaborative care in non-US settings.	Sighinolfi et al, 2014
7. Further study adaptability of collaborative care in non-US settings.	Sighinolfi et al, 2014

Figure 4.1 Policy Recommendation Summary

4.3 Collaborative Care in the United Kingdom

Although the vast amount of study and implementation of collaborative care has occurred in the United States, more work on these axes is arising from the UK (Sighinolfi et al, 2014). The present literature review yielded one meta-analysis focused on evaluating the effectiveness of collaborative care specifically in the European context. However, previous meta-analysis has included non-US studies and found greater between-study heterogeneity in non-US studies than in US studies (Gilbody et al, 2006). Potential reasons for this include differences in health care organizations and the degree of fidelity of collaborative care models when explored in non-US settings (Sighinolfi et al, 2014).

Even when adapted to various healthcare systems in the European context, collaborative care has been shown to be more effective when compared to usual PCP care (Sighinolfi et al, 2014). Out of the 17 papers analyzed with studies from 6 European countries, 8 were in a UK setting which, unlike other European countries, has established pathways of care where nurses perform multidisciplinary roles and case managers are a well-established entity (Sighinolfi et al, 2014; Kringos et al, 2013). In the UK, most patients with depressive disorders are managed within primary care settings where quality of care for such illnesses is often suboptimal. Sighinolfi concludes that collaborative care is effective in improving depression outcomes in the UK context (as well as the greater European context) while being feasible and adaptable to specific resources available in various primary care settings (2014).

Although it appears to be effective, there are significant barriers to integrating collaborative care in the UK setting (Richards et al, 2006). This qualitative study found significant dissonance between various health workers, namely GPs and mental health workers, on the collaboration for mental health treatment. GPs raised concerns regarding space and time for treatment, believing that significant resource use would be needed to implement the collaborative care model widely, while mental health workers believed that delivering collaborative care would be an obstacle rather than an effective strategy in delivering mental health treatment (Richards et al, 2006). To be an acceptable strategy in the UK, collaborative care would need to minimize patient disempowerment (the chief concern of patients) and assuage the issues described by health care workers (Richards et al, 2006). This qualitative

study provides key, however somewhat outdated insight into patient and worker opinion on this model. Qualitative studies occurring shortly after demonstrate a slight shift in opinion that has continued with the development of collaborative care (Simpson et al, 2008).

As collaborative care is becoming a widely accepted standard of care in the United States and more study and application of it is occurring elsewhere, the collaborative care model is likely to become the prominent method of mental health treatment in primary care settings broadly. The five core tenets, summarized in figure 4.2, along with determined pursuit of achieving the Triple Aim are crucial to successfully designing and implementing the collaborative care model in the UK.

Tenet	Description
Team-Based Care	A multidisciplinary group of health care professionals working together closely to provide personalized, appropriate treatment in real-time.
Measurement-Guided Treatment	Using disease-specific and general PROMs in the provision of care.
Population-Based Care	Delivering care focused on the health outcomes, determinant patterns, and relevant further interventions for a defined and specific patient population.
Evidence-Centered Care	The delivery of care based on scientifically proven treatment in order to improve health.
Accountability Measures	Combining accountability, process, and quality improvement measures to ensure fidelity of health care delivery.

Figure 4.2 Recapitulation of the Core Tenets of the Collaborative Care Model

CONCLUSION

In the face of the increasing burden of mental health, especially depression, collaborative care has become a viable and vital method of treatment. With core principles guiding the implementation and advancement of collaborative care, this model is becoming more accessible to patients in the United States and further study is ongoing to adapt it elsewhere. The present paper aims to identify the core tenets and assess the ability of collaborative care to be impactful in the US, as well as explore necessary steps to further develop it. Successfully merging the dimensions of collaborative care with the pursuit of achieving the Triple Aim can yield profound results and is therefore an alignment worth endeavoring.

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Appendix

Appendix I

A National Agenda for Research in Collaborative Care

Defining clauses for collaborative care	Elements to be measured (from parameters of collaborative care)	Metric—relative presence or absence of these elements in a practice	Data source for that metric
1. A team	Clinical functions available through different team members	Treatment provided by a physician and behavioural health clinician	Clinical record
	Level of sharing physical or "virtual" space	Evidence of behavioural health clinician on site or documentation of working relationships between collaborating clinicians in separate sites	Employment record or formal document outlining relationship
	Level of training for collaborative care	Evidence of team member completion of collaborative care training in the last year	CE documentation
	Level of shared professional culture	Percent of total set of markers for a fully shared professional culture	Markers from Doherty, McDaniel, Baird[9]
2. With a shared population and mission	Overall practice mission and patient panel	Pick one category from: a) primary medical care, b) specialty medical care, c) specialty mental health care	Practice license or certification
	Identified population seen for collaborative care	Percent of total practice patients seen collaboratively with: a) mental health conditions, b)medical conditions/chronic illnesses with behavioural health factors, c) physical symptoms without medical basis, or d) any complex patient	Medical chart audit or EHR report
	Screening methods for that population	Percent of patients in target population screened.	Quality improvement report
		Percent of patients screened that were identified for collaborative care	Quality improvement report

	Assessment methods for that population	Number of patients receiving assessment contrasted with number screened positive	Chart audit or EHR
	Treatment and follow-up methods for that population	Number of patients enrolled in care who complete care episode	Chart audit or EHR
3. Using a clinical system	Population-level identification system	Evidence of an operating consistently used screening system for specified patients	System documentation and data reports
	Bio-psycho-social care plans in record	Percent of patients with care plans with documented evidence of bio-, psycho-, or social aspects of health, care and function	Chart audit or EHR
	Shared medical record	Documentation of single chart or transparent EHR access	Chart audit or EHR
4. Supported by an office practice and financial system	Clinical operational systems and processes that support collaborative care	Integrated referral, scheduling, data collection, communications, billing and office support systems	Documentation of systems
	Sustainable financial model(s) that support collaborative clinical work	Documentation of sustainable financing	Financial reports
5. With continuous QI and effectiveness measurement	Routine collection and use of practice data from QI and improving effectiveness of collaborative care.	Plan for data collection and use of collaborative care data	Quality improvement plan and project reports

Miller et al, 2011

Appendix II

Psychiatric Collaborative Care Model (CoCM)

After consideration of the comments, we proposed in the CY 2017 PFS proposed rule to begin making separate payment for services furnished using the psychiatric CoCM, beginning January 1, 2017. We were aware that the CPT Editorial Panel, recognizing the need for new coding for services under this model of care, had approved three codes to describe the psychiatric collaborative care that is consistent with this model, but the codes would not be ready in time for valuation in CY 2017. Current CPT coding does not accurately describe or facilitate appropriate payment for the treatment of Medicare beneficiaries under this model of care. For example, under current Medicare payment policy, there is no payment made specifically for regular monitoring of patients using validated clinical rating scales or for regular psychiatric caseload review and consultation that does not involve face-to-face contact with the patient. We believed that these resources are directly involved in furnishing ongoing care management services to specific patients with specific needs, but they are not appropriately recognized under current coding and payment mechanisms. Because PFS valuation is based on the relative resource costs of the PFS services furnished to Medicare beneficiaries, we believed that appropriate coding for these services for CY 2017 will facilitate accurate payment for these and other PFS services. Therefore, we proposed separate payment for services under the psychiatric CoCM using three new G-codes, as detailed below: **G0502**, **G0503**, and **G0504**, which would parallel the CPT codes that are being created to report these services.

The proposed code descriptors were as follows (from *Current Procedural Terminology*(CPT®) Copyright 2016 American Medical Association (and we understand from CPT that they will be effective as part of CPT codes January 1, 2018). All rights reserved):

- **G0502**: Initial psychiatric collaborative care management, first 70 minutes in the first calendar month of Start Printed Page 80231behavioral health care manager activities, in consultation with a psychiatric consultant, and directed by the treating physician or other qualified health care professional, with the following required elements:
- **G0503**: Subsequent psychiatric collaborative care management, first 60 minutes in a subsequent month of behavioural health care manager activities, in consultation with a psychiatric consultant, and directed by the treating physician or other qualified health care professional, with the following required elements:

- **G0504**: Initial or subsequent psychiatric collaborative care management, each additional 30 minutes in a calendar month of behavioural health care manager activities, in consultation with a psychiatric consultant, and directed by the treating physician or other qualified health care professional (List separately in addition to code for primary procedure) (Use G0504 in conjunction with G0502, G0503).

We proposed that these services would be furnished under the direction of a treating physician or other qualified health care professional during a calendar month. These services would be furnished when a patient has a diagnosed psychiatric disorder that requires a behavioural health care assessment; establishing, implementing, revising, or monitoring a

care plan; and provision of brief interventions. The diagnosis could be either pre-existing or made by the billing practitioner. These services would be reported by the treating physician or other qualified health care professional and include the services of the treating physician or other qualified health care professional, the behavioural health care manager (see description below) who would furnish services incident to services of the treating physician or other qualified health care professional, and the psychiatric consultant (see description below) whose consultative services would be furnished incident to services of the treating physician or other qualified health care professional. We proposed that beneficiaries who are appropriate candidates for care reported using the psychiatric CoCM codes could have newly diagnosed conditions, need help in engaging in treatment, have not responded to standard care delivered in a non-psychiatric setting, or require further assessment and engagement prior to consideration of referral to a psychiatric care setting. Beneficiaries would be treated for an episode of care, defined as beginning when the behavioural health care manager engages in care of the beneficiary under the appropriate supervision of the billing practitioner and ending with:

- The attainment of targeted treatment goals, which typically results in the discontinuation of care management services and continuation of usual follow-up with the treating physician or other qualified healthcare professional; or

- Failure to attain targeted treatment goals culminating in referral to a psychiatric care provider for ongoing treatment; or

- Lack of continued engagement with no psychiatric collaborative care management services provided over a consecutive 6-month calendar period (break in episode).

(CMS 2016)