

**The Role and Functions of Embedded Behavioral Health Providers in  
VA Primary Care-Mental Health Integration**

**Current Evidence and Future Directions for Research**

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A VA Center for Integrated Healthcare White Paper



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***“... the Patient Centered Medical Home will not reach its full potential without adequately addressing patients’ mental health needs. Doing so, however, will likely shift responsibility for the delivery of much mental health care from the mental health sector into primary care...”***

Croghan TW, Brown JD. Integrating Mental Health Treatment Into the Patient Centered Medical Home. AHRQ Publication No. 10-0084-EF. Rockville, MD: Agency for Healthcare Research and Quality. June 2010

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## Introduction

Since the 2008 release of the Uniform Mental Health Services Handbook (UMHSH), the Veterans Health Administration (VHA) has required all VA Medical Centers (VAMCs) and specified\* Community Based Outpatient Clinics (CBOCs) to implement Primary Care-Mental Health Integration (PC-MHI) programs. The UMHSH stipulates that these programs include two key functions: care management (CM) and co-located collaborative care (CCC). Both these components are required with the aims of improving the quality of and access to mental health services in primary care. At the time, the CM component had been relatively widely researched (particularly as applied to depression CM) and had been shown to address these aims.<sup>1</sup> Conversely, other models of integration, including CCC, had received less formal study, and in many cases had been developed through clinical innovations as various sites (both internal and external to VHA) seeking to integrate mental health care into primary care.<sup>2</sup>

As part of VHA's commitment to integration, the VA Center for Integrated Healthcare (CIH) was founded in 2004 in VISN 2 in part because the VISN was a leader in innovating integrated primary care. VISN 2, in Upstate New York, had implemented a CCC-based program in the late 1990's. The VISN 2 PC-MHI program, like all CCC programs, was based on the implementation of a platform of mental health care delivery in which licensed, independent mental health providers are embedded into primary care clinics and support improved recognition and primary care treatment of mental and behavioral health conditions by both

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\* CBOCs classified by size "Large" and "Very Large" are required to have full PC-MHI programs with both CCC and CM functions, although at Large CBOCs the hours and days of availability of integrated care services can vary depending upon the clinical needs of the patient population. Mid-sized CBOCs must have an on-site presence of mental health services available to primary care patients who need them, with distribution of services between integrated care and mental health bases on the clinical needs of the patient population. Smaller CBOCs must provide access to general and specialty mental health services, but can achieve this through multiple paths (e.g., on-site, telemental health, referrals and sharing agreements).

supporting the Patient Aligned Care Team (PACT<sup>†</sup>) and delivering stepped care interventions to Veterans.

The limited research on CCC is primarily in the form of quasi-experimental or observational studies of programs that are already in place. The findings of these studies have not been reviewed and integrated, which seems essential to understanding and advancing the field. Additionally, there have been a number of literature reviews focused on CM.<sup>1,3,4</sup> The majority of CM studies target improved access and quality of pharmacological treatments. Thus, there has been significant attention paid to the role of care managers and embedded or collaborating providers with psychiatric prescription privileges. In comparison, there is no published comprehensive review of the literature regarding the provision of behavioral intervention (BI) services by licensed, independent practitioners (LIPs) embedded in primary care. This gap remains despite the fact that LIPs without prescription privileges far outnumber other types of embedded mental health providers in VA PACT clinics.<sup>5</sup>

As a research center devoted to improving the health care of Veterans by supporting implementation of PC-MHI and as experts in the area of non-pharmacologically oriented CCC practice and interventions, it is incumbent on CIH to provide that missing review of the evidence. It is our intent that this review will provide CIH, VHA practitioners, administrators, and other researchers with a thorough review of the literature and with a sound basis for future research and clinical innovations related to the role of MH LIPs delivering BIs through the CCC component of PC-MHI care.

This white paper consists of four major sections. The first section provides general background about PC-MHI in VHA in order to provide the reader with a context to understand

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<sup>†</sup> PACT is the VHA name for the Primary Care Medical Home, an interdisciplinary team-based model of primary care service delivery.

the expected roles of MH LIPs in VA PC-MHI Programs. The next two sections of this document provide summaries of two different literature reviews. The second section is focused on program- and provider-level processes. It provides a *focused* literature review on programmatic and patient outcomes of the PC-MHI program that incorporate the CCC function and on MH LIP practice behaviors and fidelity to the core components of CCC. The third section focuses on the intervention research. It provides an overview of a *comprehensive* literature review of BIs that are feasible for delivery in PC. The fourth and final section concludes with recommendations for future research that will lay groundwork for evidence-based CCC clinical practice.

## Section I: Primary Care-Mental Health Integration in VHA

The VHA's strong commitment to offering comprehensive, patient-centered, high quality health care for the whole person has led to several transformational initiatives over the past decade. One such major initiative is Primary Care-Mental Health Integration (PC-MHI), mandated by VHA in 2008<sup>6</sup> to facilitate the integration of mental and behavioral health services into the primary care setting.<sup>7</sup> PC-MHI services are intended to be population-based, patient-centered, collaborative, measurement-based, and evidence-based.<sup>8,9</sup> The goals of PC-MHI are to:

- Improve detection of, and appropriate early intervention for, common mental and behavioral health problems, such as depression, anxiety, alcohol misuse, trauma and stress-related conditions <sup>9</sup>;
- Increase access to, and engagement in, collaborative, stepped and measurement-based care for these problems <sup>9</sup>;
- Improve quality and coordination of PACT MH care through collaboration between co-located mental health and medical providers in PC <sup>9</sup>;
- Provide patient-centered mental health care that is based in primary care, a setting where patients frequently express their desire to receive such services,<sup>3</sup> and,
- Decrease mental health stigma.<sup>10</sup>

PC-MHI fits within the broader array of mental health services in VHA by addressing the needs of Veterans with mild to moderate mental and behavioral health concerns and supporting the rest of the PACT in advancing population-based mental health in primary care. As can be seen in Figure 1, PC-MHI programs address the needs of the majority of the primary care population using a stepped approach to care. In stepped care approaches, low-intensity interventions are provided prior to the application of more intense, more restrictive, or more

costly interventions, and increases in service intensity are guided by patients' responses to intervention over time.<sup>11</sup> An essential component ensuring safety and quality of stepped care is the systematic use of measurement and monitoring of patient outcomes so that when patients do not respond to lower intensity treatments, higher intensity treatment is applied.<sup>11</sup>

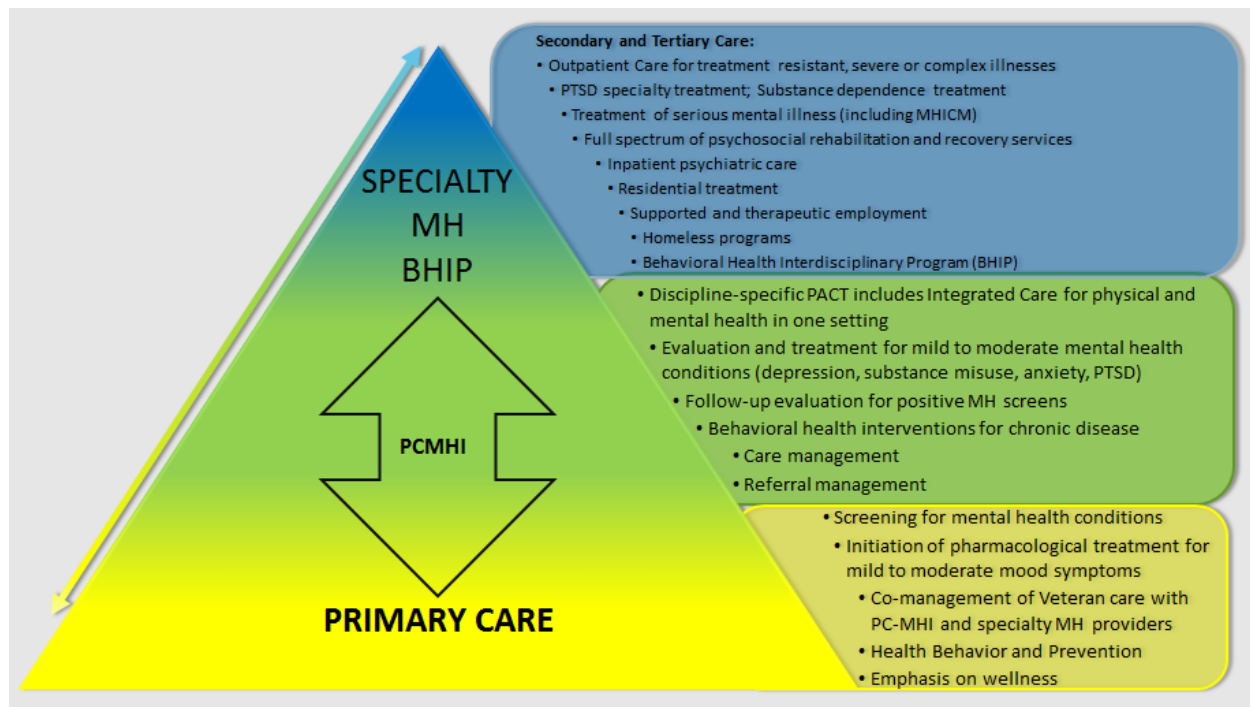


Figure 1. Stepped Approach to Mental and Behavioral Health Care in VHA.

In VHA PC-MHI, as is commonly the case outside VHA, stepped care begins with PACT providers and staff screening for common MH conditions. VHA PC-MHI differs from common current practice outside VHA by embedding MH staff into PACTs. PC-MHI programs embed LIPs, and in many sites, Care Managers, who collaborate with the PACT team to support high quality mental health care. PC-MHI programs provide brief, low-intensity mental health services to many patients, and facilitate the flow of patients both into and out of higher intensity MH care settings (i.e., general and specialty mental health care). The two components that comprise PC-MHI,<sup>7</sup> care management (CM) and co-located collaborative care (CCC), are intended to meet the



full spectrum of mental and behavioral health needs appropriate for treatment within the primary care setting. Depending on the structure and staffing of PC-MHI programs at individual sites, the delivery of CCC and CM functions may be performed by the same or different providers.

Both CM and CCC can be conceptualized as *platforms* of mental and behavioral health care delivery in which resources (e.g., mental health providers, care managers), structures (e.g., shared clinic space, information technology tools), and processes (e.g., screening and brief treatment) have been developed. Both platforms of care delivery serve to improve the quantity and quality of mental and behavioral health care delivered by PACT to primary care patients with mild to moderate mental health concerns. Neither is a treatment in itself; rather, both support the delivery of mental health interventions in primary care. Once either platform is implemented, multiple interventions can be delivered through the platform. To provide context, each platform is described briefly.

### Care Management

CM is a set of evidence-based, protocol-driven services that include longitudinal monitoring and follow-up, provision of brief structured behavioral health interventions, and prescription and management of psychotropic medications.<sup>12</sup> Specifically, CM includes:

- Structured, measurement-based care guided by scripts and algorithms for stepping care up or down based on patient response to treatment over time. Risk assessments and lethality protocols are included to minimize patient risks and ensure that licensed providers are consulted expeditiously when patients are at risk;
- Protocols that guide systematic assessment, treatment, and when appropriate watchful waiting or referral to higher levels of care and typically focus on a specific condition, such as depression,<sup>13,14</sup> alcohol misuse,<sup>15</sup> or dementia<sup>16</sup>;

- Services delivered primarily or exclusively by telephone. Telephone delivery may increase the feasibility of longer-term follow-up than is typically available with embedded LIPs in CCC.
- Services that are designed to be delivered by care managers who may or may not be independently licensed. For example care managers may be registered nurses or psychology trainees as long as sufficient supervision and oversight is provided and the individual is practicing within the appropriate scope of practice. (As CM has been implemented in VHA, embedded LIPs such as licensed clinical social workers and psychologists have also provided these services.);
- Regular review of the panel of patients with the care management team and LIPs has been shown to be a feature of programming that supports improved patient outcomes<sup>3</sup>.

Examples of evidence-based CM programs developed and used within VHA include:

- Behavioral Health Laboratory (BHL)<sup>17</sup>
- Translating Initiatives for Depression into Effective Solutions (TIDES)<sup>14</sup>

The UMHSB allows sites to use either BHL or TIDES-based programs or to develop one of their own. However, VHA Central Office must approve independently developed programs.

It is noteworthy that the majority of research upon which CM is focused on improving the quality of primary care-based pharmacological treatments for MH diagnoses.<sup>1</sup> Integration of behavioral interventions into CM models is feasible and has been incorporated at some sites.

### Co-located Collaborative Care

The CCC platform of care delivery embeds LIPs (e.g., psychologists, licensed clinical social workers, advanced practice nurses, and psychiatrists; hereafter referred to as behavioral health providers, or BHPs) into VHA primary care clinics.<sup>10</sup> BHPs serve many functions

including:

- **Assessment:** Brief assessment for patients who either self-identify or are identified by PACT members as needing assistance with mental or behavioral health concerns. Such assessment includes focused, symptomatic, functional and risk assessments using structured instruments and targeting both the referral question and the individual patient's goals.
- **Triage and Referral:** Triage for patients who are highly complex or in need of more frequent or intense care than can be provided in PC. BHPs also facilitate referrals to specialty mental health services.<sup>18</sup>
- **Brief Interventions:** Patient education, activation, and brief interventions for mental and behavioral health problems are provided for a variety of commonly occurring MH conditions such as depression, anxiety and problem drinking.
  - Treatment typically involves lower appointment frequency, intensity, and duration compared to specialty mental health care.<sup>19</sup> Examples of activation and intervention approaches include: brief problem-solving therapy, brief cognitive-behavioral interventions, brief alcohol interventions, and motivational interviewing.
  - The prototypic course of CCC treatment ranges from 1 to 6, 15-30 minute<sup>5,20</sup> face-to-face appointments. Unlike more intensive MH specialty care treatments, appointments are likely to be spaced at intervals longer than one week. In some sites, such as White River Junction<sup>11</sup>, open access is used meaning that spacing of appointments is dependent on patient choice.
  - BHP's also provide appropriate crisis management services (e.g., management of

suicide risk) as needed.

- **Subject Matter Expertise:** BHPs serve an important role in the PACT by providing consultation, education, and support to all team members as they work to understand and care for patients with mental health symptoms and health behavior challenges. As subject matter experts, BHPs can help all PACT members interact with complex patients, take motivational approaches, identify patients who would benefit from MH services, and address mental and behavioral health concerns through collaboratively developed treatment plans for well-coordinated care.
- **Psychiatric Medication Support:** BHPs with prescription privileges (e.g., psychiatrists, clinical nurse specialists) provide consultation to primary care providers (PCPs) on questions related to medication management and supervise or serve as consultants to PC-MHI staff who do not prescribe. They may at times prescribe medications, but the emphasis of PC-MHI is that the PCP remains the primary prescriber.

The UMHSB does not specify program requirements for CCC beyond colocation, collaboration with primary care, and provision of assessment and psychosocial treatment as needed for a variety of mental health problems, which include depression and problem drinking.

Examples of successful CCC programs within VHA include:

- The White River Junction program<sup>21</sup>
- The VISN 2 program<sup>22</sup>
- The Saint Louis SLICE program<sup>23</sup>

### **Complementary Platforms of Care Delivery**

CM and CCC overlap practically and conceptually in several ways. Both are designed to be feasible in busy PACT clinics. Both contribute to improved recognition of mental health

conditions by supporting brief assessment following screening and emphasize stepped care approaches and patient self-management. Both seek to improve communication and collaboration between the primary care and behavioral health experts in order to improve the quality of PACT. Ideally, each is available and is offered in a smoothly coordinated, patient-centered manner that improves mental health care in PACT though somewhat different approaches:

- The CM approach to integration offers *disorder-specific*, structured care and longitudinal follow-up. CM can be used to target improved quality of primary care for highly prevalent conditions such as depression, bringing treatment into concordance with clinical practice guidelines.
- The CCC approach to integration offers services for *the full spectrum of mental and behavioral health concerns* through open-access to in-person consultation, assessment, and stepped intervention in primary care provided by embedded MH LIPs.

By including the CM and CCC platforms of care delivery, VHA PC-MHI programs are designed to improve access and quality of PC for both highly prevalent, mild to moderate mental health symptoms and the broad diversity of conditions that can benefit from behavioral health expertise (e.g., insomnia, chronic pain, medication adherence).

As noted earlier, one significant difference between CM and CCC is the amount of attention each has received in the literature. CM, also frequently called ‘collaborative care’, has received a large amount of attention in the scientific literature with numerous randomized clinical trials and implementation studies most often focused on high quality pharmacological treatments.<sup>1,3</sup> Conversely, CCC, also known as ‘integrated primary care’ and ‘primary care behavioral health’, has been the subject of numerous descriptive studies, but limited

experimental studies.<sup>24 25</sup> Therefore, as a way to advance PC-MHI research and clinical practice, the remainder of this document reviews and synthesizes research findings on the CCC platform of care delivery and the provision of services by licensed, independent mental health providers. The two separate review methodologies were used. A focused literature review was conducted to examine programmatic processes and outcomes and provider practices, in other word, the ‘how’ of the PC-MHI care delivery through the CCC platform (Section II: Program and Patient Outcomes and BHP Practice Behaviors). A second comprehensive literature review methodology was employed to examine the relatively more extensive literature base on brief behavioral interventions that are feasible in PC-MHI settings, in other words, the ‘what’ of PC-MHI care delivery (Section III: Evidence-based Brief Behavioral Interventions Appropriate for the CCC Platform). Based on these reviews, recommendations for advancing the field of research pertaining to the CCC platform of care delivery are made in the concluding section of this document.

## Section II: Program and Patient Outcomes and BHP Practice Behaviors

### Literature Review Methods

This section reviews literature on two areas. The first area reviewed focuses on patient outcomes for PC-MHI services delivered by LIPs as part of usual clinic services, including (1) access to and utilization of healthcare services, (2) cost-effectiveness, (3) patient satisfaction, and (4) changes in patient health status or symptoms. The second area reviewed addresses PC-MHI LIPS behaviors, including their engagement in processes of care and interactions with primary care teams. The selection of process-related literature was guided by the Agency for Healthcare Research and Quality National Quality Measures Clearinghouse definition of care process as “the activities carried out by health care professionals to deliver services.”<sup>26</sup> Indicators of process focus on providers’ activities during an episode of care rather than patients’ activities while seeking care.<sup>27</sup>

The search strategy used was an iterative process, starting with a review of personal libraries of relevant works to identify key terms, authors, and topics. We searched PubMed from 1990 to present combining permutations of “primary care” with “mental health” and/or “behavioral health” as our basic search. We then added a variety of additional terms to identify processes of care articles (e.g., “fidelity”, “adherence”, “collaboration”, “team-based care”) and patient outcome articles (e.g., “symptom change”, “utilization”, “satisfaction”). Searches were supplemented with reviews of selected reference lists. From the large number of articles generated, several criteria were used to determine which articles were included in the review:

- 1) Only empirical works in English focusing on adult populations were maintained in the pool of candidate articles.
- 2) Articles were required to include research on a CCC platform of care delivery. For the purposes of this section, key distinguishing characteristics of CCC include services that are

provided within the primary care setting by licensed independent mental health providers with ongoing communication and collaboration between the mental health provider and other members of the primary care team.

3) Articles were required to focus on CCC as delivered under usual clinical practice.

Articles that focused on special administration of CCC for the purposes of research are reviewed in the Brief Interventions (BI) section of this paper.

It is important to note that literature on treatment as usual PC-MHI encounters throughout the VHA typically includes both the CCC and CM platforms of care, so that it is not possible in such cases to interpret findings for CCC and CM separately.

## Section II.A Patient and Program Level Outcomes

### Access and Utilization of Healthcare

Most of the published data on patient outcomes focus on how patient care delivered by LIPs within the PC-MHI platform is associated with improved access and utilization of services, consistent with the primary goals of PC-MHI.<sup>‡</sup>

- VHA PC-MHI appointment attendance is associated with longer retention in specialty mental health treatment, and increased rates of accurate mental health diagnoses in medical charts.<sup>5,28,29</sup>
- Same day receipt of VHA PC-MHI<sup>2</sup> services (from the time of PCP referral) is associated with increased odds of attending future mental health appointments for both psychotherapy and psychiatric medication.<sup>30,31</sup>

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<sup>‡</sup> Access and service use has been most typically measured by extracting data from medical records. Fourteen published articles report on the association between PC-MHI services provided by LIPs and patient access and service use. Of these articles, three are randomized clinical trials comparing PC-MHI, as typically delivered in community and VHA primary care clinics; to an enhanced specialty care referral option. The remainder of the articles use pre vs. post PC-MHI implementation designs comparing access and health care utilization for clinics with or without PC-MHI services or comparing patients who do and do not receive PC-MHI services. Ten articles report on administrative data collected from the VHA patient medical record with six of these reporting on National VHA data, and four reporting on data that are specific to two VA healthcare systems (White River Junction and St. Louis). One study reports on healthcare utilization associated with the Air Force PC-MHI model.



- Among older adult PC patients in the VHA and community with depression, anxiety, or alcohol problems, PC-MHI care provided by LIPs is superior to an enhanced specialty care referral system in initial mental health appointment attendance, number of mental health appointments attended, and wait times for initial mental health appointments.<sup>32-35</sup>
- Specific sites within VHA/DOD have reported increased mental health appointment attendance, improved transition from PC-MHI to specialty mental healthcare, more optimal treatment of depression, increased prescribing of psychiatric medications by PCPs, and increased utilization of primary care medical services.<sup>23,35-38</sup>
- Only one study indicated that VHA PC-MHI<sup>2</sup> programs were not associated with higher rates of initiation of mental health specialty care<sup>39</sup> but this study examined the association with program implementation with consults to specialty MH care and did not examine the relationship at the level of patients who interacted with PC-MHI programs.

### Cost Effectiveness

Our literature search did not reveal any VHA or DoD research that presented data regarding cost-effectiveness of providing PC-MHI services.

### Patient Satisfaction

Patient satisfaction is one of the VA's six value domains for dimensions of effectiveness for performance measurement,<sup>40</sup> however research on patient satisfaction for PC-MHI is limited.<sup>§</sup>

- Patient satisfaction was rated as high in both VISN 2 and White River Junction VAMC PC-MHI clinics, including satisfaction with time spent with the provider, help received from the provider, and overall quality of care.<sup>22,36,41</sup>

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<sup>§</sup> Patient satisfaction measured using surveys administered to patients at PC-MHI appointments.

### Patient Level Outcomes

Patient level outcomes studies included the direct measurement of change in symptoms, functioning, and behaviors following receipt of services provided by LIPs through PC-MHI.\*\* However, as noted in the background section, PC-MHI is a platform of care delivery, similar to Primary Care or Outpatient Mental Health Services, and not a specific intervention. This section presents research on changes in patient health status related to receiving PC-MHI services in general and does not include research on a specific type of intervention or treatment (e.g., brief CBT). The latter are reviewed in the BI section.

- On the whole, the literature suggests that general mental health symptoms improve over time when patients receive PC-MHI services,<sup>29,30,42-46</sup> There is some evidence that patients with more severe symptoms at treatment initiation of PC-MHI services show faster improvement<sup>29</sup> and greater changes in symptoms.<sup>44</sup>
- Other components of general mental health, including problems/symptoms, life functioning, risk, and subjective well-being, have also shown positive results when patients engage in PC-MHI services.<sup>47,48</sup>
- Additional symptom measures for specific patient presenting problems (e.g., suicidal ideation, PTSD symptoms, and depression symptoms) have also generally shown improvements when patients engage in PC-MHI services.<sup>32,49,50</sup>

### Summary and Recommendations

Overall, there is strong evidence to suggest that PC-MHI services provided by LIPs embedded in PC within the VHA and DOD settings are associated with increased access to

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\*\* Most patient outcome studies for treatment as usual CCC measure general mental health distress or symptoms using an overall mental health measure (e.g., the Behavior Health Measure-20 or the Outcome Questionnaire-45), but others have measured the impact on symptoms within specific patient populations using more specific measures of change (e.g., PTSD symptoms using the PTSD Checklist [PCL] or depression symptoms using the Center for Epidemiologic Studies- Depression Scale [CES-D]). There is one RCT comparing CCC as it is typically delivered with an enhanced specialty referral service,<sup>32</sup> but the rest of the studies are pre/post-treatment designs, repeated measures designs, or program evaluations without control groups representing data analysis of measures routinely administered for clinical practice within the PC-MHI service.

mental health treatment, mental health service utilization, and mental health treatment engagement (in both specialty MH and PC settings). Additional findings regarding patient outcomes suggest that patient symptoms improve following receipt of PC-MHI services from LIPs, but given current limitations of the research, these findings do not allow us to generate conclusions regarding causality and provide only general information about broad domains of symptom improvement with little research regarding quality of life, functional improvement, and other specific domains of change. Patient satisfaction and cost-effectiveness research is sparse, but the patient satisfaction data that are available suggest positive results.

The major limitation of the research presented in this section is the predominance of pre/post-treatment, and program evaluation study designs. These methodologies limit the conclusions that can be drawn, because it is impossible to know whether patient outcomes change as a result of receiving PC-MHI services or as a result of other factors (e.g., naturally occurring improvement). Based on the literature covered in this section, several primary areas for future research are indicated:

- Research related to cost-effectiveness of PC-MHI services is warranted. Additionally, more detailed delineation of patient satisfaction with PC-MHI as it is implemented in VHA would be of value. Both would be helpful in guiding programmatic decision-making in cases where different types of programming have been shown to have similar effectiveness.
- Because PC-MHI is the current standard of care in many healthcare systems, the conduct of RCTs often is not feasible. However, future research designs should include control or comparison groups whenever possible, including alternative platforms of care (e.g., direct referrals to specialty care). In addition, more precise description of services delivered via the PC-MHI platform is needed.

- Future research should investigate the connection between patient outcomes and specific processes that are often described as integral to this platform of care (e.g., warm-handoffs, BHP and PCP communication, care coordination, therapeutic alliance in the context of brief visits, the focus on current functional status of the patient, effective inter-professional team function). In addition, the investigation of structural differences across PC-MHI program implementation of care (e.g., staffing models, space design) as they relate to patient outcomes would be beneficial.
- The study of additional domains of patient health status (e.g., quality of life, functional behavior change) would help to improve the quality of evidence on health status following LIP PC-MHI services.
- Finally, additional research could explore factors that can be manipulated in order to improve access and healthcare utilization. For example, it would be valuable to study whether there are specific components of PC-MHI, beyond a warm-handoff, that improve patient utilization/access (e.g., use of an evidence-based treatment, communication between PCP and PC-MHI LIP, distribution of specific patient self-management tools)

## Section II.B: BHP Practice Behaviors and Fidelity

### Focus of Treatments Provided by BHPs

- Descriptive studies show that BHPs most often deliver interventions for common mental health conditions, such as depression, anxiety, PTSD, and substance use disorders. Secondly, BHPs engage in treating an exceptionally wide range of psychological conditions and interpersonal problems. In comparison, BHPs less frequently address behavioral medicine concerns (e.g., chronic pain, medication adherence) despite their prevalence in patients presenting in primary care.<sup>18,22,51</sup>

### CCC Consistent Practice Behaviors and Fidelity

- Multi-dimensional functional assessment is heavily emphasized by BHPs, followed by brief intervention (e.g., cognitive or behavioral techniques) and screening for mental health concerns. Routine use of measurement-based care practices beyond initial screening is limited, suggesting the need for improved engagement in brief assessment and outcome monitoring.<sup>18,52-54</sup> A study of BHPs from a single VA medical center suggests that implementing a technology-based, measurement-based care system can assist with providers' initial adoption and use of standardized patient measures.<sup>55</sup>
- Studies that examined metrics for encounter length (e.g.,  $\leq 30$  minutes) and number of encounters per care episode suggest that BHPs in both VA and the DOD do not often use some practices associated with specialty mental health care, such as 50-minute sessions or care episodes of greater than six sessions.<sup>22,52</sup>
- Studies of BHP fidelity suggest that adherence to essential CCC practices is moderate overall and lowest in relation to 1) delivering time-limited treatment within 30-minute encounters, 2) collaboration with the primary care team members, and 3) use of brief assessments to measure patient outcomes.<sup>56-58</sup>
- The degree of therapeutic alliance observed between BHPs and their patients in PC-MHI settings suggests that providers have the potential to build strong relationships with patients in a short period of time. However, the role of therapeutic alliance in relation to patient outcomes in PC-MHI has not been studied.<sup>43,51</sup>

### Inter-Professional Communication and Coordination of Team-Based Care

- Trust between BHPs, PCPs, and other primary care team members is essential for developing cohesive, high functioning teams. Trust is developed by relationship building that is often quite time-intensive. Relationships are fostered by using flexible approaches to

communication.<sup>18,22,43</sup> BHPs and primary care teams use various forms of hand-off communication depending on the needs of the patient and resources available.<sup>59</sup>

- The use of an intensive facilitation-based implementation strategy is associated with improvements in the number of primary care patients who receive integrated care (i.e., penetration rate) and proportion of PCPs who refer patients to integrated care providers. However, facilitation strategies did not appear to affect rates of same-day referrals from PCPs to BHPs (a proxy measure for open access appointments or warm hand-offs).<sup>60</sup>

### Summary and Recommendations

Overall, there is a relative dearth of empirical studies examining BHP behaviors and adoption of CCC processes, making it difficult to draw firm conclusions about the nature and impact of behaviors directed towards patients and other members of the primary care team. Nonetheless, several general conclusions can be drawn based on the studies noted above. BHPs typically address common mental health conditions rather than behavioral medicine concerns. BHPs also appear more likely to conduct tailored functional assessments than standardized brief symptom measures fundamental to measurement-based care. On average, BHPs exhibit moderate practice fidelity, but collaboration with primary care team members and adherence to time-limited treatment with 30-minute encounters may be suboptimal. Strong relationships between BHPs and patients can be established relatively quickly, whereas relationship-building between BHPs and PCPs requires time and routine communication. Implementation facilitation appears beneficial for increasing the proportion of patients who receive mental health services, but it does not appear to impact same-day referrals between PCPs and BHPs. Although diverse research methods were used in the studies noted in this section (e.g., surveys, chart review, qualitative analysis, psychometric evaluation), most studies are limited to examinations of provider behaviors in a circumscribed geographic area in a single health care system (e.g., VA).

Recommendations for future research include the following:

- Additional research is needed to better understand the advantages and disadvantages of promoting BHP activity in managing behavioral medicine concerns in primary care, including the influence of their availability to treat mental health concerns and the effect on inter-professional communication and care integration.
- Research is needed to identify both patient and provider barriers and facilitators to the use of measurement-based care (e.g., beliefs about the value of symptom assessment using structured measures). Additionally, the effects of a greater degree of adoption of measurement-based care practices among BHPs on communication and coordination with primary care teams should also be explored.
- Findings regarding therapeutic alliance in integrated care suggest that work is needed to understand if patient-provider relationship quality in PC-MHI programs is related to clinical outcomes and patient engagement in mental health care.
- Future research should focus on testing provider- and system-level quality improvement strategies to address ways in which effective inter-professional communication, including approaches to patient handoffs, can be maximized.
- Pomerantz and colleagues<sup>61</sup> recent identification of “key factors” for successful integration of mental health into primary care also bears mentioning. A factor not noted in the research reviewed here is having clearly delineated procedures for patient flow to and from PC-MHI/PACT and specialty mental health clinics. Although a key goal of PC-MHI is improved access to mental health services, it is not designed as a replacement for specialty mental health care. Thus, the optimal patient flow, including how and when patients should be transitioned to and from PCPs, BHPs, and specialty mental health programs (as well as

barriers to these processes such as lack of explicit local service agreements) has yet to be identified.



## Section III: Evidence-Based Brief Behavioral Interventions Appropriate for the CCC Platform

It is important for behavioral health providers to have and use evidence-based interventions that fit within the CCC platform. Evidence-based interventions designed for specialty mental healthcare settings do not fit the needs of behavioral health providers working in the CCC care delivery platform for several reasons:

- Intervention formats (session length and number of session per episode) are generally not designed to be feasible in PC settings. The necessity to maintain open access and address the needs of the full PC population limits the capacity of BHPs to deliver anything but brief treatments (e.g., one to six, 15-30 minute sessions).
- Evidence-based interventions often focus on Axis I disorders and not on the sub-threshold symptoms that often present in primary care.
  - The interventions tend to focus on only one symptom presentation, when most primary care patients report more than one symptom.<sup>62</sup>
- The outcomes measured do not typically include engagement in more intensive levels of care, a key aspect of effective intervention in stepped care platforms of care delivery, such as CCC.

Therefore, the purpose of this section is to examine the existing literature to identify those interventions that may fit within this platform as well as identify the gaps in the literature to help stimulate new research.

### Literature Review Methods

Due to the diversity of symptom presentations encountered by the behavioral health provider in CCC, the scope of this literature review may appear very broad. However, we narrowed the review by focusing on those research studies examining clinical interventions that

targeted the most prevalent symptoms presenting to behavioral health providers working within the CCC platform as identified by Wray et al.<sup>29</sup> and Funderburk et al.<sup>44</sup> These symptoms include depression, anxiety, and PTSD. Although the CCC literature suggests that, at present, there tends to be limited referral for these symptoms, we also included the following due to their high prevalence within primary care: alcohol and other drug use, tobacco use, and behavioral medicine concerns, such as pain. In addition, we focused our review on those interventions whose format is brief, defined as 6 sessions or fewer. (In order to maintain open access, 6 sessions is the generally recommended upper limit of the number of sessions patients are seen consecutively by the behavioral health provider working within a CCC platform.<sup>20</sup>) As described in detail in Appendix A, we either conducted a literature search (1/1/90-11/1/14) or updated existing literature reviews focused on brief, non-pharmacological interventions that targeted one of our identified symptoms. Once the study was identified, it was rated for methodological quality using a measure developed by Jadad.<sup>45</sup>

### **The Evidence Regarding BI for PC-MHI**

Table 1 is a summary of the findings of research cited in Appendix A and applying the United States Preventive Service Task Force Levels of Certainty in an effort to help identify where the strength of the available evidence is to date.<sup>46</sup> Levels of certainty range from low to high. A low level of certainty was defined as “the available evidence is insufficient to assess effects on health outcomes.” A high level of certainty was defined as “the available evidence includes consistent results from well-designed, well-conducted studies in representative populations.”<sup>46</sup> The information summarized in Table 1 is organized by Level of Certainty of the strength of evidence.

Table 1. Evidence for Efficacy of Brief Behavioral Interventions

Strength of Evidence	Intervention Target	Findings
High Level of Certainty	Depression	These efficacious interventions typically target a range of symptoms from depressed mood to Major Depressive Disorder and often involve cognitive-behavioral or problem solving strategies.
	Alcohol Use	These efficacious interventions target hazardous alcohol use and typically involve elements of motivational interviewing and personalized normative feedback.
	Tobacco Use	These efficacious interventions target cigarette smoking and typically involve motivational interviewing, brief advice using the 5A's framework <sup>63,64††</sup> (Ask, Advise, Assess, Assist, Arrange) and cognitive and/or behavioral strategies.
	Insomnia	These efficacious interventions target insomnia and typically involve cognitive-behavioral interventions or elements, such as stimulus control and sleep restriction.
Moderate Level of Certainty	Anxiety	Preliminary evidence suggests that brief cognitive-behavioral interventions are generally effective in reducing anxiety symptoms; however, many of the treatments may not be feasible to administer in primary care.
Low Level of Certainty	PTSD	Preliminary evidence suggests that most of the interventions employing a mixture of techniques (imaginal exposure, psycho-education, relaxation, cognitive restructuring) may be effective in reducing symptoms; however, a majority of these studies were conducted with patients reporting symptoms consistent with a diagnosis of PTSD as opposed to patients whose symptoms were sub-threshold for diagnosis, and were not conducted in a primary care setting.
	Other (Non-Prescribed) Drug Use	The existing studies have focused on interventions that primarily involve motivational interviewing among patients seeking treatment, but they found mixed results.
	Pain/Migraines	The five studies identified primarily examined cognitive-behavioral interventions and showed mixed evidence for efficacy in reducing pain severity with some positive findings on the impact of the interventions on quality of life.
	Hypochondriasis/somatization/health anxiety	All three studies identified examined the effect of cognitive-behavioral interventions, but found mixed results.
	Medication Adherence	Of the five studies identified, those with high levels of methodological rigor did not show significant results, but other studies did find significant improvements following a behavioral intervention that focused on elements of psycho-education and motivational interviewing.

†† The 5A's Framework developed for the tobacco use intervention described here differs from the 5A's Framework used to structure a 30 minute appointment integrated PC appointment which are Assess, Advise, Agree, Assist, Arrange<sup>73</sup>.

## Summary and Recommendations

- No studies were identified that tested brief interventions targeting sexual health concerns, such as erectile dysfunction, premature ejaculation, sexual dysfunction, and menopause, though patients commonly present with these concerns in primary care.<sup>65</sup>
- Consistency of Research with CCC platform
  - Although our review examined interventions up to 6 appointments, research has shown that a CCC provider sees patients on average for 3, 30-minute appointments, and for a modal number of one appointment.<sup>5,20,23</sup> As shown later, only those interventions targeting hazardous alcohol use and tobacco use have been shown to have a strong evidence base and have a format consistent with PC clinical practice.
    - Depression: The studies identified within the updated literature review had a modal number of 3 appointments (range 1-6) that averaged 38 minutes (range 10-60 minutes).
    - Alcohol: Those studies identified in our updated literature search had a modal number of 1 appointment (range 1-5) that averaged 24 minutes (range 2-75 minutes).
    - Tobacco Use: Those studies identified in our updated literature search had a modal number of one appointment (range 1-6) with a median length of 40 minutes (range 0.5-240 minutes).
    - Insomnia: The studies identified had a modal number of 3.9 appointments (range 1-6) that averaged 48 minutes (range 25-60 minutes).

- A majority of the clinical research studies focused on participants who met criteria for an Axis I disorder focused on a diagnosis rather than patients who report a range of symptoms. As CCC providers often are not able to complete a comprehensive psychiatric assessment and are encouraged to meet with patients reporting a range of symptoms, this is a significant barrier to implementation.
  - A majority of the clinical research studies focused on participants reporting one cluster of symptoms (i.e., depression), but patients often present in primary care with a multitude of co-occurring mental health and chronic medical problems.<sup>62</sup>
  - A majority of the studies did not recruit from a primary care population
  - A majority of the clinical research studies did not examine outcomes that may be more relevant to a PC-MHI provider's clinical practice, such as patient engagement in specialty care or functional outcomes.
- For those brief interventions identified as having a strong level of certainty surrounding the evidence, there is no substantial evidence regarding the optimum length, frequency, and content of the intervention. Although this type of work is a logical follow-up to such strong evidence for efficacy, it remains to be done even in the case of BIs with decades of efficacy research, such as brief alcohol interventions.<sup>66</sup>
  - For those brief interventions identified as having a strong level of certainty of evidence, we also conducted a literature search for relevant implementation research addressing translation of these evidence-based interventions into routine practice within PC. Only implementation research addressing brief alcohol interventions had been published. This research focused only on the translation of these interventions into PCP's clinical practice,<sup>67</sup> not that of the PC-MHI provider's clinical practice.



## Section IV: A Note on Implementation Science and VHA PC-MHI

This review has focused on evidence regarding CCC practice models and BIs and not on Implementation Science (IS) per se. It should be noted, however, that research on the implementation of PC-MHI has played key role in both the success of VHA implementation of PC-MHI and in the development of IS, an evolving area of health services research. PC-MHI IS studies have yielded many findings that are broadly pertinent to administrative efforts to change health care practice. VHA continues to track the results of PC-MHI implementation efforts and to apply lessons learned through implementation science studies.<sup>68, 69</sup>

While IS research on PC-MHI has made a significant contribution to the field, VHA efforts to implement PC-MHI have resulted in significant accomplishments in changing practice. Increasingly, PC-MHI teams incorporate both platforms into the services offered at their sites. However, because both CCC and CM are multifaceted care delivery platforms requiring interdisciplinary teamwork and a significant change to standard primary care practice, it is not surprising that implementation has at times been challenging.<sup>68,69</sup> Despite a comprehensive national dissemination plan, reallocation of resources and the extensive efforts of many,<sup>69,70</sup> implementation varies across sites. Results of the 2012 National PC-MHI Evaluation Survey<sup>71</sup> demonstrated that the majority of VHA facilities had active PC-MHI programs in place.<sup>14</sup> Approximately half of all facilities surveyed reported provision of both CCC and CM in 2012, though VAMCs more frequently reported both platforms of care delivery (53%) than either very large or large CBOCs (41% and 28%, respectively).<sup>71</sup> In sites where only one platform of care delivery was reported, 39% of facilities reported CCC only, whereas only 2% of facilities reported CM only.<sup>71</sup> Data from 2012 indicated that approximately 13% of all facilities indicated that there was no PC-MHI program onsite with CBOCs being much more likely to report no PC-MHI program in place (3.7% of VAMCs, 10.7% of very large CBOCs, and 27.9% of large

CBOCs).<sup>71</sup> Therefore it seems more work is needed to understand how to support and sustain full implementation of PC-MHI, especially at CBOCs. Further, despite its relatively robust evidence base, implementation of CM lags a bit behind CCC. More work is needed to understand the differences between barriers and facilitators to implementation of these two platforms of care delivery. Finally, little is known nationally about the fidelity of embedded BHPs to key components of the CCC model. It is possible that the wider implementation of CCC based on national survey data reflects the activity of embedding BHPs in PACT but inconsistent use of their services. For example, BHPs could serve in a purely triage capacity, or they could be embedded but providing traditional mental health services without the availability of open access.

In summary, IS research on PC-MHI has made important contributions to the field of IS, to efforts to implement PC-MHI in VHA and to more general understanding of how administrators can effect change in health care. More work is needed to support full implementation and practice change and to help the field of IS mature. In depth review of these accomplishments and areas for growth are the subject of a different review paper.



## Research Recommendations to Advance the Evidence on CCC

Research and clinical evidence regarding the CCC platform of PC-MHI service delivery is accumulating, but there remains a great deal of work to be done to more fully delineate the most efficacious and effective behavioral clinical practice and to understand how these new programs can be most efficiently implemented and most effectively maintained.

### Recommendations:

1. Overall, future research would benefit from attention to variations across CCC platforms of care delivery and to the design of research studies that help to discriminate among these programmatic innovations and their ultimate utility to clinical practice. Planned comparisons should take into consideration that CCC and CM are likely to be blended in actual VHA PC-MHI programs. Work is needed to delineate whether these service delivery innovations alter the effectiveness of programs.
2. Research on the cost effectiveness and value of PC-MHI programs, including both CCC and CM, is absent and needs to be done if programs are to be sustained.
3. Research into the connections among provider adherence, clinical setting structural characteristics, organizational context, and treatment outcomes could illuminate which factors are most essential for effective and uniform care. Advances in measurement of process, structure, and context are essential for planning rigorous studies of patient outcomes associated with CCC-based care delivery and BHP practice.
4. Overall, more research is needed on the best ways to support the implementation of the CCC platform of care delivery in different contexts. Initial evidence (e.g., blended facilitation) shows the value of such research.

5. Research is needed on the costs and benefits of training behavioral health providers (BHPs) to deliver behavioral medicine interventions for problems such as pain, insomnia and weight management.
6. Although valued in VA, implementation of measurement-based care from the CCC platform does not occur at a high rate. Research on the barriers and facilitators, and the best ways to implement such care, is needed.
7. Related to (6), research devoted to developing algorithms that guide measurement-based, CCC-delivered care would advance clinical practice.
8. Methods are available (e.g., PPAQ Tool Kit<sup>72##</sup>; Implementation Facilitation<sup>62</sup>) to accelerate training of BHPs to achieve and maintain fidelity to CCC platform of care delivery procedures and should be used. This practice would also accelerate needed research on the connection between adherence to CCC platform procedures and patient outcomes, in particular which procedures seem to be most important in determining patient outcomes.
9. Success in implementing the PACT model in primary care would seem to depend on communication among members of PACT teamlets and the larger discipline-specific teams. Yet there are virtually no data on how PACT providers communicate regarding patient care, or on communication patterns that are associated with improved patient health in the context of PC-MHI care delivered from the CCC platform.
10. The available patient outcomes research generally supports the use of the CCC platform to deliver MH services. However the field would be considerably advanced by using research designs that include control or comparison platforms of care.

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## The PPAQ Tool Kit is available by emailing the first author at Gregory.beehler@va.gov.

11. Initial evidence is promising, but more research is needed on patient receptivity to and satisfaction with CCC platform-delivered PC-MHI care. Additionally, integration is frequently touted as a solution to the stigma associated with MH treatments; research should investigate whether stigma is in fact reduced. Further, regardless of stigma, do integrated models of care result in increased use of MH treatments by Veterans who would benefit?
12. Although there is little implementation research that has focused on best ways to implement brief interventions in primary care, the evidence base for hazardous drinking, cigarette smoking, and depression seems strong enough to warrant training BHPs in brief interventions that have been tested and that address these concerns. Implementation studies should also be conducted to determine the best strategies to advance the uptake of these interventions.
13. The CCC platform of care delivery and VHA PC-MHI would be advanced by research devoted to efficacy/effectiveness trials of brief interventions that address the broad array of patient problem areas that are highly prevalent in primary care and that now have a weak evidence base, such as anxiety, PTSD, chronic pain, and drug use other than alcohol. Moreover, there is virtually no evidence regarding brief interventions that address co-occurring problems that are commonly seen in primary care, such as alcohol use and depression and cigarette smoking and chronic pain.
14. Research is needed that tests the efficacy or effectiveness of brief interventions that are designed (e.g., session length, number of sessions) to be feasible in the CCC platform of primary care treatment delivery.

15. Research on the best ways to implement brief interventions in primary care is virtually absent and is needed, even for brief interventions that target hazardous drinking, cigarette smoking, and depression and that are considered to have a strong evidence base.

## General Summary and Conclusions

This white paper provides a review of PC-MHI in the VHA and its manifestation through the complementary CM and CCC platforms of care. However, there is considerably more (quality and quantity) research support for CM than there is for CCC. Therefore, the main purpose of this white paper was to review and integrate what research is available on CCC, particularly focused on the delivery of behavioral interventions, in order to provide a basis for future direction of research and clinical practice.

The review covered three general areas, including the CCC platform and patient outcomes, processes of CCC care delivery, and brief interventions for mental and behavioral health concerns that are suited for delivery on a CCC platform of care delivery. In general, studies that have been published on CCC and patient outcomes and on the process of CCC delivery are descriptive. The patient outcomes data show some promise for the CCC platform of care delivery, but more and better-designed (e.g., better described program components/interventions, use of comparison or control groups) research is needed to clarify and specify connections between the CCC platform and outcomes. A number of such research questions are identified. The studies of CCC processes of care are more limited in number than are the outcome studies and as noted are largely descriptive. Accordingly, specific future areas of research are identified toward achieving a better understanding of connections between processes of care and patient outcomes.

The final section of the paper concerns brief interventions for mental and behavioral health problems that are suited for implementation on the CCC platform of care. Notably, the

quality of this area of research is considerably higher than that of the other two areas reviewed, as randomized controlled trials are common in this literature and thus it may be used to draw far clearer and stronger conclusions. The data show that there are several mental and behavioral health problems areas for which efficacious BIs have been developed, including those targeting hazardous alcohol use, tobacco use, depression, and insomnia. Furthermore, there are patient problem areas such as PTSD for which BIs have been developed but that have garnered at best mixed support. As with the other two areas covered in this white paper, a number of directions for future research are identified, including whether the BIs that have been shown to be efficacious can be implemented effectively in PC-MHI clinical contexts, and the development of BIs designed to modify co-occurring problems, such as tobacco use and pain. Overall, our synthesis of the extant CCC research shows a PC-MHI platform of care delivery that is promising but that needs fulfillment of an ambitious research agenda to give it a reliable empirical base.

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## Appendix A

### **Literature Search Methods**

A literature search was conducted to identify any systematic reviews or meta-analyses that summarized brief interventions targeting *PTSD, anxiety, depression, alcohol use, substance use/illicit drug use, tobacco/smok\**, or behavioral medicine issues (including *somatization, health anxiety, hypochondriasis, sexual dysfunction, menopause, sleep, insomnia, pain, migraines, chronic pelvic pain, premature ejaculation, erectile dysfunction, medication adherence*). This generated recently conducted reviews or meta-analyses for anxiety (Seekles, 2013), alcohol (O'Donnell, 2014), smoking (Mottillo et al, 2009), and depression (Nieuwsma, 2011). The literature reviews for these four keywords were updated using the strategy described below, with the exception that the search began where the literature reviews left off.

A literature review was performed in PubMed and targeted articles published between 1/1/90 to 11/1/2014 unless a previous review was identified and then we used the date when that review stopped. We searched for the keywords italicized above in the article title or abstract in combination with each of the following terms individually: brief, short, abbreviated, treatment, intervention, counseling, general practice, family medicine, or primary care. In addition, all searches excluded the following terms when found in the article title: children, youth, juvenile, pediatric, or adolescent. Any abstracts mentioning the examination of a non-pharmacological intervention targeting the keyword were kept to be reviewed later by raters (i.e., three psychologists and five individuals with a Masters in psychology) to determine whether the study met eligibility criteria (see Table 1).

These criteria were chosen in an effort to maximize the number of empirical studies identified, while balancing the fit with a CCC provider's role in integrated healthcare. We also specifically focused on adult patients as that is our population of focus within the Veterans Health Administration. We also chose to limit the active intervention to 6 appointments or less as 6 appointments is the generally recommended upper limit on the number of appointments patients are seen consecutively by the behavioral health provider working within a CCC platform (Dundon et al., 2011; Brawer et al., 2010). In addition, we focused on non-pharmacological interventions that did not necessarily need any additional apparatus or training beyond what those behavioral health providers typically have when being hired to work in primary care. Wray et al. (2012) identified social workers and psychologists as those most often to be employed as a CCC provider in the Veterans Health Administration. In addition, CCC providers can provide group interventions as well as telephone treatment; however, data shows that these activities are rare (Wray et al., 2012). Therefore, we designed the inclusion/exclusion criteria to fit the *typical practice* of CCC providers.

Table 1. Review inclusion and exclusion criteria.

<u>Inclusion Criteria</u>	<u>Exclusion Criteria:</u>
<ul style="list-style-type: none"> <li>- Empirical paper</li> <li>- Published in a peer-reviewed journal</li> <li>- Written in English</li> <li>- Reports outcome data where the active intervention is compared to a comparison group (e.g., decrease in symptoms, increase in referrals, etc)</li> <li>- Targeted towards individuals (not groups, couples or families)</li> <li>- Community adults (not inpatient populations or prisoners or those in residential treatment) --- Participants must be experiencing symptoms (e.g., subthreshold, disorder, etc.)</li> <li>- Intervention focuses on behavioral health (non-pharmacologic; could be implemented by behavioral health providers, psychologists, psychiatrists, social workers, or nurse practitioners)</li> <li>- Intervention designed to be implemented in 6 appointments or less (including phone contact; if mandatory booster appointments, would count towards the 6 appointments)</li> <li>- Active intervention being tested is more defined “usual care” (e.g., CBT, manualized)</li> <li>- Active intervention must be targeting one of the symptoms listed as a primary keyword (i.e., PTSD, depression, anxiety, alcohol, substance use, tobacco/smok*, behavioral medicine terms)</li> </ul>	<ul style="list-style-type: none"> <li>- No comparison group</li> <li>- Contingency management, or studies that offer incentives (e.g., reimbursement) for treatment</li> <li>- Interventions targeted for primary care providers or staff</li> <li>- Vulnerable populations (e.g., prisoners, inpatients, HIV)</li> <li>- Children, adolescents (i.e., 18 or older; 16 or older for population based studies; studies involving parent child dyads, with child’s health as the outcome)</li> <li>- Community-wide research (including marketing campaigns and initiatives)</li> <li>- Use of a computer or extra apparatus (e.g., biofeedback, patient manual—Mind Over Mood)</li> <li>- Intervention delivery requires special training (e.g., hypnosis, acupuncture)</li> <li>- No face-to-face contact except telehealth (e.g., mailed audiotapes, web-based interventions)</li> <li>- Group appointments</li> <li>- Medication intervention only</li> <li>- Experimental manipulation of symptoms</li> <li>- Care management defined as: protocolized management of a disorder within primary care, often involves a care manager or RN and typically is conducted over the telephone</li> <li>- Settings that would not generalize to a primary care setting (e.g., home visits, schools, prisons)</li> <li>- Intervention is specifically targeted toward patients undergoing a particular medical or surgical procedure (e.g., pap smear cataract surgery, hysterectomy, mammogram, endoscopy)</li> <li>- Not enough information to evaluate the inclusion/exclusion criteria</li> </ul> <p>* These criteria did not apply to the control group.</p>

## Quality Assessment

Using a rating scale developed by Jadad, Moore, Carroll et al. (1996) to assess the quality of clinical trials that has been found to be reliable and valid, we rated each identified article within our literature review on the presence and description associated with three dimensions: randomization, blinding, and withdrawal/dropout. A member of the study team rated each article on each dimension and a total score was identified using the 0 to 5-point scale. In this review, the highest rating was a 3 and it was most often due to the fact that only one of the studies included a double-blind.

## ***Depression***

Nieuwsma and colleagues (2011) review of the collective evidence examining brief (i.e., as defined by 8 appointments or less) treatment for depression (i.e., Axis I Depressive disorder or subthreshold depressive symptoms) in primary care up until August, 2010 suggests that 6-8 appointments of brief CBT or PST are more efficacious than control (treatment as usual or no treatment); however, only two of those studies examined interventions 6 appointments or less. The studies involved a diverse range of depressive symptomatology with participants reporting Major Depressive Disorder to subthreshold symptoms as defined by a self-report measure. Their research provides current evidence that these treatments can be delivered by providers of varying disciplines provided they receive adequate training and supervision.

Therefore, we updated the literature review starting at August, 2010 until November 1, 2014. We found 27,970 articles, of which 8 independent articles met our eligibility criteria. The findings based on the updated literature review are:

### **General fit with CCC**

- *Patient population*

Only one study recruited from a primary care setting. Other studies included participants from the larger community or those in an outpatient medical or mental health facility. Several studies did examine special populations like pregnant or post-natal women or those of Latino descent. Finally, several studies looked for participants with comorbid conditions/symptoms like hypertension, alcohol dependence, or intrusive memories.

- *Symptomatology*

Inclusion criteria was defined in a diverse number of ways, including existing diagnosis of MDD or dysthymia, self-reported depressive symptoms without a formal diagnosis, diagnosis through a structured clinical interview or specific assessment score (e.g. Edinburgh Postnatal Depression Scale [EPDS] or BDI), or being prescribed an antidepressant.

- *Format of intervention*

The mean number of appointments delivered was 4, with a modal number of 3 appointments. Of those studies that provided information on the length of each appointment (n=6), it ranged from 10 minutes to 60 minutes with an average of 38 minutes and a modal length of 60 minutes.

General Conclusions: While only one study recruited directly from primary care, the overall samples included were quite diverse similar to the diversity in presenting patients to primary care settings. There was no consistency regarding how depression was defined varying from formal diagnoses of depression to self-reported symptoms as assessed by validated questionnaires, but overall half the studies included patients with a range of symptoms rather than a specific diagnosis of Major Depressive Disorder, which is consistent with CCC practice. In addition, the number of appointments for implementation of the interventions are more consistent with primary care needs compared with previous reviews, which typically identified studies examining 8 sessions or less. However, the length of the appointments does not match the typical 30 minute visit.

### **Brief interventions**

- *Content*

The most common type of active treatment was Cognitive-Behavioral Therapy (CBT) (n=4), which included elements such as psycho-education, cognitive restructuring/challenging, and behavioral activation. Other active treatments included Acceptance and Commitment Therapy (ACT), Motivation Enhancement Therapy for Antidepressants (META), and expressive writing. One study examined an integrated intervention for depression and hypertension, but did not provide enough detail to describe it.

- *Comparison Group*

Control groups were most commonly described as usual care/treatment as usual (n=5). Other types of control conditions included being put on a waitlist, assessment only, or a “control writing” condition where participants were asked to write about how they organized their day.

- *Methodological Quality*

Only one study reached the highest level of methodological quality due to several studies not adequately providing description of randomization procedures (n = 6) or withdrawals and dropouts (n = 3). All but one of the studies was randomized.

- *Results*

The study rated with the highest methodological quality found motivational enhancement for antidepressants did improve medication adherence in the active intervention group, but no between-group differences in depressive scores. Of the other studies rated with a lower score on methodological quality, a majority of the studies examining forms of CBT interventions did observe a significantly greater reduction in depressive symptoms in the treatment conditions than in control groups. The study examining intrusive memories and depression found reduced distress caused by intrusive memories following the active

intervention, but only a main effect of time on self-reported depression scores was observed.

**General conclusions:** In comparison to the Nieuwsma and colleagues (2011) review, there were no studies that examined PST within the updated literature review. A majority of the studies included in the updated literature review were examining CBT-based interventions and found that they did produce positive results in comparison to usual care conditions. The few studies that did not find significant improvement were also those examining less generalizable populations, including pregnant/post-partum women and those experiencing intrusive memories. Studies could benefit from additional attention to providing adequate description of randomization methods and withdrawals/dropouts to improve the methodological quality.

### ***Anxiety***

A previous literature review by Seekles et al. (2013) examined psychological treatments for anxiety in primary care, specifically published RCTs of psychological therapies provided in general practice for adult patients with an anxiety disorder (based on DSM or any other diagnostic instrument, or an increased level of symptoms on an anxiety questionnaire), compared with a control condition. Out of 1,343 abstracts they reviewed between 1963 and July, 2010, 12 met eligibility criteria for inclusion in their review. They included (a) published randomized controlled trial (RCTs) (b) of psychological therapies (c) for adult patients (d) with an anxiety disorder based on DSM criteria (or any other diagnostic instrument) or an increased level of symptoms on an anxiety questionnaire (e) provided in general practice (f) compared with a control condition. All but one intervention focused specifically on GAD and/or panic disorder, and all but one involved CBT. Overall, the treatments were effective in reducing anxiety, with a moderate effect size. However, only 2 of these interventions were 6 appointments or less; the majority had 7 to 12 appointments, with a mode of 8 and a mean of 9.1. Therefore, the overall conclusions from this review may not generalize to briefer interventions.

We updated the literature review conducted by Seekles et al. (2013) and reviewed 12,488 abstracts beginning in July, 2010 until November 1, 2014. Only 5 independent articles met eligibility criteria for inclusion in this review.

### **General fit with CCC**

- *Patient population*

Only 1 study recruited primary care patients, but 2 others used medical populations (patients presenting to emergency department with chest pain and patients with terminal cancer), while 2 studies recruited college students. One of the exposure interventions involved rapid trials of hyperventilation, which may not be feasible with patients with various medical conditions, as are commonly seen in primary care.

- *Symptomatology*



One study required a DSM-IV diagnosis of panic disorder and/or depressive disorder, and the other 5 required some level of anxiety and/or depressive symptoms based on minimum scores on self-report measures. One study focused exclusively on fear of heights.

- *Format of intervention*

The number of appointments ranged from 1 to 6, with an average of 3.6 and a mode of 6. Appointment length ranged from 20 to 90 minutes, and 1 study did not report appointment length, with an average of 48 minutes. One of the exposure interventions involved in vivo exposure to heights in multiple outdoor locations, which would not be feasible in primary care.

**General Conclusions:** In comparison with the Seekles et al. (2013) literature review, a majority of these studies were not conducted within primary care. However, the five studies sampled a diverse range of adults, including younger college students as well as middle-age and older medical patients. All but one of the studies required a minimal level of symptoms, rather than a specific diagnosis, which is compatible with the lack of diagnostic specificity typical of CCC. Some participants were included on the basis of depressive symptoms alone, as 3 studies were interventions for general psychological distress (versus specifically for anxiety). Half of the treatment formats were compatible with CCC based on appointment length.

**Brief interventions**

- *Content*

Most interventions were cognitive-behavioral in nature: 2 were general CBT for anxiety and 2 focused on exposure therapy. The other intervention was problem-solving therapy.

- *Comparison group*

None of the comparison conditions were established, active treatments: 1 was treatment as usual (that did not appear to involve any particular treatment per se), 1 was waitlist, 1 was a placebo health education intervention, 1 was a placebo expressive writing intervention, and 1 was a sham intervention, although it did include some psycho-education.

- *Methodological quality*

Overall, more than half of the articles received the highest score of a 3. All but 1 randomized



to condition, and all five studies described withdrawals and dropouts.

- *Results*

Of those with the highest methodological quality, CBT for anxiety and exposure therapy significantly reduced anxiety compared to control, but problem-solving therapy did not. Of those with the lower methodological quality, CBT for anxiety and exposure therapy significantly reduced anxiety compared to control.

**General Conclusions:** Building upon the findings presented within the Seekles et al. literature review (2013), brief interventions comprising CBT for anxiety and exposure therapy were generally effective in reducing anxiety symptoms. However, further work needs to be conducted as the format and length of the appointments do not easily fit within CCC clinical practice. In addition, the generalizability of these studies is still uncertain due to their lack of focus on primary care patients. Despite promising results, the two exposure interventions may present some difficulties in real-world practice as noted above.

***PTSD***

Of the 4,926 abstracts reviewed, a total of 16 independent studies are included in this review.

**General fit with CCC**

- *Patient population*

No studies recruited primary care patients, but 1 study used medical populations (patients undergoing cardiac outpatient recovery). However, the studies did sample a range of adults from college students to older adults. The types of traumas varied within the studies from aggravated assault, motor vehicle accidents, natural disasters, workplace incidents, to combat; however, most of the studies focused on samples of patients experiencing one type of trauma and none examined those patients reporting multiple traumas.

- *Symptomatology*

Of the 16 studies included, 9 examined individuals that had met DSM criteria for PTSD or had been referred from specialized PTSD clinics. The other 7 studies examined individuals that met PTSD criteria based on self-report or specific symptom presentation (e.g., only criterion A symptoms).

- *Format of Intervention*

The number of appointments ranged from 1-6 appointments, with the mean number of appointments= 3.84 and the mode=4. The length of the appointments across studies ranged from 20 min to 120 min. Studies that limited appointment length to 20 min did not demonstrate any significant difference in PTSD symptom reduction and the studies that did produce symptom reduction involved treatments that required intense provider involvement over a long period of time (60-90 minute appointment over 10-12 weeks).

**General Conclusions:** A review of the 16 studies suggests that current treatments for PTSD may not fit well with the CCC model. None of the studies recruited primary care patients, and

primarily focused on one type of trauma. This is not typical in a primary care setting where patients often present with multiple traumas. Additionally, the length of appointments, number of visits as well as duration of intervention at each visit, is not compatible with the primary care model given extensive time constraints and patient needs.

### **Brief Interventions:**

- *Content*

Overall, one third of studies used brief CBT treatments (n=5), which employed exposure and cognitive restructuring interventions. Five studies employed eye-movement desensitization and reprocessing, while the rest examined written exposure therapies (n=5) or emotional freedom techniques (n=1).

- *Comparison Group*

The majority of the studies used waitlists as the comparison groups. Of those that did not use a waitlist, none of the comparison conditions targeted all PTSD symptoms, but comparison treatments focused on providing non-established treatments for specific symptoms (e.g., treatment focused only on desensitization, or EMD (Eye Movement Desensitization- without cognitive component) without cognitive components and employing distraction techniques). Only 4 studies included a psycho-education component to comparison group, however of those 2 provided psycho-education specific to PTSD whereas other focused on medication adherence and career counseling.

- *Methodological Quality*

A majority of the studies obtained the highest rating for methodological quality excluding the dimension of double-blinding (n=9). All studies were randomized except for one and only 6 did not describe withdrawals and dropouts.

- *Results*

Of those with a higher methodological quality, most of the behavioral interventions employing a mixture of CBT techniques (imaginal exposure, psycho-education, exposure therapy, relaxation exercises, cognitive restructuring and in vivo exposure) demonstrated reduction in PTSD symptoms- specifically symptoms related to flashbacks, nightmares and arousal. Treatment specifically focusing on trauma narration and written exercises demonstrated mixed results, and even studies that demonstrated symptom reduction noted that these were not retained at follow-up.

**General Conclusions:** The overall review of the studies selected suggests that the format of these studies may not be compatible with the CCC model, given the time duration needed for the interventions. The two studies that did employ brief (20 min) appointments did not demonstrate symptoms reduction and of the studies that did demonstrate significant differences required intensive provider involvement and greater number of appointments. This would not be compatible with the CCC model given time constraints and increasing patient demands. Additionally, these interventions were focused on specific trauma types and recruited patients that were diagnosed with PTSD and/or were already attending treatment at specialty clinics. This may also not be compatible with the CCC model as typical patients may present with a lesser degree of severity and may require interventions that target sub-threshold symptoms.

## ***Tobacco Use & Smok\****

Mottillo et al. (2009) reviewed studies that reported on behavioral interventions for smoking cessation. Included studies were randomized controlled trials that reported biochemically validated outcomes at six and/or twelve month follow-up.

The analyses most relevant for this paper indicated that minimal clinical interventions (defined as brief advice from a healthcare worker lasting fewer than 20 minutes and delivered during a single consultation, k=9) are somewhat effective for smoking cessation, but noted that no strong conclusion could be made given the wide confidence interval that included 1.0. The authors also concluded that “intensive” individual counseling (k=25) improved smoking cessation outcomes compared with a control condition; although this group was labeled as intensive, most of the studies in this group would be appropriate for delivery in PCMH (i.e., 20/25 of the interventions were delivered in six or fewer sessions).

Beginning at January, 2007, we updated the literature review for smoking (smok\* was used in the literature search to be as inclusive as possible). In order to provide a comprehensive report of tobacco use in general, we also conducted a full literature review (beginning in 1990) for the keyword “tobacco.” Between these two searches we located 27,003 articles; 29 of these represented independent articles which met our eligibility criteria. The findings based on the updated literature review are:

### **General fit with CCC**

- *Patient population*

Only five studies did at least some recruitment in a primary care setting. Many of the studies examined brief treatment for tobacco use in the context of comorbid conditions (e.g., patients with diabetes, schizophrenia, cancer, PTSD, tuberculosis) and in disadvantaged/minority populations (e.g., low income, minority, patients with little English proficiency, pregnant smokers)

- *Symptomatology*

Only two studies tested interventions for general tobacco use; all other studies examined treatment for cigarette smoking. Of the 16 studies that reported the inclusion criteria for quantity and frequency of smoking, 12 recruited daily smokers only.

- *Format of intervention*

The number of appointments delivered ranged from 1-6, with the average number of appointments being 2.7 and 1 appointment being the mode number. Twenty-one studies reported information that allowed us to calculate total treatment time, which ranged from 0.5 to 240 minutes (mean= 64.6 minutes, SD=62.0 minutes).

General Conclusions: Although few studies recruited patients directly from primary care, most recruited from diverse patient populations, thereby enhancing generalizability to the population as a whole. While the total amount of treatment time varied considerably, the average amount intervention time was appropriate for the primary care setting. Several studies (n=6) set a low threshold for quantity/frequency of smoking (i.e., patients did not need to be daily smokers to be eligible), thus enhancing the applicability of findings to the primary care setting. However, only a small number of studies examined all tobacco use limiting the generalizability of the findings to other forms of tobacco beyond cigarette smoking.

### **Brief interventions**

- *Content*

Active treatment most commonly included MI based interventions (n=10), the 5As model (ask, advise, assess, assist, arrange) (n=7), and cognitive and/or behavioral interventions (n=2).

- *Comparison Group*

Control groups were more variable, and included no intervention/wait list control, brief physician advice, referral to smoking cessation clinic or quitline, general health education, and psycho-education about smoking.

- *Methodological Quality*

A majority of the studies obtained the highest rating of methodological quality excluding the double blinding dimension (n=9). Of those with lower ratings, a majority of them did describe an appropriate randomization method (n=22), but did not describe withdrawals/drop-outs.

### *Results*

Outcome measures most commonly included smoking cessation rates (ranging from one week post intervention to 2 year follow up); however, several studies reported stage of change or motivation to change as primary outcome measure. In comparison to the review conducted by Mottillo and colleagues (2009), studies with the highest methodological quality (n=9) found mixed results in which seven studies found no significant differences, and only two studies reported significant differences related to whether the active intervention had an impact on outcomes.

General Conclusions: Building upon the foundation of Mottillo and colleagues (2009) review, several treatments that were tested showed some promise for use in a primary care setting within this literature with formats consistent to the model, including motivational interviewing, behavioral interventions, psycho-education, and the 5As model. More research

on brief interventions for general tobacco use is warranted, especially since it is clear that not all forms of tobacco use are included as well as there are inconsistent definitions of what defines a “smoker.”

### ***Alcohol***

O'Donnell, Anderson, Newbury-Birch et al. (2014) conducted a literature review examining the evidence for the effectiveness of brief alcohol interventions in primary care settings. This review included studies that conducted a brief intervention (i.e. defined as a single session and/or up to 5 sessions) that targeted risky alcohol consumption or alcohol-related problems from 2002 until July 2012. Of the 56 trials, they found consistent evidence for the effectiveness of brief alcohol interventions in reducing hazardous and harmful drinking across a diverse number of populations.

Beginning January, 2012, we updated the literature review and examined 8,541 abstracts, yielding 33 articles which were eligible for this review.

#### **General fit with CCC**

- *Patient population*

A fair number of studies recruited from within medical settings (n=12), but only five recruited specifically from primary care. Although a potential concern, a few studies recruited college students (n=7) and those mandated to treatment (n=3).

- *Symptomatology*

Most studies enrolled participants, who exceeded a cutoff score on screening measure for hazardous drinking (e.g., Alcohol Use Disorders Identification Test (AUDIT  $\geq 8$ ) or Alcohol Use Disorders Identification Test-Consumption (AUDIT-C  $\geq 4$ )) or used the NIAAA guidelines for hazardous/harmful drinking (> 14 drinks per week or more than 4 drinks per occasion for men, and more than 7 drinks per week or more than 3 drinks per occasion for women). Of note, only one study noted that they applied the age guidelines to the NIAAA definition (i.e., males over the age of 65 years old had cutoffs consistent with female cutoff score). In addition, nine of the studies excluded individuals meeting criteria for an alcohol dependence diagnosis or symptoms consistent with alcohol dependence (e.g., AUDIT > 20).

- *Format of intervention*

The number of appointments ranged from 1 to 5 (mean= 1.5, median = 1). Appointment length ranged from 2-90 minutes (mean= 23.1, median= 18.75), and total length of the intervention spanned from 2-150 minutes (mean= 34.4 minutes, median= 25 minutes).

**General Conclusions:** Building upon the O'Donnell et al. (2014) review, studies in this field recruited a wide range of patients from college students to primary care patients. Most of the studies recruited participants who were above an alcohol assessment cut-off score (rather than based on a diagnosis of alcohol abuse or dependence), which is compatible with CCC practice. In addition, a majority of studies did not exclude those patients reporting symptoms consistent with or meeting a DSM diagnosis of alcohol dependence. Most of the treatment formats (i.e., length and duration of appointments) were compatible with the CCC platform of care.

### **Brief interventions**

- *Content*

All treatments delivered included brief advice to cut down or quit drinking and/or motivational interventions. This included: discussion of normative drinking/review of guidelines for low-risk drinking, assessment of and feedback around alcohol use, discussion of drinking related consequences (at times specific to negative physical or mental health consequences), harm reduction, goal setting, enhancing motivation to change, and providing the patient with self-help materials.

- *Comparison group*

The comparison conditions most frequently used were self-help information/pamphlet (n=10) and a non-specific no intervention or standard care control group (n=11). Less frequently used comparison groups included assessment only, feedback only, medication only, and relaxation training.

- *Methodological quality*

A majority of the studies were rated with a high level of methodological quality (n=15), with all but one using random assignment. In addition, a majority of studies reported on the withdrawals and dropouts (n=22).

- *Results*

The highest quality studies tested brief alcohol interventions and brief motivational interventions. Results for the highest quality studies indicated significantly improved drinking outcomes in the intervention group (vs. the control group) in five of these studies; however, the other studies primarily found no between group differences (n=8).

General Conclusions: Similar to the previous review (O'Donnell et al., 2014), the content of interventions for alcohol use mainly center around motivational strategies and feedback about low-risk drinking. In addition, additional positive results were found suggesting brief alcohol interventions produce significant positive outcomes on drinking variables. Overall, there are several aspects of the studies that match the CCC provider's clinical practice, including the inclusion of a wide range of alcohol misuse, diverse samples, and brief format of the intervention.

### ***Illicit Drug Use & Substance Use***

Of the 858 articles identified for illicit drug use, 4 were included in this review. Of the 6,944 abstracts reviewed for substance use, 14 independent studies are included in this review.

#### **General Fit with the CCC**

- *Patient Population:*

Twelve studies recruited from patients seeking care at medical settings; however, only one study recruited from primary care. Only one study recruited individuals whom were not seeking out treatment for substance use. Two studies recruited individuals who were mandated to attend an alcohol and drug program.

- *Symptomatology:*

None of the studies specified using DSM diagnosis or any other self-report measure to identify drug dependence or abuse. Instead, a majority of the studies enrolled participants who self-reported using an illicit drug, which primarily focused on the use of cocaine, opiates, and methamphetamines, marijuana, and alcohol (n=14). Nicotine was included in one study and a small number of studies included reports of heroin and ecstasy, but it was not the main criteria for the study.

- *Format of intervention*

For those studies identified for illicit drug use, the number of appointments ranged from 1-2, with the average of 1.2 and the mode of 1. The length of the appointments ranged from 10-60 min. 3 of the four studies employed brief (15-30 minute) appointments. For those studies identified for substance use, the number of appointments ranged from 1-6, with the average of 2.5 and the mode of 1. The length of the appointments ranged from 30-120 min (M = 61.98, SD = 27.19, Mode = 50)

General Conclusions: Given that only one study included patients from primary care, there needs to be further research on interventions suitable for this environment. These studies did include individuals without a formal substance use diagnosis and focused primarily on substances common within primary care; however, there appears to be a lack of focus on other substances such as heroin and stimulant and non-stimulant medications thereby reducing the generalizability

of these findings to primary care. The overall format of the interventions did match what CCC providers need in primary care.

### **Brief interventions**

- *Content*

Most interventions used motivational interviewing techniques (n=11) with a specific focus on psycho-education, pros and cons of drug use, enhancing self-efficacy, and developing quitting strategies. While 1 intervention focused on tailoring the interview to the specific individual. The primary format of the treatment was motivational interviewing and focused on enhancing self-efficacy to decrease drug use.

- *Comparison group*

None of the comparison conditions were established, active treatments: 3 were treatment as usual (that did not have any interview), 6 were a brief information or education session (given a resource pamphlet, brief advice, 1 was a placebo intervention based on driving related safety, 1 was a placebo health focused intervention, and 2 studies had a comparison group receiving no intervention.

- *Methodological quality*

For illicit drug use, all randomized to condition, none were double blind, and 2 out of the four described withdrawals and dropouts. For substance use, 13 of the 14 studies randomized to condition, but only 5 described withdrawals and dropouts.

- *Results*

Only three studies demonstrated a decrease in substance use. The other studies (n=15) did not find any significant group differences between the treatment and control groups.

### **General Conclusions:**

Although the format of the intervention matches clinical practice within primary care, the results are not positive for the impact of these brief interventions on illicit drug use or substance use, with only three studies demonstrating between group differences. The content of interventions were mainly centered around motivational strategies and feedback. A majority of the studies recruited individuals seeking outpatient treatment and that is not often consistent with primary care.

### ***Behavioral Medicine Complaints***

(insomnia/sleep; medication adherence; erectile dysfunction; premature ejaculation; sexual dysfunction; menopause, chronic pelvic pain, migraines, pain, hypochondriasis, health anxiety, somatization)

### ***Sexual Health***

No studies were identified for sexual health (e.g., keywords: erectile dysfunction, premature ejaculation, sexual dysfunction, menopause), which is surprising as these are highly prevalent issues within primary care and can cause a significant amount of anxiety for patients. For instance, Simons and Carey (2001) found prevalence rates of 0-3% for male orgasmic disorder, 0-5% for erectile disorder, 0-3% for male hypoactive sexual desire disorder, 7-10% for female orgasmic disorder and 4-5% for premature ejaculation.

### **Medication Adherence**



Of the 2,614 reviewed, there were five articles identified for the keywords targeting medication adherence.

### **General fit with CCC**

- *Patient Population*

All five of the studies recruiting from medical settings, of which four recruited specifically from primary care.

- *Symptomatology*

Three studies recruited participants with hypertension, while the other two recruited participants with type 2 diabetes.

- *Format of intervention*

Studies administered interventions over a period of 1-5 appointments, with a mean number of 2.6 sessions and a modal number of 1. The length of appointments ranged from 15-40 minutes with a mean of 27 minutes. One study did not report session length.

General Conclusions: Although these results are preliminary, the format of the interventions and approach appears to be compatible with the CCC provider's clinical practice. However, more research would need to be done on more broad medication adherence issues that could be related to other symptom presentations, such as mental health issues.

### **Brief interventions**

- *Content*

Three studies incorporated adherence support or educational sessions, which targeted encouragement of relief from stigma, rationale for pharmacological treatment, patient beliefs relevant to benefits and harms of taking medication, and strategies to overcome medication problems. The other two interventions used motivational interviewing techniques, which included helping patients recognize and resolve discrepancies between goals, values, and behaviors.

- *Comparison group*

Usual care was the comparison group in each study.

- *Methodological quality*

Only two studies were rated as high quality with randomization as well as describing those who were withdrawn or had dropped out.

- *Results*

Of those with the highest methodological quality (n=2), only one found marginally significant trends for improvement in the intervention group. Three other studies found significant improvement in medication adherence in the intervention group relative to the control group at 6 or 12-week follow-up; however, they were not strong methodologically.

General Conclusions: The evidence surrounding the interventions that targeted medication adherence is weak as those studies with the highest methodological rigor did not demonstrate

significant improvements. Of those with significant results, the interventions generally focused on incorporating education with motivational interviewing techniques. The format of these interventions is compatible with CCC clinical practice.

### ***Hypochondriasis & Somatization & Health Anxiety***

For hypochondriasis, 81 articles were reviewed and 2 studies were included in this review. For somatization, 931 articles were reviewed and one study was included. No studies were identified when searching for health anxiety.

#### **General fit with CCC**

- *Patient Population*

One study recruited primary care, whereas the other studies recruited from the community or medical settings.

- *Symptomatology*

For hypochondriasis, one study recruited volunteers that reported symptoms of hypochondriasis. The other study included participants that demonstrated elevated health anxiety scores using self-report questionnaires. For somatization, the study recruited individuals who met criteria for somatization based on validated screening measures.

- *Format of intervention*

Both studies for hypochondriasis administered the intervention over a period 6 appointments. The length of appointments ranged from 60-90 minutes with a mean of 75 minutes. For somatization, the one study examined an intervention that was 5 appointments, each 50 minutes long.

General Conclusions: These results are very limited due to the small number of studies that met inclusion criteria, but the number of appointments appears to be compatible with the CCC provider's practice yet the length of the appointments is not. Future research would need to increase recruitment of primary care patients who report symptoms of hypochondriasis and/or somatization in order to help strengthen these findings for implementation within a CCC provider's clinical practice.

#### **Brief interventions**

- *Content*

For both hypochondriasis and somatization, the interventions used variations of CBT, which included specifically targeting cognitive and behavioral factors relating to bodily symptoms associated with hypochondriasis, psycho-education, coping strategies, self-monitoring, stress management, cognitive restructuring, and behavior change.

- *Comparison group*

The comparison condition used in these studies included usual care, wait-list, or a psycho-education only condition.

- *Methodological quality*

All three studies were rated as high quality for randomization and describing those who were withdrawn or had dropped out.

- *Results*

For hypochondriasis, the two studies reported significant improvement of hypochondriasis symptoms for the CBT group at either 3 or 12-month follow-up. The study examining somatization found mixed results.

General Conclusions: Although the selected studies were high in methodological rigor and demonstrated preliminarily improvement in hypochondriasis and somatization symptoms, the length of interventions (approximately 60 min) is not compatible with time constraints typical of primary care. Additionally, further data is needed to conclusively evaluate the efficacy of these treatments.

### ***Pain & Migraines***

Of the 85,914 abstracts reviewed for Pain and 3,930 for Migraines, 5 independent studies are included in this review.

#### **General fit with CCC**

- *Patient Population:*

None of the studies included recruited primary care patients; however, most of the studies obtained diverse samples from the community or outpatient clinics.

- *Symptomatology*

Several studies focused on a specific type of pain (e.g., back pain) while others focused on patients with chronic pain or cancer patients with moderate pain. One study focused on migraines.

- *Format of intervention*

The number of appointments ranged from 1-4, with an average of 2.8 and a mode of 4. The length of the appointments ranged from 30-120 min, with an average of 38 minutes. Two studies employed brief (30 minute) appointments, while 3 studies employed interventions that ranged from 50-120 minutes across 2-4 appointments.

General Conclusions: Of the studies included in this review, the findings suggest that the research available on interventions employed in primary care for pain is not conclusive. None of the studies recruited patients from primary care with little emphasis on the diversity of pain patients who come to primary care and therefore is not compatible with the typical patient who present at primary care. Although the number of appointments employed in most of these studies is compatible with the time restraints in Primary Care, the length of most of these appointments is not brief and the results indicate mixed findings, which may not be compatible with the needs of a primary care environment.

#### **Brief interventions**

- *Content*

All 5 studies employed cognitive behavioral elements that included psycho-education, problem solving strategies, stress management, relaxation exercises and goal setting. Two of these studies included physical components such as stretching exercises and physical therapy, while another study included medication in conjunction with cognitive behavioral therapy.

- *Comparison group*

None of the comparison conditions were not established, active treatments: two were treatment as usual (that only included physical therapy components), 1 was enhanced usual care that specifically discussed concerns related to cancer diagnosis, 1 was symptom monitoring, and 1 used a placebo.

- *Methodological quality*

Only two of the studies had a high level of methodological quality.

- *Results*

The results are fairly mixed regarding the impact of these interventions on pain severity, but a majority of the studies suggested better quality of life.

General Conclusions: Only one study demonstrated pain reduction as a result of cognitive-behavioral treatment, but the others indicated increased quality of life suggesting the interventions helped with the coping aspects associated with pain. Future research is needed.

### ***Insomnia***

Of the 3,335 abstracts reviewed, a total of 25 independent studies are included in this review.

#### **General fit with CCC**

- *Patient population*

Only one study specifically used participants from primary care; instead, the majority of studies used samples of community adults or older adults (n=15).

- *Symptomatology*

The vast majority of studies examined patients suffering from primary or general insomnia (n=18). Other subtypes of insomnia were also examined in several studies, including sleep maintenance insomnia, sleep onset insomnia, and secondary insomnia. Inclusion criteria for these studies included ISI scores, reported low sleep quality, or more general sleep difficulties.

- *Format of intervention*

Number of appointments ranged from 1 to 6, with a mean of 3.9, and modal of 4 appointments. Appointment length ranged from 25-60 minutes, with a mean of 48 minutes. Two studies did not report appointment length.

General conclusions: Although only one study examined patients specifically from primary care, there was a diverse range of individuals included in the studies as well as the range of symptoms used as inclusion criteria, which is consistent with what CCC providers see in clinical practice regularly. The number of appointments matches the CCC practice; however, the length of the appointments is significantly longer than typical appointments in primary care.

### **Brief interventions**

- *Content*

All interventions involved some combination of psycho-education about sleep, coaching on sleep hygiene, sleep related misconception elements of CBT, sleep restriction, stimulus control, and relaxation skills such as PMR.

- *Comparison Group*

Comparison groups often used only one element of the active treatments listed above as controls, such as sleep hygiene only, or sleep restriction/stimulus control only (n=8). Other common comparison groups included wait list conditions (n=4), treatment as usual (n=5), or no treatment (n=2).

- *Methodological Quality*

A majority of the studies were found to have high methodological quality, with five having the highest quality possible including one study using a double-blind.

- *Results*

A majority of the studies, including those with the highest methodological rigor found significantly better outcomes on almost all measures of sleep quality for active interventions versus wait-list conditions. Most positive results were maintained at follow-ups.

General conclusions: The review of these studies suggest that the current interventions available for treating insomnia symptoms may be compatible with primary care, given the length of treatment and the flexibility of interventions used. In addition, the review suggests that these interventions, specifically those that involve psycho-education about sleep and cognitive-behavioral elements, would likely be successful in significantly reducing insomnia symptoms for primary care patients.