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Integration of behavioral health and primary care: current knowledge and future directions

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Abstract Integrated behavioral health in primary care has spread rapidly over the past three decades, although significant questions remain unanswered regarding best practices in clinical, financial and operational worlds. Two key models have emerged over time: care management and Primary Care Behavioral Health. Research to date has been promising; however, there is a significant need for more sophisticated multi-level scientific methodologies to fill in the gaps in current knowledge of integrated primary care. In this paper, we summarize current scientific knowledge about integrated primary care and critically evaluate the strengths and weaknesses of this knowledge base, focusing on clinical, financial and operational factors. Finally, we recommended priorities for future research, dissemination, real-world implementation, and health policy implications.

Integrated primary care (IPC) is transforming health care around the globe. Understanding IPC requires appreciation of some key terms. *Primary care* refers the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community (Institute of Medicine [IOM], 1996). Patients usually receive their primary health care from a primary care provider (PCP) such as a physician (family physician, internist, pediatrician, general practitioner, etc.), a nurse practitioner, or a physician assistant. *Behavioral health* refers to the broad area of mental health and substance abuse conditions, health behaviors (including their contribution to chronic medical illnesses), life stressors and crises, stress-related physical symptoms, and ineffective patterns of health care utilization (Peek et al., 2013).

Behavioral health and primary care integration is defined as "the care that results from a practice team of primary care and behavioral health clinicians, working together with patients and families, using a systematic and cost-effective approach to provide patient-centered care for a defined population" (Peek & National Integration Academy Council, 2013). IPC encompasses a broad continuum of primary care clinical practice models (Hunter & Goodie, 2010). This level of integration can vary greatly along a continuum of minimal to fully integrated (see Table 1). At the least intensive end of this continuum, primary care providers (PCPs) and behavioral health providers (BHPs; e.g., psychologists, psychiatrists, clinical social workers, counselors) treat the same patient, but provide their professional services in physically separate locations, and often in different clinical systems altogether. Under this arrangement, the disciplines cannot access each other's clinical records, and interdisciplinary communication tends to be sparse and crisis-driven. As a result, the PCP and BHP are often unaware of each other's treatment approaches and goals, and therefore the patient's clinical care is often only loosely coordinated at best. Patients receiving care in this model often perceive

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Table 1 Standard framework for levels of integrated health care

Key element	Communication		Physical proximity		Practice change	
Level	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Description	Minimal	Basic at a distance	Basic onsite	Close collaboration onsite with some systems integration	Close collaboration approaching integrated practice	Full practice in transformed/ merged integrated practice
Systems	Separate	Separate	Separate	Some Shared like scheduling or records	Shared	Integrated
Facilities	Separate	Separate	Same facility but not necessarily same offices	Same space within facility	Same space – some shared	Same space–all shared
Communication	Rare	Periodic; driven by specific patient issues	Regular, about shared patients	In person; need for coordination plans for difficult patients	Frequent in person; desire to be a member of care team	Consistent at system, team, and individual level
Roles/culture	Little appreciation of each other's roles	View each other role as resources	Feel part of larger yet ill-defined team	Basic understanding of roles and culture	In-depth understanding of roles and culture	Roles and culture blur and blend

Adapted from: Heath et al. (2013)

their PCP and BHP as linked primarily for the purposes of inter-referral and the provision of relatively "siloed" care, rather than as members of the same team.

In contrast, the Primary Care Behavioral Health (PCBH) model falls at the opposite and most intensive end of the IPC continuum (Hunter & Goodie, 2010). In this model, behavioral health consultants (BHCs) and PCPs provide care within the same system and at the same physical location, and even more importantly they function as members of the same clinical team. Although BHCs are the team's identified behavioral health specialists, ideally they are capable of addressing the entire spectrum of behavioral health problems which present within the primary care clinic where they function. In this model, PCPs and BHCs share the same health record and treatment plans, as well as other resources such as common workspace, reception/ waiting areas, and support staff (whether clinical, clerical, technical, or administrative). In addition to mutually shared clinical resources, fully integrated care may also involve interdisciplinary collaboration with respect to strategic planning, mission-setting, information technology, and financial operations (Peek, 2008; Robinson & Strosahl, 2008). Patients receiving behavioral health services within this model are likely to perceive this as seamlessly linked to his or her medical care.

In actual practice, there is diversity in how behavioral health has been integrated into primary care. Many hybrid and innovative models have developed that take into account local conditions and requirements and as these implementations continue to evolve, more diversity is expected. A representative sample of large scale IPC implementations is summarized in Table 2. In better understanding these models, organizations and practices can employ various tools to assess their level of integration and plan for future implementation efforts (e.g. Integrated Practice Assessment Tool, Waxmonsky et al., 2014). It is also important to note that various terms have been used to describe these models/levels of care. The generally accepted lexicon for behavioral health and primary integration (Peek & National Integration Academy Council, 2013) defines *collaborative care* as a general term for ongoing relationship between clinicians rather than a specific product or service, while *integrated care* is a specific approach of care. Additionally, it should be noted that "collaborative care"/care management and fully integrated models (e.g. PCBH) are not incompatible or mutually exclusive; each contributes to our common understanding and practice of integrated behavioral health (Mauksch & Fogarty, 2016; The Meadows Mental Health Policy Institute, 2016; Unützer, 2016).

IPC models of care have evolved and spread relatively rapidly over the past two decades, for several reasons:

1. Most mental health care already takes place within the primary care context. Primary care can been described as the de facto mental health care system (Regier et al., 1993a). Of the 18-25 % of the population in the United Sates that meets the criteria for mental health disorder annually, only half seek treatment (Kessler et al., 2005), and 70 % of this mental health care is provided solely by a primary care physician (Regier et al., 1993b). Relative to non-distressed patients, those who are distressed are likely to have a greater number of

Table 2 Examples of current and emerging behavioral health/primary care implementations

Implementation	Description
AIMS Center (Advancing Integrated Mental Health Solutions)	Applies the Collaborative Care model (IMPACT trail) to treat common and persistent mental health conditions such as depression and anxiety
Colorado State Innovation Model (SIM)	The Colorado Framework works to (1) provide access to integrated primary care and behavioral health services in coordinated community systems; (2) apply value-based payment structures; (3) expand information technology efforts, including telehealth; and (4) finalizing a statewide plan to improve population health
Advancing Care Together	Real world, cross comparison, mixed-methods study of 11 practices that implemented IPC care
Intermountain Healthcare	Uses mental health assessment tool, co-located mental health and nurse case managers in primary care settings along with regular tracking of patient outcomes
Cherokee Health Systems (CHS)	CHS is comprised of 45 Federally Qualified Health Centers (FQHCs) in eastern Tennessee. CHS provides integrated patient-centered care using a systematic and cost-effective approach aimed at prevention and treatment of biopsychosocial problems for a defined population. In addition to primary care and behavioral health providers, sites provide comprehensive care coordination and may address specific needs (e.g. nutrition, dental, crisis stabilization, or substance abuse)
Department of Defense (DoD) Military Health System (MHS)	Behavioral health personnel are integrated in every military treatment facility's patient-centered medical home with 1500 or more enrollees

PCP visits, frequent emergency department visits, and unnecessary tests and procedures (deGruy, 1996). They also experience significantly greater numbers of medical symptoms (Katon et al., 2007) and are more costly to care for (Petterson et al., 2008). Not only do many primary care patients wish to avoid consulting an outside mental health specialist, the classical refer-to-specialist approach simply cannot accommodate the volume of services needed, and the costs to the system would be prohibitive (Strosahl, 2001).

2. Behavior largely determines health outcomes. Another factor driving IPC expansion is the vastly increased recognition of the key role of behavior in determining physical health outcomes. Modifiable behavioral factors and unhealthy lifestyles are leading causes for most of the top ten causes of morbidity and mortality in the U.S. (Mokdad et al., 2004).

3. Insufficient personnel and expertise. Although primary care physicians (PCPs) currently provide the majority of behavioral health care, the quality of this care is limited by: (a) an insufficient number of PCPs, (b) a lack of in-depth PCP behavioral sciences training, (c) a strong PCP tendency to rely solely upon pharmacologic strategies, and (d) serious barriers in referring patients to behavioral health clinicians who are adequately trained and appropriately reimbursed.

4. Major shifts in health care policy: Finally, rapid and effective integration of behavioral health and primary care operations will be critical to the success of key elements of recent national health care reform and innovation. These include the Patient Protection and Affordable Care Act (2010), the Patient-Centered Medical Home movement (Petterson et al., 2008), and the Triple Aim (Berwick et al., 2008). These health policy developments have set the stage for payers, patients, and primary care service professionals to view integrated behavioral health services as an essential component of primary care service delivery (Baird et al., 2014; National Council on Quality Assurance [NCQA], 2014; Nielsen et al., 2015).

As a result of these and other factors, IPC has spread rapidly and appears to have taken hold. At the same time, its continuing progress remains vexed by insufficient consensus regarding key definitions and conceptual models, the need for more sophisticated multi-level scientific methodologies, significant gaps in evidence, and a disparity in research funding relative to fields focused upon a single organ system or medical disease. Because primary health care needs to integrate, the cart is truly ahead of the horse. The field is challenged from within and without by confusion, resistance, and significant scientific gaps.

In this monograph, we take stock of where the field is now and offer our perspective on where it needs to go next. We first highlight key scientific findings regarding IPC, after which we critically evaluate the strengths and weaknesses of this knowledge base. Our literature review was not necessarily comprehensive, but representative of the field and therefore helpful in a "call to action" for future research in the field. Finally, we then formulate a variety of topical and methodological priorities for future research, with special attention to theory, design, intervention, dissemination, finance, real-world implementation, and health policy implications.

Current state of knowledge

Peek (2008) has suggested that to impact health care, three worlds must be addressed simultaneously: clinical, operational, and financial. The *clinical* world is focused on what

do we do, *operations* focuses on how do we do it and support it, and the *financial* world examines costs and return on investment. For this review, we will examine the current state of knowledge and understanding and the implications for future research according to these three domains.

Clinical world

Research on IPC has largely focused on two models of care: care management and PCBH. In care management models, a mid-level provider serves as a care manager and coordinates the care of the patient. This *care manager* uses a systematic and standard approach for assessment, planning, facilitating care, and communicating with other health care providers (Hunter & Goodie, 2010). Within the care management model two primary approaches have been studied, the "*Collaborative Care*" approach and the *Three Component Model*. In collaborative care, as illustrated by the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT; Unützer et al., 2001), a care manager (e.g., a depression clinical specialist as in the IMPACT trial) may conduct an initial interview, coordinate care with the primary care provider, have periodic (e.g., weekly, biweekly, monthly) contact with the patient, and participate in team meetings with primary care personnel and a psychiatrist. The care manager often provides standardized or manualized interventions (e.g., Problem Solving Treatment; Unützer et al., 2001). The Three Component Model focuses on a prepared practice, care management, and enhanced mental health support (Oxman et al., 2002). As Oxman et al. (2002) describe, in a prepared practice, clinicians and office staff are educated about the evidence-based assessment and intervention practices. Care managers educate patients and help patients to follow their treatment plan through structured phone calls and/or in-person visits. The process of enhancing mental health support may involve a mental health professional (e.g., psychiatrist or psychologist) who supervise care managers, provide consultation to primary care providers, and improve the number and quality of referral sources for behavioral health problems (Oxman et al., 2002).

In comparison, the PCBH model embeds onsite behavioral health consultants (BHCs; usually a psychologist or clinical social worker) into the health care practice team to improve overall health within the general population (Hunter et al., 2009; Robinson & Reiter, 2016). Primary care providers can refer anyone seen in the clinic to the BHC, who in turn sees the patient in a manner consistent with that clinic's standard of care (e.g., 20-minute appointments, notes maintained within medical record). The BHC may conduct a brief, focused assessment and functional analysis and then develop a plan for the patient to improve functioning. The entire primary care team can

help the patient move forward with the established plan. Sometimes the patient returns to the BHC, but often it is medical providers and support staff who help to maintain the progress with the plan.

A Cochrane systematic review (Archer et al., 2012) examined 79 randomized controlled trials (RCTs) largely focused on the care management model. These authors found that care management resulted in significant improvements in depression and anxiety outcomes in the short- (0–6 months), medium (7–12 months), and long-term (13–24 months). These differences were not demonstrated in the very long term (25 months or more) for depression outcomes, and no studies examined the impact of these interventions on anxiety in the very long term (Archer et al., 2012). One care management approach, the IMPACT model, more than doubles the effectiveness of depression treatment for older adults in primary care settings by incorporating on-site depression care managers who offer education, care management, and support of antidepressant management by the patient's primary care physician. The Three Component Model was tested in the Re-Engineering Systems for Primary Care Treatment of Depression (RESPECT-D) project which demonstrated a response rate of 60 % and remission rate was 37.2 % as compared to usual care controls of 47 % and 37 % respectively (Dietrich et al., 2004). A clear strength of the care management literature to date is the generally well-controlled approach most care management studies have demonstrated, allowing for strong internal consistency and more assurance of the efficacy of this approach.

RCTs have not been used extensively to examine the PCBH model; however there are an impressive number of smaller-scale studies showing that the PCBH model improves patient functioning across a broad range of conditions. Bryan et al. (2012a) examined 495 patients presenting with a variety of behavioral health conditions and seen by a BHC for a mean of 2.5 (SD = .90) 30 min appointments. They demonstrated that 71.5 % of patients improved and 40.5 % of the entire sample demonstrated clinically meaningful and reliable changes in mental health functioning. Bryan et al. (2009) showed that patients demonstrated improvement within two to three BHC appointments. Ray-Sannerud et al. (2012) report that among the small percentage (i.e., 10.5 %) of patients that returned a self report battery, most maintained gains two years after a BHC intervention. Findings from case series studies indicate that using the PCBH model can improve insomnia (Goodie et al., 2009), posttraumatic stress disorders (Cigrang et al., 2011, 2015), and suicidal ideation (Bryan et al., 2012b). Only the Cigrang et al. (2011, 2015) and Goodie et al. (2009) studies used a specific protocol, while the other studies to date have been heterogeneous in their intervention approaches. Suggested benefits of the

PCBH model have also included increased use of standardized measures of depression and documentation of behavioral goals, increased patient engagement, decreased initiation rates of antidepressant medications, and decreased referrals to mental health specialty care (Serrano & Monden, 2011). These studies represent largely uncontrolled, real-world effectiveness studies that provide valuable pilot/preliminary data and are strong in external validity. While these types of designs have significant limitations, they are promising for the IPC field and may lead to development of larger, well-funded studies examining the PCBH model. Additional strengths of research on PCBH to date include external validity and generalizability, along with emerging evidence that PCBH can improve a variety of conditions across the primary care patient population.

Vertical versus horizontal approaches

The care management model can be described as using a vertical integration method whereby discrete and often chronic conditions (typically high-frequency and/or high cost conditions such as depression or diabetes) are targeted with specific pathways or treatment protocols. Sometimes this model has been applied in specific age categories (i.e. elderly) but over time this has been broadened to include other age groups. This approach is consistent with the Chronic Care Model (Wagner et al., 1996) in that it promotes proactive, interdisciplinary teams of professionals working with informed and motivated patients.

The PCBH model, on the other hand, which is generally non-targeted (addressing a variety of behavioral health concerns that are common to primary care) and non-specific (a variety of treatment modalities are employed) can be described are more horizontally oriented, tending to take a more population based perspective. While in general practice BHCs work with the primary care team to address a wide range of complaints, several studies have examined a vertical approach to specific needs of at-risk members in the primary care population in the PCBH model (e.g. insomnia [Goodie et al., 2009], posttraumatic stress disorder [Cigrang et al., 2015]). The PCBH approach is relatively flexible in that BHCs can develop specific pathways allowing for vertical integration, while most clinical efforts are directed towards the entire population (Robinson & Reiter, 2016).

Provider types

The care management model has been investigated using a variety of provider types. Depression management has typically used care managers whose training and experi-

ence range from bachelor's-level mental health clinicians or nurses with some mental health experience to master's- or doctoral-level mental health clinicians (Butler et al., 2011). Also built into this model is the use of psychiatric consultation, especially with patients that do not respond to initial treatments (Whitebird et al., 2014). Primary care based psychotherapy is a less commonly employed treatment method, instead tending to rely on referral to specialty mental health care. If psychotherapy is utilized it is generally provided by the care managers (Butler et al., 2011).

Comparatively, the PCBH model relies on integrated BHCs working side-by-side with all members of the clinical care team (e.g., PCPs, nursing staff, medical assistants) to enhance behavioral health and preventive care. BHCs are typically mental health clinicians (psychologists, clinical social worker) who have received specialty training in IPC and there is usually no psychiatrist included in this model. The process of care typically involves the PCP directly handing off to the BHC who functions as a consultant (see Hunter et al., 2009; Robinson & Reiter, 2016). BHCs collaborate with the medical team to provide ongoing assessment, flexible treatment services, and regular monitoring of patient progress.

Psychotherapeutic interventions

Primary care behavioral health treatment studies have employed a number of evidence-based psychotherapy treatments from various scientific theoretical backgrounds. The most commonly tested psychotherapy approach is cognitive behavioral therapy (CBT), which has traditionally been delivered face-to-face but also remotely using therapist-led (e.g. telephone) and guided self-help methods. Problem-Solving Treatment (PST), a cognitive-behavioral based application of brief psychotherapy, has been applied in primary care settings, most notably in the IMPACT trials (Hegel & Arean, 2003). Interpersonal psychotherapy (IPT) is also a time-limited, evidence-based psychosocial intervention used to treat depression in primary care (Post et al., 2008). Finally, Acceptance and Commitment Therapy (ACT) is an emerging psychological intervention used with integrated/PCBH settings (see Strosahl et al., 2012; Robinson et al., 2011). Meta-analyses broadly examining the delivery of psychological treatments in primary have found that these interventions can be effective. Linde et al. (2015) conducted a meta-analysis of 30 RCTs comparing active psychological treatments for primary care depression to control conditions. There was significant heterogeneity in how psychological treatment was defined (e.g., CBT, PST, IPT), modality of treatment (e.g., face-to-face, remote therapist led, guided self-help), and number of

appointments (i.e., from 0 to greater than 20). Their results suggest that psychological treatments for depression provided in primary care are effective (Linde et al., 2015), which is consistent with earlier meta-analyses (Cuijpers et al., 2009). Additionally, while personalized face-to-face psychological treatments showed the strongest effect, other self-guided or remote treatments may yield similar results. Future research can help to further determine the care model(s) in which primary care psychotherapy interventions are the most effective, whether different populations respond more consistently to psychotherapy versus other treatments, and the ideal duration and intensity of treatment.

Active ingredients of interventions

Identifying the active ingredients or the interventions-specific components serving as key levers of change is a crucial component of future intervention research. This has been more closely examined in the care management research. Issues such as training of care managers, supervision of practitioners, use of treatment guidelines, colocation of behavioral health services, systematic follow-up, patient education, and medication adherence have been identified as critical elements (Christensen et al., 2008; Craven and Bland, 2006; Gilbody et al., 2003). These reviews provide initial evidence for the specific components that should be considered in program design and implementation.

Comorbid medical and psychological conditions

While a large body of empirical support for IPC has focused on the treatment a single mental health condition (most notably depression), the context of primary care practice suggests that other medical and mental health conditions are present, and that IPC should address a variety of conditions. Evidence has emerged for the treatment of other mental health conditions such as anxiety (Roy-Byrne et al., 2010), substance use disorders (Alford et al., 2011; Whitlock et al., 2004), and posttraumatic stress disorder (Barber et al., 2011) in IPC settings. Increasingly, evidence has also supported the management of multiple medical and mental health comorbidities in an IPC context. The Multifaceted Diabetes and Depression Program (MDDP) was designed to target comorbid diabetes and depressed patients (Ell et al., 2010). While this study did not show objective improvements in diabetes control (i.e. improved HbA1c), improvements were demonstrated depression, overall functioning, and symptom burden. Johnson et al. (2014) conducted a pragmatic controlled

implementation trial examining the efficacy of a nurse case-manager-based approach to patients with depression and Type 2 diabetes. Management of depressive symptoms involved the use of antidepressant medication and/or psychotherapy and the case manager coordinated care with psychiatrists, endocrinologists and family physicians. Improvement in depression was both clinically and statistically significant. A meta-analysis and review of care management for patients with combined depression and diabetes similarly found that compared with usual care, care management was associated with significantly better depression outcomes and medication adherence. However, improvement in glycemic control was not statistically significant (Huang et al., 2013). The care management model has also been successfully applied for patients with combined depression and cancer (Sharpe et al., 2014). In depressed patients with cardiovascular disease, Stewart et al. (2014) found the care management model was successful in improving cardiovascular outcomes. Currently, the care management model is being applied in a military setting to determine if this approach can improve posttraumatic stress disorder in primary care (Engel et al., 2014).

Application to a variety of populations

Documentation of the benefit of integrated services with racial/ethnic minority and other underserved populations remains incomplete (Butler et al., 2008), and not well understood (Sanchez et al., 2012; Vera et al., 2010). However, some evidence suggests that providing mental health interventions in primary care (as compared to usual care) reduces the probability of major depression for minority and non-minority patients (Miranda et al., 2004). Additionally, Auxier et al. (2011) explored whether IPC could meet the needs of patients who were indigent, migrant workers, uninsured, or underinsured populations. Their findings indicate that the use of BHPs resulted in an increased number of patient contacts and a greater identification of mental health needs. Others have demonstrated that the care management can be culturally adapted to address depression and psychosocial stressors for Latinos with combined diabetes and depression as compared to enhanced usual care (Ell et al., 2010). Similarly, Ayalon et al. (2007) found that Black patients in the integrated model were significantly more likely to have at least one behavioral health visit (77.5 %) relative to Black patients provided with enhanced referral (22 %), whereas the same was not found for White patients. These studies begin to demonstrate efficacy of culturally tailored research and practice within an IPC environment.

Operational world

The integration of behavioral health care into primary care has the potential to affect many organizational and operational aspects of primary care practice. Integration of this nature is complex and requires fundamental operational and provider practice changes. A recent examination of Advancing Care Together (a real world, cross comparison, mixed-methods study of 11 practices that implemented IPC care) concluded that behavioral health integration requires substantial organizational changes including modifying workflow and access, using data to tracking outcomes and evaluate improvements, and making changes related to leadership and practice culture (Davis et al., 2013). Kwan & Nease (2013) outline the structural features of behavioral health integration to include: care delivery team, physical space, information technology, office management policy and procedures, clinical care policies and procedures, and education and training for needed providers. The evidence supporting some of these process features will be described below.

Care delivery team

Interprofessional team based care is a key element of the Patient Centered Medical Home. Within behavioral health integration, a variety of professionals have been shown to be part of the care team. In a review of the literature, Martin et al. (2014) reported that BHPs were most often nurses, psychiatrists, and psychologists, either operating alone or in combination. Master's level BHPs (social work and master level counselors) were also reported, but less frequently. There remains no consensus as to the optimal provider type, but instead appears dependent on the type of model of intervention proposed and the resources of the individual practice.

Physical space

In a systematic review of integrated care to improve treatment of depression using the care management model which examined a combination of the clinician's level of integration and processes in place for integration, it was found that there was no discernible effect of the level of integration upon treatment outcome (Butler et al., 2011). Colocation of behavioral health and primary care provider is posited to lead to improved access to behavioral health care and greater patient/family satisfaction because services are provided in a setting familiar to patients. In a review of strategies for coordinating services in primary care, Davies et al. (2008) concluded that increased structure of the relationship between service providers (including colocation) improved

health outcome and patient satisfaction in at least 65 % of the studies reviewed. Colocation of behavioral health has also been shown to have its limits, and by itself usually does not provide a complete solution.

Financial world

Health care occurs in a resource constrained environment. Collaborative and integrated care is more expensive and resource dependent in the front end (Gilbody et al., 2006). In consideration of the triple aim, these additional resources will be valued if they lead to not only improved clinical outcomes and improved patient satisfaction, but also reduced overall health care costs. Therefore cost/benefit analysis is critical to demonstrating the sustainability of IPC. Several mechanisms have been suggested for the possible financial benefit of IPC. These include improved clinical efficiency and overall cost reduction (medical cost offset). Improved clinical efficiency may occur when PCPs can hand off a patient who has a time-consuming (and potentially less reimbursable) behavioral health issue to the BHP or care manager, thereby increasing their availability for other patients who have other medical concerns with greater reimbursement potential (Cummings et al., 2009; Monson et al., 2012). Reduction in total health care costs realized with IPC results in a decrease use of high cost/low value services (i.e. unnecessary emergency room services, unwarranted use of diagnostic imaging, etc.; Chiles et al., 1999; Monson et al., 2012). The University of Washington's Advancing Integrated Mental Health Solutions (AIMS) Center has reported that the care management model results in savings of 6:1 per dollar spent on health care ("Dollars & Cents", n.d.). Similarly, data from the IMPACT study demonstrated this intervention led to lower health care costs over a four-year period (Unützer et al., 2008). A more recent benefit-cost analysis by the Washington State Institute for Public Policy (WSIPP) determined that the benefits from care management of depression either alone or accompanying, medical conditions, exceeded the costs 100 % of the time. Their calculations suggest a $7.21 – $8.73 benefit-to-cost ratio (Nafziger & Miller, 2013). Applying the PCBH model within a capitated system (the U.S. Air Force) resulted in 13 % reduction in pharmacy costs, 6 % reduction in ancillary health costs and 9 % reduction in pharmacy expenditures per member per quarter total costs (Nielsen et al., 2014).

Weaknesses and future research directions

Previously, there have been several published descriptions of gaps in the research literature and the development of an agenda for future integrated care investigations. Starting in 2008, Butler et al. provided an exhaustive review of the

literature along with a description of limitations in the research and several key recommendations for future investigations. These included an examination of various models, application in different populations, issues of sustainability, implications for information technology (IT), financing and reimbursement models that are most successful, and an identification of key elements with successful integration efforts. Carey et al. (2010) broadened the examination by looking at the research needs for both mental health and substance use in primary care. They developed a prioritized list of research questions that include implications for seriously mental illness patients in primary care, the effectiveness of cross cutting models/strategies for patients with multiple behavioral health problems, the usefulness of information technology (IT) to provide integrated behavioral health services, an examination of financing and sustainability issues (novel payment methods, larger societal benefits, business case analysis, etc.), dissemination of findings into community settings, a component analysis of integrated care elements, the importance of screening measures for case identification, and the role of integrated care for patients with combined medical and behavioral health comorbidities. Miller et al. (2011) helped establish a common research lexicon, examined a framework for care management metrics, and identified key issues regarding the financing of collaborative health care services. Taken together, these reports provide an excellent starting point for further refining integrated primary care research recommendations. The recommendations described here will be organized according to the three worlds needed for successful integration efforts.

Clinical world

Comparing models

Currently the majority of rigorous research has evaluated the care management models. Despite the impressive number of RCTs in support of the care management models, there remains several weaknesses in the care management research to date. For example, the Archer et al. (2012) Cochrane review concluded that methods used to allocate patients to care managers or routine care were not always free from bias, and that many patients did not complete follow-up or provide outcomes data. While the care management model addresses a high incidence condition (i.e., depression), the diverse primary care environment requires treatment models that work across the variety of behavioral health conditions that present. Carey et al. (2010) point out the need for a consistent strategy and protocol that can used with multiple mental health conditions (depression, anxiety, problem drinking, etc.). The

PCBH model addresses a variety of behavioral health conditions common in primary care, yet there continues to be a paucity of well-controlled trials.

One challenge in studying the PCBH model is that it is a population-focused, trans-diagnostic model, which makes it difficult to define and measure improvement. The BHC role is multifaceted and involves face-to-face visits, as well as staff and provider training, and the development of clinical pathways. Additionally, the PCBH model involves practice level change (i.e. the integration of BHCs) and is highly dynamic (multiple conditions being addressed with wider latitude for provider treatment decisions). Because the PCBH model goes beyond targeting a specific diagnosis or segment of the population, it may—as model proponents suggest—benefit the broader patient population, but that has not been directly studied. Similarly, future research should examine these broader effects on the primary care team such as behavioral skills enhancement, which could result in decreased burnout (Robinson et al., 2011) and/or increased physician productivity. These are challenging constructs to measure because of the difficulty of devising the matched comparators that support definitive conclusions about the impact of the overall model.

Real-world practice of IPC often involves a hybrid model of care management and PCBH (e.g. Department of Defense, Hunter & Goodie, 2010). This approach combines a chronic disease pathway for a high-risk segment of the population with a low-intensity behavioral health consultation for the wider population. Psychiatrists may be involved as External Behavioral Health Consultants and nurses as nurse case managers (Behavioral Health Care Facilitators) to help with care coordination and management of psychiatric medications (U.S. Air Force, 2014; DoD, 2013). There has been very limited research effort focused upon this combined approach to integration, despite its good face validity. There is a need to determine the effectiveness of this dual-model IPC clinic, as well as outcomes for its financial sustainability. Future research needs to better investigate the relative effectiveness of the various care models and associated provider types. These investigations need to examine not only patients' immediate clinical outcomes, but also the congruency between the care model and primary care practice patterns which is so crucial to sustainability.

Components of care

The recent IOM report entitled "Psychosocial Intervention for Mental and Substance Use Disorders: A Framework for Establishing Evidence-Based Standards" (IOM, 2015) proposed a process for identifying key elements that drive the effects of psychosocial interventions. These elements

can be either nonspecific (fundamental or common to many interventions) or specific (unique to that approach). It also highlighted the need for common terminology for both specific and nonspecific elements so as to better understand optimal dosing and sequencing. Additionally common terminology would allow data to be pooled across research studies. The proposed "elements approach" has great relevance to the integration of behavioral health in primary care. Use of this framework in future research would greatly accelerate our understanding of the critical components of integrated care, streamline intervention development, allow for improved provider training, and ultimately lead to improved evidence-based psychosocial interventions.

As indicated above, a variety of professionals have been employed as behavioral health consultants and/or care managers, but their roles not been consistent across studies. For example, the IMPACT studies involve highly-trained care managers who deliver evidence-based behavioral interventions, yet these care managers could come from a variety of professional backgrounds ("Care Manager", n.d.). In the PCBH model, the behavioral interventions have been delivered by therapists with either master's or doctoral degree training. Because of this heterogeneity in implementation, there remains a lack of clarity as to how the outcomes are impacted by the professional background and training of the BHC or care manager. While the model needs to be flexible to accommodate a variety of practice situations, the research base would be greatly enhanced if reports clearly specified the professional background and roles of the BHC or Care Manager. Likewise, a comparison between models (care manager vs. BHC) would enhance current understandings of the necessary components of this role.

More broadly, the care management and the PCBH models need to be deconstructed so that we can learn what are their essential elements and active ingredients. With this information we can much better understand the necessary implementation elements, and the relative value of each component. These components might include case identification, colocation of BHCs, and team management of care (Carey et al., 2010). As indicated above, previous studies have begun to identify key process features of the care management model (Christensen et al., 2008; Craven and Bland, 2006; Gilbody et al., 2003). A similar analysis has not been conducted for the PCBH model of care. Dismantling studies of care management/PCBH will help shed light on the critical process and treatment elements (behavioral interventions, psychopharmacologic treatment, or the combined synergistic effect) that explain clinical improvement.

Populations served

Butler et al. (2008) indicated a significant current weakness in IPC research was lack of diversity in patient samples. At that time most of the care management literature had focused on older patients, with relatively little research on minority, younger, and rural populations. Since that time, we have seen increasing literature examining IPC in minority populations (Auxier et al., 2011; Ell et al., 2010). Despite this shift, there remains a gap in our understanding as to how minority populations are best served by integrated behavioral health (Sanchez et al., 2012). Additionally, implementation studies strongly tend to be conducted in highly centralized health maintenance organizations, large practice networks, or military/VA settings characterized by no-cost universal health care and lack of co-payments or deductibles. How will findings from various clinical models hold up with more diverse patient populations? How can these findings be applied to small and middle size primary care practices where resources are scarcer?

Comorbid and chronic conditions

The main body of evidence on integrated behavioral health has focused on a single disease state or combination of disease states (i.e. diabetes and depression) such that outcomes are tied to the treatment of those disease states. Primary care patients, however, often present with a wide variety of comorbid chronic medical conditions (e.g., heart disease, chronic pain, hypertension, etc.) and comorbid mental health problems (e.g., depression, anxiety, substance use disorders). More recent integrated behavioral health literature has focused on the treatment of multiple physical and/or behavioral health comorbidities. Because patients' self-management and coping skills are such an important part of chronic disease management, future research should examine the impact of integrated behavioral care interventions upon long-term improvement in comorbid physical illnesses especially via changes in self-regulation and self-management. Likewise, integrated behavioral health interventions often include methods of helping patients address a variety of health behaviors (e.g. smoking, lifestyle changes, sleep, and physical activity). The impact that these health behavior changes may have on the prevention of illness and management of long-term chronic illness needs to be more clearly studied and quantified. While such effects are more difficult to demonstrate in controlled trials, an improved understanding of the implications in health outcomes is valuable.

Research methodology

The challenges presented above strongly suggest that traditional research methods (e.g., patient-level randomization) cannot adequately assess the effectiveness of integrated behavioral health. Kwan and Nease (2013) have suggested the need for a move beyond randomization at the patient level for these types of studies. They suggest that cluster randomization (e.g., randomization at the practice or system level) stratified (e.g., permutated block) randomization can help reduce contamination effects. Similarly, they suggest use of quasi-experimental, qualitative, and mixed methods designs to help address the present research gaps. In addition, rapidly generated research evidence from real-world settings is needed to inform practice and policy changes. This calls for the increased use of rapid-turnover research methodologies which can promptly address emerging trends in health care delivery. Examples of these would be recursive methodologies (i.e. Plan-Do-Study-Act) that use short learning/implementation cycles through which questions and answers evolve over time (see Peek et al., 2014).

Operational world

There is lack of empirical evidence to support operational decisions regarding integrated behavioral health implementation, such as staffing ratios, level of training for case managers and BHCs, and appropriate supervisory structure. A recent study of 17 primary care clinics found that the staffing ratio of integrated behaviorists to PCPs varies widely (Davis et al., 2015). The diversity in how integration has been implemented similarly makes it difficult to assess best practices. The authors also identified lack of consistency in scheduling practices, with some locations offering significantly more pre-scheduled visits and others offering largely open-access/same-day visits.

Consistent training and process

As indicated previously, IPC providers' professional background and training also varies greatly, and there are no studies to date examining appropriate levels of education or ideal types of training to produce best outcomes. Hall et al. (2015) examined 19 U.S. primary care clinics and concluded that there is a significant lack of clinicians with appropriate training and experience to work in IPC. They found gross deficiencies in training capacity and experiences to appropriately prepare behavioral health clinicians for IPC practice. Recent comprehensive consensus-driven competencies for BHPs in IPC have been published (Kinman et al., 2015; McDaniel et al., 2014; Miller et al., 2016), and – although they may serve as a

useful guide offered by experts in the field – there is no empirical support for these specific competencies. There is also no research to date to support recommendations for what level of training results in improved IPC operations and practice. Likewise, a recent systematic review of IPC program characteristics concluded that fewer than half of researchers report communication between providers, and even fewer report collaboration as a shared decision making process (Martin et al., 2014). The review recommended that future researchers promote program fidelity by reporting detailed information about the collaboration processes and other program characteristics. Measures to document adherence to protocols among behavioral health providers have recently been published (Beehler et al., 2013) and these will be valuable for future effectiveness research.

Practice size

As described above, there remains a gap in our understanding of how integrated behavioral health processes developed for large health plans, academic health centers, or military/VA settings can be applied to practices differently sized, organized and funded. The majority of existing evidence was collected in certain multi-site primary care practices and systems that are large enough to fund these efforts. This is in contrast to the preponderance of small-to-medium sized primary care settings that are run by a limited number of providers and may be largely independent of larger health care networks. For example, the BPC staffing ratios needed to achieve good outcomes may be very different for smaller practices than larger ones.

Team effectiveness

Interdisciplinary team communication is vital to success of integrated primary care. Accordingly, recommended core competencies for behavioral health providers feature team functioning as a central dimension (Kinman et al., 2015; McDaniel et al., 2014; Miller et al., 2016). While some existing measures assess provider attitudes and skills related to interprofessional team functioning (see summary at Canadian Interprofessional Health Collaborative, 2012) these rely on self-report and do not incorporate structure, process, and outcomes factors. Therefore, future improvement in the measurement of team and interprofessional functioning will be critical.

Measurement-based care

A critical step in the operational function of integrated behavioral health is ongoing measurement-based care. This

includes the systematic collection of data for initial case identification and longitudinal treatment monitoring to guide treatment decisions (Scott & Lewis, 2015). Carey et al. (2010) have recommended that the effectiveness of measurement-based care be assessed for a variety of conditions other than just depression, including posttraumatic stress disorder, general/social phobia, and substance use disorders. While valid primary care measures exist for many of these conditions, their application has not been consistently described and implemented. For substance use disorders, the Screening, Brief Intervention, and Referral to Treatment (SBIRT) process has been shown to be effective (Jonas et al., 2012), but similar empirical evidence is lacking for other conditions. Kearney et al. (2015) recently described processes whereby measurement-based care could be implemented in IPC settings. Future research should provide empirical support for these operational changes in primary care. Likewise, since the electronic health record (EHR) is often the repository for these data elements, future research should investigate improved methods of entering this data into the EHR and effective ways of using that data for improving care. In a similar fashion, Carey et al. (2010) has recommended investigations into better use of information technology, including the sharing of information between providers and use of novel patient messaging systems (i.e. push notifications).

There continues to be a need for the development and use of better quality measures in IPC settings. Although there may be many ways to approach this, we agree with the IOM's endorsement of Donabedian model (Donabedian, 1980), which clearly demarcates between structure, process, and outcomes (IOM, 2015). It is likewise imperative that improved measures capture the complexity and multidimensionality of health status and health care. Patients presents with a multitude of individual and community contextual factors which often have a significant influence on overall health (Hillemeier et al., 2003). For IPC to monitor population health, future implementations should assess, and where possible, intervene upon these contextual factors.

Financial world

The extant literature is comparatively weak and underdeveloped in the areas of the cost and sustainability of integrated care. While the results presented above are promising, more research is needed to better understand the financial costs and benefits of IPC in today's rapidly changing health care reimbursement systems. Many of the integrated behavioral health studies have been supported by large health systems or government settings that tend to be self-insured or capitated arrangements. Likewise many early implementation studies were grant funded or otherwise supported externally. In the current encounter-based (fee-for-service) environment, it is often difficult to argue the business case for integrated care, considering the added expenses in terms of workforce, time and space, and information technology in lieu of significant added reimbursement. Added to this are limitations in the current fee-for-service structure that limit integrated care (e.g., limits on same-day billing). As health care moves more toward value-based care (bundled payments) in which quality and overall outcomes are considered for reimbursement, the value proposition for integrated behavioral health and the Patient Centered Medical Home may be more apparent. Therefore it is critical for future research to emphasize the examination of the overall costs and potential savings for various models of integrated care. This is consistent with the recommendations of Carey et al. (2010) who have prioritized research to identify effective models/strategies of bundling payments for integrated care. An important movement in this regard has been the Oregon Alternative Payment Methodology pilot, which has been described as a bridge to value-based care (Hostetler et al., 2014). Future investigations should be used to build empirical support for integrated care that addresses all three of the triple aims: reduced cost, improved clinical outcomes, and improved patient experience. This ought to be examined at the individual level (i.e. high utilizer/high cost patients), by disease or condition (individuals with medical comorbidities), and/or from a population perspective (per member per month costs to a practice). These studies also need to include a sufficiently long timelines to fully investigate the sustainability of interventions.

Call to action

The field of integrated behavioral health care has made tremendous advances since early in its inception (e.g. Strosahl, 1998) in clinical, operational and financial domains. The research to date is strongest for the care management model, which is supported by numerous RCTs. The PCBH model has been widely implemented without the same amount of research; however, effectiveness studies continue to emerge and should promote the development of larger-scale clinical investigations. The IPC field is ripe with potential questions for clinical investigators related to numerous gaps in clinical, operational and financial data. Based on the review conducted in this paper, we present a call to action in two critical areas: improved clinical/operational/financial research and extensive policy change.

Increasing the quality and quantity of IPC research will have dramatic implications. The clinical world could be enhanced with a greater understanding of which models

and approaches work best and for whom. The operational world could benefit from determining best practices for structure, space, scheduling and training of integrated providers. In the financial world, it is critically important to achieve a better grasp of how integration affects health care costs at the individual, system and population level. The challenges to progress in these areas include insufficient consensus regarding key definitions and conceptual models, the need for more sophisticated multi-level scientific methodologies, significant gaps in evidence, and a disparity in research funding relative to fields focused upon a single organ system or medical disease. These challenges can be overcome, but this requires sustained efforts by leaders at

all levels. A summary of these research agenda items is presented in Table 3.

In addition to continued research efforts, future directions must also include policy change at all levels to address key financial, operational and clinical issues. Financial policy is often cited as the primary focus, due to the importance of sustaining IPC ("Policy and Financing", n.d.). Payment structure and reimbursement barriers can only be overcome by innovative policy changes at the state and national levels. Shifts in operational policy are essential at lower levels, but first consensus needs to be built around the key areas that are identified above: appropriate staffing ratios, physical space considerations, provider

Table 3 Possible future directions for integrated primary care research

Domain	Research question/area of examination
Clinical	*Models of care/provider type*
	Comparison of models that target specific mental health conditions (horizontal) versus models which broadly address mental health and behavioral change (vertical)
	BHC expertise associated with outcomes
	Continued understanding of "active ingredients" that serve as key levels of change
	Additional factors most salient for change (early change, alliance/client engagement/relationship, etc.)
	Importance of treating co-morbid conditions (medical and psychological)
	Consistent strategies that can be employed across mental health conditions
	Stratification models to direct the care where it can have the most impact
	Screening: Universal versus targeted screening for chronic health conditions
	Patient factors
	Client/patient factors as associated with effective IPC interventions
	Client/patient factors associated with patient satisfaction
	Comparison of methods and models across diverse patient population (elderly, underserved, etc.)
	Methods that best support patient self-assessment and patient personal goals in care (i.e. My Own Health Report -MOHR)
Operations	*Interprofessional teams*
	Interprofessional team effectiveness measurement
	Optimal practices for structure, space, processes, inter-clinician communication, record keeping, scheduling etc.
	BHC activities/behaviors common across various models and settings (PCBH, care management, etc.)
	Roles of RNs, MAs, Care coordinators, doctoral BHCs, and sub-doctoral BHCs, each "working at the top of their license"
	Methods to match provider expertise with setting-specific needs
	Best practices for training integrated providers
	Methods to prevent provider burn-out
	Assessment and outcomes
	Application of "key elements" approach to understand critical components of IPC
	Streamlined methods to track outcomes in IPC (i.e. treat toward the target & measurement based care)
	Psychometrically sound and feasible tools to measure BHC treatment outcomes
	Key elements of registries and EHRs that facilitate integration and effectively track patients for population based care
	Which models work best for different clinical settings (FQHC, small private practice, larger group practices, and very large institutionally-based clinics)?
Finance	Integration effect across both clinical outcomes and population based care.
	Improved understanding of cost/benefit analysis of IPC
	improved efficiency of providers
	reduction on use of unnecessary care (consistent with Choose Wisely® campaign)
	impact on total health care costs

training levels, and best practices for ongoing measurement-based care. Interdisciplinary professional organizations, such as the Society of Behavioral Medicine, the Primary Care Patient Centered Collaborative, and the Collaborative Family Healthcare Association, are ideal contexts for the development of such policies. Clinically-relevant policies are needed to enhance care at a local level. Some health care systems have made policy changes that mandate IPC implementation into their primary care clinics (e.g. Department of Defense, 2013). Implementation of IPC cannot only come from grassroots efforts, as clinic-level leaders must understand the necessity of IPC and mandate that clinical care transformation must happen in their health care systems.

Integrated behavioral health care is the future of all good primary health care. To ensure that patients receive the right care, in the right place, at the right time, we must continue to examine and evaluate what does and does not work. Integration of behavioral health and primary care is not "one size fits all." There are several models and differing levels of integration described in the literature, suggesting that approaches to integration should be responsive to the needs and context of the community. Commitment to evidence-based and evidence-informed care while maximizing the operational and financial aspects of integrated primary care will ensure superior and sustainable health care for the full range of patient populations .

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