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Behavioural health interventions in the Johns Hopkins Community Health Partnership: Integrated care as a component of health systems transformation

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Abstract

Health systems in the USA have received a mandate to improve quality while reining in costs. Several opportunities have been created to stimulate this transformation. This paper describes the design, early implementation and lessons learned for the behavioural components of the John Hopkins Community Health Partnership (J-CHiP) programme. J-CHiP is designed to improve health outcomes and reduce the total healthcare costs of a group of high healthcare use patients who are insured by the government-funded health insurance programmes, Medicaid and Medicare. These patients have a disproportionately high prevalence of depression, other psychiatric conditions, and unhealthy behaviours that could be addressed with behavioural interventions. The J-CHiP behavioural intervention is based on integrated care models, which include embedding mental health professionals into primary sites. A four-session behaviour-based protocol was developed to motivate self-efficacy through illness management skills. In addition to staff embedded in primary care, the programme design includes expedited access to specialist psychiatric services as well as a community outreach component that addresses stigma. The progress and challenges involved with developing this programme over a relatively short period of time are discussed.

Introduction

Health systems throughout the USA are trying to address significant deficiencies in the design, financing, and delivery of healthcare. The Obama Administration's healthcare bill, also known as the Patient Protection and Affordable Care Act or ACA, has stimulated change in US healthcare delivery that is occurring at a frenetic pace. Several federal financial opportunities have been created as a part of the ACA in an effort to stimulate health system models that would address glaring deficiencies in the under-achieving US health system. A common requirement with these models is the development of community-based systems that address: (1) population health, (2) quality improvement, and (3) cost

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management. These three priority areas are known in US healthcare policy as the Triple Aim.

Improvements in population healthcare must address the complex issue of patients that are high healthcare utilizers. Patients become high utilizers of healthcare services not only because of the severity of their illnesses, but also because of limited access to effective preventive care, social obstacles and access to healthcare late in the course of an illness. Often, this results in overuse of expensive acute gate-way services such as the Emergency Department (ED) and acute inpatient services. Multiple factors increase the risk for the disproportionate use of healthcare resources including lower socio-economic status, limited education, and/or the presence of comorbid psychiatric conditions, including addictions.

Individuals with high healthcare utilization have disproportionately high rates of comorbid and untreated substance use and other psychiatric conditions, as well as unhealthy behaviours that contribute to their healthcare use. Depression is more than three times as common among high healthcare utilizers in primary care (Berghofer et al., 2014). Similarly, adults with psychological distress are significantly more likely to have one or more ED visits than those without psychological distress (Pirraglia et al., 2011). It is widely known that substance use disorders are a significant factor in high health use for multiple reasons. Unmet mental health needs predict high healthcare utilization in homeless adults (Chambers et al., 2013), and, along with poor physical health, frequent use of emergency departments. (Hunt et al., 2006).

One potential method for approaching the complexity of high healthcare utilizers is through the delivery of care that integrates mental health services with the care provided for general medical conditions. Randomized controlled trials of integrated care have shown that the embedded delivery of treatment can improve psychiatric condition outcomes such as symptoms of depression and anxiety (Archer et al., 2012). Additionally, treatment of mental health conditions positively impacts the outcome of general medical conditions such as diabetes (Katin et al., 2010). Improving health behaviours, such as by quitting smoking or losing weight, significantly improves patients' mental health (Taylor et al., 2012) as well as physical health (Wu & Sin, 2011). other modifiable health behaviors include limited physical activity, poor eating habits, stress management, pain management and poor sleep. Such evidence suggests that identifying and treating patients' comorbid mental health conditions and negative health behaviours provides an opportunity to impact the overall health status of patients, while lowering healthcare utilization.

Despite the potentially critical role of mental health services in improving the health and outcomes of high healthcare utilizers, structural problems with existing care models limit the extent to which mental health conditions are adequately addressed. Traditional external referral for treatment of psychiatric conditions is often complicated by stigma associated with seeking mental healthcare, long wait times and limited access to well-trained professionals. In addition, delayed initiation of behavioural health treatment may result in missing the opportunity to capitalize on a patient's readiness for treatment and serve to limit the overall effectiveness. O'Toole has demonstrated that the ability to 'strike while the iron is hot' or offer treatment when the patient is motivated to receive it, enhances treatment

success (O'Toole et al. 2006). These barriers create substantial problems for adequately providing mental health services to high healthcare utilizers in the current system, although there is opportunity for novel models, such as integrated care, to address these challenges.

In this paper we review the behavioural health component of a comprehensive initiative undertaken by the Johns Hopkins Medical Institutions, the Johns Hopkins Community Health Partnership (J-CHiP). Stimulated by the ACA, this project aims to succeed at the Triple Aim for a subset of individuals who are identified as high healthcare utilizers. Specifically, the objectives of J-CHiP are to improve the health indices of a population of high-risk patients in a community, reduce avoidable healthcare costs, and improve the quality of care for these patients. A central method for accomplishing this task in J-CHiP is systematically integrating behavioural interventions into care teams that are embedded in community primary care sites.

There are two major objectives to this paper. First, we describe the development of the JCHiP Behavioral Health Component (JCHiP B). Second, we comment on the initial progress and challenges in implementing JCHiP B, including preliminary findings on the use of the behavioural protocols by interventionists (referred to as health behaviour specialists or HBS). Recognizing that psychiatric professionals have skills in the treatment of psychiatric illnesses as well as the ability to diagnose and treat behaviours more broadly, we incorporated into the J-CHiP programme identification and treatment of psychiatric conditions such as depression and anxiety, substance abuse and several behaviours that directly impact health outcomes. Targeted health behaviours include stress management, pain management, smoking, sleep, nutrition, exercise, and medication adherence. We use the term 'psychiatric conditions' to include mental health conditions or psychopathology such as depression, anxiety and substance use disorders. We use the term 'health behaviours' to include behaviours and habits that contribute to a health condition. Smoking was included as a health behaviour rather than a substance abuse condition in order to destigmatize it so that more patients would be willing to participate in smoking cessation programming.

Development of the J-CHiP model of behavioural healthcare delivery

The framework of the J-CHiP B design

The term 'J-CHiP B' was adopted as short hand for the behaviour elements within the larger J-CHiP programme. The J-CHiP B design was based on the assumption that finding and treating psychiatric conditions and more fully addressing health behaviours in a primary care setting would improve overall health outcomes and would result in the patient being better able to effectively manage his or her total healthcare. The J-CHiP B design targeted key challenges within the current system of psychiatric care delivery, specifically (1) limited availability, (2) stigma associated with going to a psychiatric clinic, and (3) timely intervention. The J-CHiP B design includes HBS that function as part of a team composed of a case manager and a community health worker embedded in a primary care site.

To efficiently facilitate the relationship of these new embedded services with the traditional specialist psychiatric services in the health system, the C-B-A model was developed to describe a spectrum of behavioural health services provided by J-CHiP B. In the C-B-A

(Fig. 1), the C refers to ‘can-do culture’ and represents community and clinic educational and anti-stigma activities. C interventions include ‘learn at lunch’ sessions with staff as well as community educational events designed to provide general knowledge of common mental conditions and to reduce community negative attitudes about mental illnesses. HBS staff take the lead in identifying clinic staff needs and in providing community education on mental illness. The B layer represents embedded behavioural health staff who provide mental health treatment and care coordination with other mental health providers involved with that patient’s care. The HBS are equipped to provide the four-session intervention described below. The number of individuals for whom specialist psychiatric treatment is indicated is smaller yet, and symbolized by the A which represents a commitment by the Department of Psychiatry to create accelerated access for patients referred from the J-CHiP project (e.g. those in need of psychosocial rehabilitation, longer term treatment, or other need for specialist psychiatric treatments, e.g. addiction services).

Specific health behaviour treatment intervention

The J-CHiP B design was created to increase the capacity to address health behaviours and common psychiatric conditions. Specifically, 10 content areas were identified as areas that were both common in primary care and which when addressed could improve health and therefore result in a reduction in avoidable healthcare utilization. The psychiatric conditions are depression, substance abuse, and anxiety. The seven health behaviour areas are smoking, nutrition (eating behaviours), physical activity, stress, sleep, medication adherence, and pain management. Cross-cutting elements are common to all of the protocols and some of the specific details vary with content area.

A key theoretical underpinning guiding the development of the behavioural protocols was Bandura’s self-regulation theory, more specifically a focus on self-efficacy, or the belief in one’s capacity to effect change in a specific way or behaviour. In the words of Bandura (1991), ‘People cannot influence their own motivation and actions very well if they do not pay adequate attention to their own performances, the conditions under which they occur, and the… effects they produce.’ The J-CHiP behavioural protocols were designed with the aim of increasing self-efficacy in mind.

Interventionists

Given that the need and demand for specialist psychiatric services is greater than the supply of psychiatrists (Mojtabai, 2009), expanding the behavioural health capacity of a health system to address behavioural health involves deploying a range of qualified professionals into coordinating teams. It was decided that the embedded HBS positions would be staffed with licensed clinical social workers (LCSW-C) with substantial knowledge and experience in cognitive behavioural therapy and the population of patients typical of J-CHiP (multi-morbid, low income). Interviews of new hires were conducted by a joint process that included input from J-CHiP leadership, psychology, the supervising LCSW and the primary care site.

Assessment and referral process

At the outset a case list was created of the top 1,000 Medicaid patients and top 2,000 Medicare health-care service high use patients. This list included individuals who lived within zip codes proximal to the two hospitals and who also had primary care delivered in selected primary care sites within those zip codes. The original J-CHiP B design had patients seen by the HBS only after a standardized assessment was completed by others in the J-CHiP team. Each of the psychiatric conditions and health behaviours identified has a screening tool included in this assessment. Once a patient was referred to the HBS a psychosocial assessment was conducted and the results were discussed with the patient, resulting in the development of a treatment goal consistent with the patient's priorities. This approach is consistent with person-centred care and motivation enhancement techniques which are founded on the principle that individuals are more likely to make changes in areas they are motivated to make changes in.

Overview of behavioural protocols

Protocols were developed by a team of psychologists, psychiatrists and primary care physicians to address each of the content areas; protocols were adapted from empirically supported behavioural interventions whenever possible. The use of empirically supported treatments based on behavioural or cognitive behavioural approaches was seen as a critical element of this approach and one that distinguished it from non-standardized 'treatment as usual'. Cognitive behavioural approaches have widely acknowledged efficacy and can be standardized through the use of a manual and ongoing clinical supervision to promote consistency across interventionists (Sholomskas & Syracuse-Siewert, 2005). While briefer than many cognitive behavioural approaches, a four-session protocol was chosen as a practical solution for a population highly unlikely to be able to consistently attend a longer number of sessions. This is based on the realities that significant numbers of patients drop out of mental health treatment after only a few sessions (Olfson et al., 2009). The emphasis was to promote self-efficacy skills in illness management as efficiently as possible.

In addition to replicability, manual-based interventions have the benefit of enhancing the ease of training in their use of the clinical techniques specified in the protocols as well as reducing interventionist reliance on individual clinical judgement in administering an intervention (Wilson, 1998). Manual-based interventions that build from empirically supported established treatments have the benefit of enhanced ease of training and supervising interventionists in their use of the clinical techniques specified in the protocols, as well as less reliance on individual clinical judgement in administering an intervention (Wilson, 1998).

These aspects make manual-based approaches appealing for the J-CHiP B protocols. In order to ensure a relatively consistent approach to delivery of these behavioural protocols across different interventionists, the ten protocols were manualized using methods similar to those employed by members of the J-CHiP B team who conduct randomized controlled trials of behavioural health interventions in other settings. This manualized approach included a one-page checklist giving an overview of major activities within each session to

guide the session, a longer interventionist guide that detailed examples of approaches to use with patients, and patient hand-outs to administer during each session.

The ten behavioural interventions protocols were multilayered consisting of 'cross-cutting elements' common to all 10 interventions, and domain-specific material.

Cross-cutting conceptual elements of behavioural protocols

Common cross-cutting elements within all protocols are critical behavioural approaches that address a range of conditions and emphasize patient engagement and self-management: (1) goal-setting, (2) self-monitoring, (3) decisional balance/motivational interviewing, and (4) relapse prevention.

Goal-setting refers to helping the patient set goals early on in the intervention that are behavioural in nature, attainable, and measurable. This approach is conceptually based on the frequently used 'SMART goals' concept (wherein the acronym SMART represents specific, measurable, attainable, realistic and timely) (Lawn & Schoo, 2010). To ease presentation of this strategy to patients, the 'BAM' goal acronym was used across all protocols. Examples of BAM goals are in Table 1, along with examples of assessment tools and self-monitoring tools used in the protocols. Setting realistic, attainable, and measurable goals ensures that patients are likely to achieve these goals and enhance their self-efficacy.

Self-monitoring is a key technique in cognitive behavioural therapy approaches. Patients monitor their own behaviours and skill practice is often prescribed as homework (Musbac et al., 2010). Examples are logs in which a patient can track eating or physical activity, mood, pain, or cigarette cravings. Skills practice, such as relaxation skills, can also be tracked using self-reported measures of change in relaxation or anxiety levels, recorded before and after an exercise. These self-monitoring logs provide important information that can guide the work done with the therapist in session, offer realistic data to the patient that can often serve as a 'wake-up call', and provide reinforcement when positive change is seen over time, resulting in improved self-efficacy.

Widely used, standardized validated assessment measures were chosen whenever possible (see Table 1). The Patient Health Questionnaire 9 (PHQ-9) for depression (Kroenke et al., 2001) and the Generalized Anxiety Disorder 7 (GAD-7) for anxiety were used (Spitzer et al., 2006). For substance abuse a single question was used to screen (Smith, 2012), with further assessment of positive response based on the Alcohol Use Disorders Identification Test (AUDIT) (Bush et al., 1998), and the National Institute on Drug Abuse (NIDA) tool, NM ASSIST (NIDA, 2014). For the health behaviour areas, the Perceived Stress Scale was used for subjective stress (Cohen et al., 1983); the Graded Chronic Pain Scale (Von Korff et al., 1992) was used for pain. For smoking cessation, the Fagerstorm Test for Nicotine Dependence (Heatherton et al., 1991) was used. For sleep, the Insomnia Severity Index was used (Bastien et al., 2001) and for nutrition, Starting the Conversation was used (Paxton et al., 2011). Medication adherence was screened using validated self-reported measures (Tilburt et al., 2008). The medication adherence intervention included initial medication reconciliation followed by targeted attention to the factors responsible for non-adherence in a given patient. Specifically medication-related issues are addressed by a pharmacist,

organizational issues by the case manager, and medication 'worries and concerns' are addressed by the HBS. Because of the nature of the content area, the medication adherence protocol deviated from the four-session J-CHiP B.

Given the complexity of medical and psychiatric comorbidities in the JCHiP population, and the challenges associated with reaching and engaging this population, the principles of motivational interviewing were seen as being critical to success. Motivational interviewing (MI) is a collaborative person-centred form of guiding to elicit and strengthen motivation for change (Miller & Rollnick, 1991; Rollnick & Miller, 1995). Based on the Prochaska and Di Clemente transtheoretical model, or stages of change model (Prochaska & Di Clemente, 1983), the goal of MI is to help move patients forward in their readiness to engage in behaviour change while supporting the patient's autonomy. One helpful technique in assisting patients with advancing towards readiness to change is decisional balance, a technique that involves helping the patient clarify his or her values and preferences by establishing the patient's self-perceived pros and cons of both changing and maintaining a particular behaviour. The concept of MI was incorporated into all behavioural protocols through inclusion of a decisional balance worksheet, and of a checklist for a specific MI-based session that interventionists could use with patients who showed ambivalence towards starting or continuing in a particular behavioural protocol.

Relapse prevention has its roots in alcohol and substance use interventions and involves identifying and anticipating challenges patients are likely to face as high-risk situations for their behaviour change, and identifying methods of coping successfully with these changes once they occur (Keefe & Van Horn, 1993; Ma & Teasdale, 2004; Marlatt & Gordon, 2005). A key concept in this approach is the difference between a 'lapse' meaning a temporary failure of concentration, memory or judgement (i.e. a slip in progress), and a 'relapse' signifying deterioration in health and behaviours after a temporary improvement. This approach concludes sessions with patients by specifically focusing on positive gains that are made. For instance, a patient in session four of the depression protocol might be helped to identify high risk situations for her depression, such as the winter holidays or late at night when she is home alone, and she would then be guided to identify coping strategies to use in anticipation of these high risk situations. Such strategies include engaging in helpful skills learned throughout the four-session programme, including going for a walk or calling a supportive friend.

All behavioural protocols were designed to follow a relatively similar format to simplify training of the interventionists and facilitate consistency across domains. After the initial assessment is completed, the patient is scheduled for their first protocol session. The goals of session one are to build rapport, introduce the collaborative framework and structure of the session, provide education, set appropriate goals, introduce the patient to a skill for practice, and guide the patient in how to monitor this practice at home using a self-monitoring tool. For instance, in the depression protocol the patient is given a mood log to track his or her mood for the upcoming week, and a BAM goal of taking a walk two days a week would be tracked using the BAM goal worksheet. The HBS administers a validated measure of the severity of the patient's relevant condition. For instance, patients entering the depression

protocol would be administered the PHQ-9 and a score of 15 would signify moderate depression.

The goals of sessions two and three are to continue to promote self-management skills and self-efficacy through reviewing progress in BAM goals, or other home practice using self-monitoring tools, introducing and practising skills, and setting goals for practice. Using a relapse prevention approach, the goals of session four are to assess and reinforce progress by helping the patient identify areas of success and continued challenges, identify and anticipate high-risk situations in the future, and plan for these situations using coping skills the patient has learned during the protocol. In addition, the patient also completes the identical measure(s) that were completed initially, with feedback on change being given to the patient.

Clinical supervision

Supervision is an important aspect of ensuring relatively consistent administration of the developed behavioural protocols and to allow HBS' to learn from each other's experiences and strategies in managing difficult and complex cases, while also providing support. A psychologist (J.B.R.) who was involved in the development of the behavioural protocols served as a supervisor during group supervision occurring on a once- or twice-monthly basis. The role of the supervisor was to review individual cases, monitor implementation of the behavioural protocols, and address any issues in administering the protocols as designed.

Progress and challenges in implementing J-CHiP B

Overview

There have been three phases in the J-CHiP B process: pre-implementation, start-up, and operation. The nature and time frame of the funding that supported this project significantly compressed the project timeline. This has both advantages and challenges. While a sense of urgency can result in intensification and coalescence of mission, and be a driver for task completion, in an institution as complex as a large academic medical centre compression can produce new processes and communication lines that are disruptive to prior established channels. The pre-implementation phase involved creating the behavioural assessment tools and the behavioural protocols. The development of office space in primary care clinics was a part of this period. Staff positions were created and several HBS and project manager staff were hired. Pre-implementation also involved development and training in the use of the electronic medical record (EMR) and database tools. This includes a within J-CHiP communication tool, the clinic EMR, the inpatient EMR, and other available databases such as the Maryland Chesapeake Regional Information Systems Portal (CRISP), which includes access to pharmacy information on filled prescriptions for addictive substances.

The start-up phase began with actual patient engagement. From the outset, referral into the J-CHiP B intervention was designed to be dependent on whole health screening for multiple medical conditions during the intake process and then referral to the embedded health behavioural specialist team member. This design was intended to manage what was predicted to be a very high demand for behavioural health services. This means that the

reach of the J-CHiP B intervention was dependent on screening and then referral. In early practice, this process resulted in under-utilization of the HBS. Based on feedback from all staff involved, the referral process was amended to include referrals directly from the primary care physician or any member of the team. Because integrated behavioural health resources were new to the J-CHiP primary care sites, assuring that physicians were involved in the hire and services planning process took on critical significance. Additionally, the HBS often now proactively introduce themselves to new J-CHiP patients directly to further reduce barriers. For instance, the J-CHiP B staff developed a hand-out describing the services that the HBS offers and routinely give these hand-outs to the patients when they first introduce themselves. The HBS report that on many occasions, patients call them weeks or even months after the introduction to discuss the possibility of scheduling a session to address a pressing behavioural concern.

It was predicted that at least 50% of the J-CHiP community population would be in need of behavioural healthcare intervention. This was a conservative estimate based on the diagnosis of depression or other psychiatric conditions and substance abuse in the patients that were identified as target patients. Currently, J-CHiP B is indeed engaging approximately 50% of the enrolled J-CHiP patients, but the nature of the HBS interaction is different than anticipated. For example, many of these at-risk and high use patients have current or historical treatment relationships with a community-based mental health service. In these cases, the task of the HBS is to coordinate with that community provider to facilitate re-engagement for ongoing mental health treatment and to consider the potential role of the JCHiP B intervention protocol for a specific health behaviour. One example is a J-CHiP patient with schizophrenia referred for smoking cessation. In this situation the job of the HBS would be to assess and reaffirm engagement with the community mental health provider for treatment of schizophrenia at the mental health clinic and concurrently, the HBS would work in the primary care setting with the four-session JCHiP B protocol to promote smoking cessation. In a case like this, the overarching goal is to strengthen patient engagement in their healthcare, not substitute for it.

Although still early in the implementation of the J-CHiP B intervention, HBS have noted several programme aspects that facilitate patient engagement– not all of which were intentional. These include the electronic medical record (EMR) documentation and clinic space structure. At the same time that J-CHiP was initiated, Johns Hopkins Hospital transitioned outpatient clinics into a single common EMR. The Johns Hopkins Medicine six inpatient hospitals still utilize different EMRs but will convert to the same single EMR over the next two years. A common EMR allowed HBS to access patient medical and mental health treatment history as well as provide a valuable venue for effective, Health Insurance Portability and Accountability Act (HIPAA)-compliant communication with all providers involved in the patient’s care. Additionally the single EMR enables access to information about scheduled patient clinic visits so that the HBS can plan to interact with patients during a single visit. The HBS staff also use the EMR to communicate their care plans to the patient’s primary care physicians and monitor patient compliance with medical appointments.

Aside from the common EMR, communication database software was specifically designed for use within J-CHiP. Here the HBS record their patient encounters, offering vital information on the status of patient progress in intervention protocols and identifying problem areas. Fig. 2 shows the types of behavioural activities engaged in by HBS during May 2014. The ‘tasks’ represent outreach to patients and care coordination and communication that occurs outside of direct on-site face-to-face visits. The volume of tasks compared to each visit likely reflects the complexity of these patients’ health and lives. Eventually the use of a single EMR for multiple clinical documentation and care coordination will streamline what is now sometimes clunky because of multiple databases.

A clinic’s physical space impacts patient engagement for the embedded team. Due to space constraints in some clinics, the embedded team shares office space. A shared office space fosters easy communication and coordination among the J-CHiP embedded team members and reinforces that these members are a ‘team’. In some clinics, the J-CHiP office space is close to the pathway patients and care providers walk to get to the patient rooms. Offices located near patient care areas also enhance patient awareness of the team and can facilitate communication with patients.

Using preliminary data based on HBS recorded notes, the number and ratio of types of behavioural encounters engaged is presented in Fig. 3. By far the most commonly used protocol is the depression protocol, followed by stress management, substance use, and smoking cessation. Nutrition and physical activity, pain management, and sleep disorders protocols have been used far less frequently. Because these data are preliminary, they include use of the protocols in start-up as well as in the current implementation phase. It is expected that this ratio of protocol use will change as the programme progresses.

Conclusion

A major objective of the Johns Hopkins Community Health Partnership (J-CHiP) is to improve the health of an identified group of patients with high, possibly avoidable healthcare use, through the development of community teams that have integrated behavioural interventions. The J-CHiP Behavioral Health Component, J-CHiP B, was developed to support this objective.

Among the challenges noted are engaging J-CHiP patients to begin or continue in behavioural interventions, utilizing an effective process to refer patients from the general medical to the behavioural staff, and selecting patient screening methods that do not obstruct the referral process or primary care work-flow. As we progress in J-CHiP we are mounting efforts to approach these challenges by streamlining referrals to HBS and deploying novel methods of screening that are brief enough to be feasible in busy clinics while thorough enough to facilitate appropriate referrals and maximize follow-up care.

There have been many early successes in the programme including successful integration of behavioural interventionists into primary care teams throughout the JCHiP community sites, significant patient satisfaction, primary care staff satisfaction when working with patients with complex and seemingly refractory patients with substance use, other psychiatric

conditions and health behaviours. Throughout the institution there is a new sense of communication, care coordination between providers, and emerging optimism in working with high use individuals. There continues to be excitement and anticipation that with mature services, the Triple Aim will be achieved for this group of patients and that the incorporation of a strong behavioural component will prove to be invaluable in accomplishing these aims.

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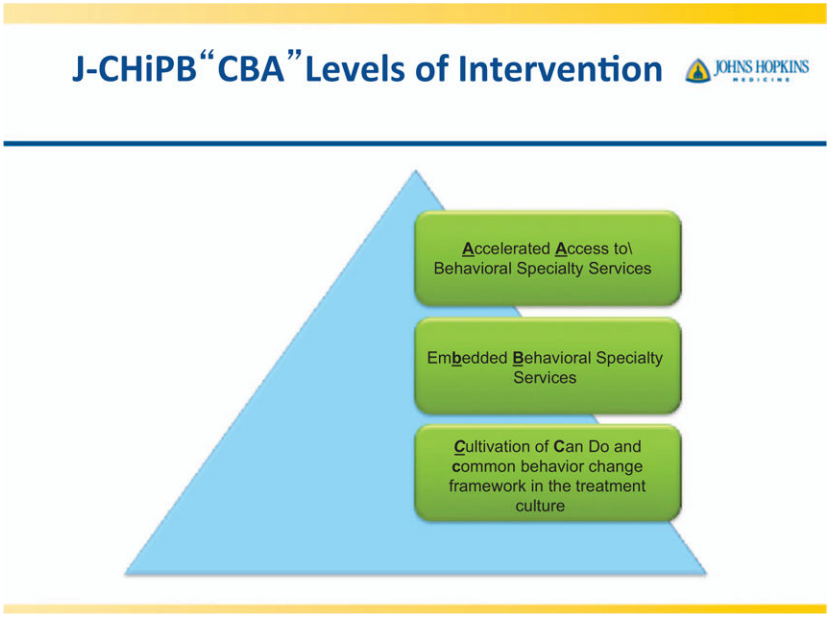

Fig. 1.
J-CHiP B 'CBA' levels of intervention.

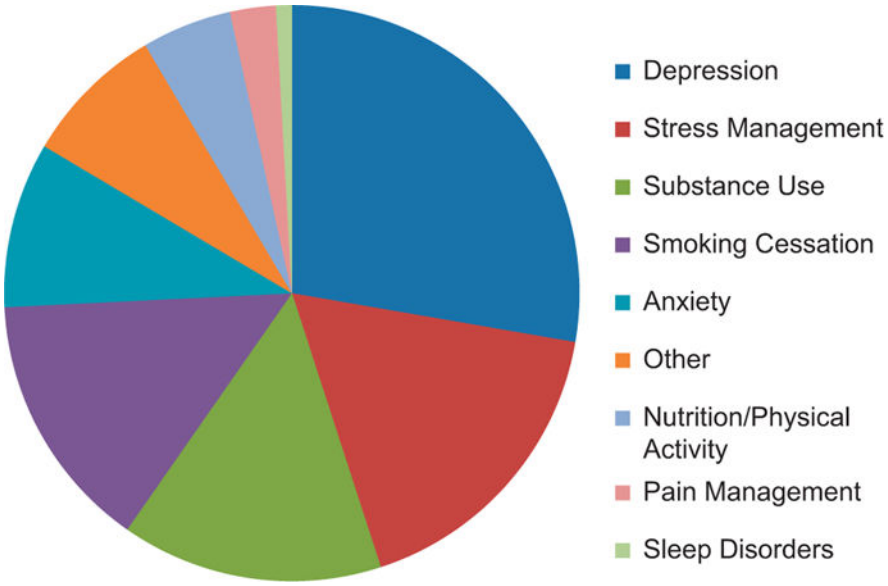

Fig. 2.

Ratio of types of encounters by behavioural domain. Encounters refer to face-to-face visits with patients lasting > 10 min. All behavioural protocol sessions are considered encounters. These encounters occurred in the 17-month period from January 2013 through to May 2014.

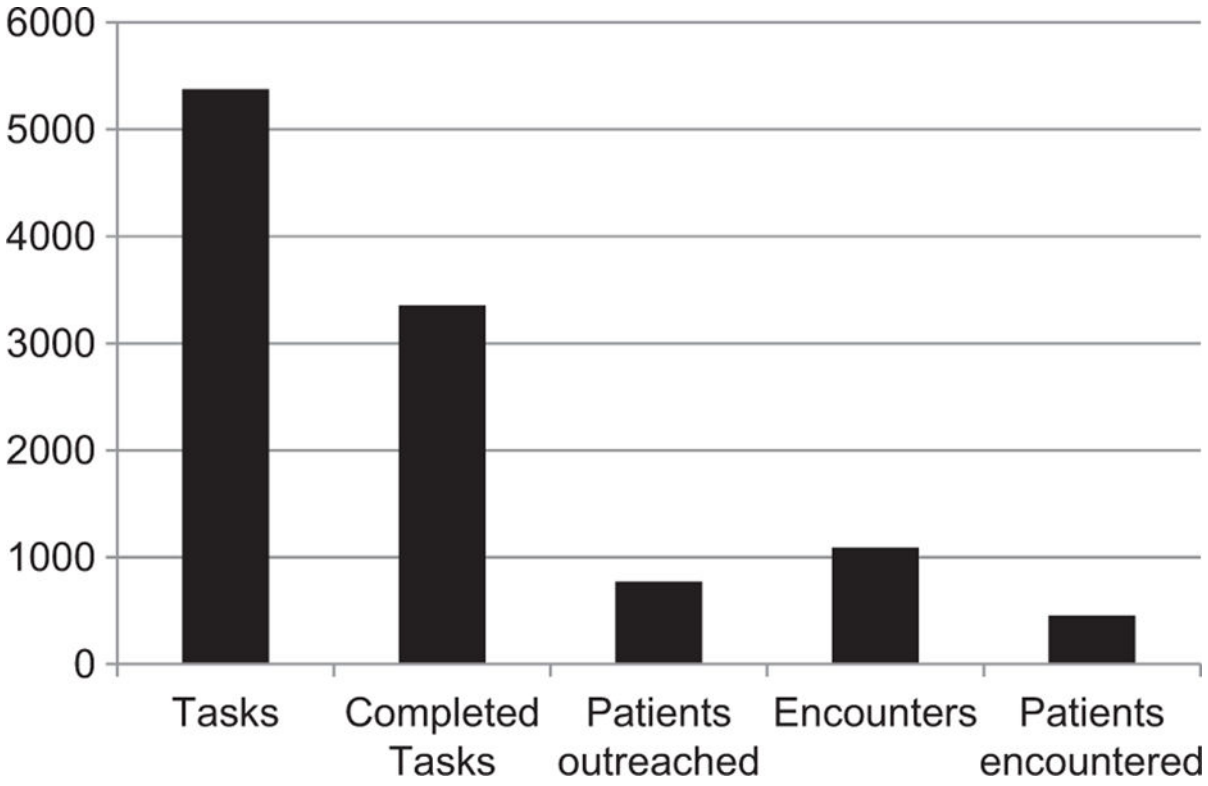

Fig. 3.

Number of behavioural activities completed in May 2014. 'Tasks' refer to all telephone and in-person attempts to reach a J-CHiP patient and also care coordination communication between within J-CHiP team staff members (e.g. a nurse can 'task' the HBS to follow up with a patient about a particular issue). 'Completed tasks' refer to a successful task in which patient was reached. 'Patients outreached' refers to the number of people reached through completed tasks. 'Encounters' refer to face-to-face visits with patients lasting > 10 min. 'Patients encountered' refers to the number of patients seen in encounters.

Table 1.

Examples of primary assessment tools, BAM goals, and primary self-monitoring tools used across behavioural protocol.

Domain	Primary assessment tool(s)	BAM goal example	Primary self-monitoring tools
Depression	PHQ-9	Take a 20-minute walk three days this week	Mood log
			Skills and strategies practice log
Anxiety	GAD-7	Track anxiety-related thoughts using anxiety thought log daily	Anxiety log
			Anxiety thought log
Substance use	AUDIT-C	Engage in mindful breathing once a day for three days this week	Cravings journal
Stress management	Perceived Stress Scale (PSS)	Practice visual imagery once a day for 10 minutes this week	Relaxation practice log
Pain management	Graded Chronic Pain Scale (GCPS)	Practice pain coping skill once a day	Pain diary
Nutrition	Starting the Conversation Dietary Assessment Tool	Eat breakfast three days this week	Food log
Physical activity	Items Assessing Level of Physical Activity over Past Week	Reduce time spent in front of TV by a half hour each day this week	Physical activity log
Smoking cessation	Fagerstrom Test for Nicotine Dependence	Limit cigarettes smoked inside the house to one per day	Craving journal
Sleep	Insomnia Severity Index (ISS)	Stop drinking caffeinated beverages after 2 pm	Sleep diary