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A Multidisciplinary, Team-Based Teleconsultation Approach to Enhance Child Mental Health Services in Rural Pediatrics

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ABSTRACT

Mental health services for rural youth are extremely limited, especially given the national shortage of child and adolescent psychiatrists (CAPs). Patient-centered primary care medical homes (PCMHs) are often their only available portal of care, yet high-quality PCMH integrated models of behavioral health that include a CAP are rare. This manuscript presents a unique multidisciplinary teleconsultation model wherein integrated behavioral systems consultation was employed to increase access to integrated behavioral health services. Common referrals included complex presentations outside of provider comfort range or medication and diagnostic clarification. Primary concerns were symptoms of ADHD, autism spectrum disorder, anxiety, and depression. Recommendations included referral to outpatient therapy, further coordination with the medical team, and follow-up with the CAP. Providers noted access to care, specialized quality of care, provider support, and enhancing principles of the PCMH as strengths of the teleconsultation. Challenges included patient engagement, scheduling/availability, challenges with the teleconsultation process, and provider-level barriers.

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For many children who live in remote or underserved areas and have chronic health conditions, regularly scheduled visits with their pediatric specialists, including behavioral health providers, is a time-consuming and expensive burden for their families that often results in suboptimal care (Thomas et al., under review). Nearly one in five children in the United States resides in a rural area (U.S. Department of Health and Human Services, Health Resources and Services Administration, & Maternal and Child Health Bureau, 2011). Compared with nonrural children, children living in remote or underserved areas (USCs) often experience worse health outcomes (Peltz et al., 2016; Singh & Siahpush, 2014; U.S. Department of Health and Human Services, 2011). This problem is especially true in relation to behavioral health. Each year, an estimated 14%–20% of children and adolescents experience a behavioral health issue and as many as 70% of them do

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not receive care (Greenberg et al., 2003). For adolescents with severe mental disorders, only half receive some form of care (Merikangas et al., 2011).

Despite the large volume of youth with an impairing behavioral health disorder, there are currently just over 8,300 practicing child and adolescent psychiatrists (CAPs) in the United States (American Academy of Child & Adolescent Psychiatry, 2017a). Most of the nation is underserved, with less than 17 CAPs per 100,000 youth overall and even fewer in USCs. For example, Wyoming has 4 CAPs per 100,000 youth and in Colorado, 49 of 64 counties do not have a CAP (American Academy of Child & Adolescent Psychiatry, 2017b).

Patient-centered medical homes

Patient-centered medical homes (PCMHs) are often the most accessible location for children with behavioral health concerns. This poses several challenges. In USCs, where specialists are less available, primary care providers (PCPs) often care for more medically complex patients that present to their PCMH. This is a significant burden given that 8% of adolescents meet criteria for a severe emotional disorder (Kessler et al., 2012) and 20% of youth with a mental health disorder have at least three comorbid disorders (Merikangas, Nakamura, & Kessler, 2009). Although the mental health training mandates for PCPs have improved, their graduate medical education (GME) training focuses on common presentations of patients with mild to moderate symptoms and minimal comorbidity. Yet another challenge is the time it can take to care for patients with severe and/or complex presentations and the lack of compensation for this time.

Providing integrated behavioral health services within pediatric PCMHs is a growing approach to increasing access for children and adolescents with behavioral health disorders (Stancin & Perrin, 2014; Talmi et al., 2016). Due to the lack of available specialists, PCPs in USCs often take on additional work to ensure their patients are cared for, so this strategy addresses an important service gap in USCs.

Integrated care capacity building in PCMHs

Integrated behavioral health in primary care ("integrated care") is a growing area of research and has accumulated substantial support as an important and necessary approach to addressing the vast behavioral health needs of children and families (Asarnow, Kolko, Miranda, & Kazak, 2017; Asarnow, Rozenman, Wiblin, & Zeltzer, 2015). The disciplines of family medicine, pediatrics, and mental health developed joint principles for integrating behavioral health care into the PCMH. Discussions ensued to define best practices in whole-person, patient-centered health care, validated evidence-based approaches, development of sustainable payment models, and enhanced work-force capacity in the area of integrated care (Asarnow et al., 2017; Working Party Group on Integrated Behavioral Healthcare, 2014). The work has also included discussions on the inclusion of

health service psychologists in leadership roles for program development and work-force capacity building.

The expertise of pediatric psychologists in addressing these concerns from a biopsychosocial framework and in collaboration with multidisciplinary medical teams makes them uniquely equipped to serve in a consultative, capacity-building leadership role within pediatric PCMHs (Hoffses et al., 2016; Palermo et al., 2014; Talmi et al., 2016). The majority of behavioral health providers hired to work in integrated care do not receive specialized training within health service settings, let alone within pediatric PCMHs (Beacham et al., 2017; Talmi et al., 2015). Consequently, clinicians serving as behavioral health clinicians (BHCs) within pediatric PCMHs often must learn how primary care–specific mental health competencies (science, professionalism, interpersonal skills, application, education, and systems) manifest and are best practiced within this highly specialized setting (Hoffses et al., 2016). Primary care psychology–trained pediatric psychologists are able to contribute substantially in supporting the professional competency development of BHCs who are new to this practice setting.

The value of child and adolescent psychiatry on the integrated team

The value of child and adolescent psychiatrists (CAPs) to patients served within a pediatric PCMH is an important consideration for integrated care programming. Model development must take into account the cost and scarcity of CAPs, while simultaneously balancing the importance of the highly specialized service CAPs provide for a population that is at highest risk and experiences significant disparity in access to care. A variety of models have been developed for integrating CAPs into PCMHs as an approach to increasing pediatric provider capacity. For example, a high-volume, training primary-care clinic may have resources for a CAP to serve as an attending provider who accompanies pediatric trainees during visits with youth who suffer from mental health issues (Kelsay, Bunik, Buchholz, Burnett, & Talmi, 2017; Talmi et al., 2016). For smaller clinics with more limited resources, models include providing access to a mental health team who help triage services and resources for patients identified by the PCP (Keller & Sarvet, 2013). Other models include providing online resources, algorithms, and trainings for providers as well as access to a multidisciplinary team (Weerasekera, 2013).

Consultation types and capacity building

Pediatric integrated care requires the merging of psychiatry, pediatrics, and counseling—disciplines with vast cultural differences that have largely existed within separate systems of care (Miller, Ross, Davis, Melek, & Kathol, 2017; Pace, Chaney, Mullins, & Olson, 1995). Typically, this endeavor requires transformation of practice that involves (a) shifting of disciplinary

paradigms, culture, and communication; (b) merging of ethical and documentation considerations; and (c) a reconceptualization of efficiency, the use of time, and problem solving (Pace et al., 1995). These practical and philosophical merges do not occur in the absence of growing pains, and thus, professional consultation is an excellent way to promote the successful implementation and sustainability of integrated care programs.

Behavioral and consultee-centered consultation

Behavioral consultation, also referred to as problem-solving consultation (Pace et al., 1995), follows a problem-solving model to develop a treatment plan that the consultee and consultant evaluate (Pace et al., 1995; Frank & Kratochwill, 2014; Fischer, Dart, LeBlanc, Hartman, Steeves, & Gresham, 2016). This model describes the process by which a specialist evaluates a patient upon request of the managing medical provider and provides recommendations to support treatment. This approach is often the way in which psychiatrists and other behavioral health professionals support patients with behavioral health needs within a PCMH. On the other hand, *consultee-centered consultation*, also referred to as process-oriented consultation, provides support to an individual or system in a nonhierarchical manner toward an evolving goal of supporting cultural and practice transformation (Knotek & Sandoval, 2003). Consultee-centered consultation is commonly used for mental health consultation needs and is appropriately applied within clinic settings.

The role of teleconsultation

Children with behavioral health issues living in USCs often do not have access to as many programs, resources, and services as do children in urban settings. Unfortunately, this creates significant hardship for families given that children's hospitals, often the leading site for pediatric specialty care in a region, are almost exclusively located in urban areas (Berry, Lieu, Forbes, & Goldman, 2007; Burke & Alverson, 2010; Melzer, Grossman, Hart, & Rosenblatt, 1997; Simon et al., 2010). This leaves many families in a compromised position as their children are unable to receive the evidence-based care, in terms of both frequency and quality that they need to succeed socially and academically. Access to care is further complicated by stigma that is magnified in a small community. In rural care settings, stigma takes on a special importance because of the interdependence and overlapping relationships that exist in rural communities (Rost, Smith, & Taylor, 1993). Accessing care from within the PCMH alleviates the latter barrier to access.

Telemedicine, one component of teleconsultation, is defined as the "use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status" (American Telemedicine Association, 2016, Telehealth and Telemedicine, para. 1; Rurke & Hall, 2015), and is one potential solution to meeting the clinical

needs of an underserved population in a USC. Telemedicine provides a set of useful tools for disease and case management that allow for "teamwork" between a pediatric practice and specialty provider to monitor the child's health and detect early signals of worsening conditions. Patients are able to reside in their community; fully participate in school, family, and community activities; and schedule regular follow-ups with their specialist in the convenience of a community-based pediatric PCMH. In addition to the numerous patient care benefits that telemedicine affords, it has been shown to provide significant cost savings for patients and the health care system (see Thomas et al., under review).

Psychiatry integration through teleconsultation, such as the Massachusetts Child Psychiatry Access Project (McPAP), where psychiatrists are available in a teleconsultation capacity to PCPs, has become an increasingly popular method for maximizing CAP resources (Sarvet et al., 2010). Although teleconsultation for direct service has grown within specialized mental health settings (Gloff, LeNoue, Novins, & Myers, 2015), psychiatry teleconsultation for the PCMH is less common than models that provide support to medical providers only, such as the one utilized in the McPAP. However, the fast-paced work flow within PCMHs often presents a barrier to the PCP who feels unable to take time away from clinic responsibilities to consult a psychiatrist, especially when the psychiatrist is not immediately available. As such, the value of available integrated providers (on site or through telemedicine) as a mechanism for reducing access and utilization barriers should not be underestimated.

Integrating consultation processes and technology

Pace and colleagues (1995) posit that an integrated behavioral systems consultation (IBSC) approach that merges behavioral or problem-solving consultation and process-oriented or consultee-centered consultation is the most effective way for psychologists to provide mental health consultation in primary care. Building a multidisciplinary integrated care team requires the bridging of multiple disciplines including psychiatry, pediatrics, psychology, masters-levels behavioral health providers, and social workers from within the context of a divided health care system. Some challenges include building effective provider-to-provider communication systems, appropriate screening, delivery systems, and reimbursement of services to support maintaining the highest quality of patient-centered care. This complex work, described as practice transformation, requires significant time and energy and has been shown to benefit from a facilitator or consultant (Crabtree et al., 2011).

The two-fold approach of IBSC takes into account the transformation required when merging disciplines. It encompasses many of the tenets of consultee-centered consultation and includes aspects of behavioral consultation, such as problem solving for patient treatment planning (Knotek & Sandoval, 2003; Pace et al., 1995). Thus, it is logical to utilize a

telemedicine-enabled IBSC approach to support behavioral health consultation needs of PCPs. This model enables the consultant to address direct patient care needs and simultaneously work with the practice on the cultural and practical transformational issues that arise when merging pediatric medicine with mental health—all from a teleconsultation lens that connects mental health specialists with providers and patients in USCs.

The current study

In this article, we describe how a project that initially began as a nonconsultative, direct telemedicine service evolved into a teleconsultation project utilizing an IBSC approach to better support the treatment of youth behavioral health needs from within a rural PCMH. Given the apparent cost savings of this program (see Thomas et al., under review), it is critical to examine service utilization and acceptability to determine whether it also met local needs.

The projected utilized an IBSC approach via videoconferencing to support medical providers and masters-level BHCs in their work with behavioral health concerns through the integration of a CAP into the existing care team to enhance multidisciplinary integrated care within a rural pediatric practice. Previous studies have examined teleconsultation by psychiatrists to medical providers, telepsychiatry to patients in specialty mental health settings, and the impact of integrated care teams on PCMHs. This study adds to the literature by reframing a traditional stand-alone telepsychiatry (direct or consultative) service into one component of an integrated care team within a pediatric PCMH, enhanced by IBSC delivered through teleconsultation by a pediatric psychologist and a CAP.

The aim of this study was to describe the consultative method used and to explore its impact on the patients, providers, and pediatric practice within this USC. Research questions included the following: (a) What were the visit and patient characteristics of the psychiatry teleconsultation conducted by the CAP? (b) What support needs for care and management of behavioral health patients were identified by PCPs? (c) What were the benefits and challenges of this teleconsultation approach for patients, medical providers, and the medical practice?

Method

Clinic and population served

The pediatric PCMH clinic includes 12 pediatric medical providers and an integrated care team of masters-level child behavioral health clinicians (BHCs) that joined the practice in the fall of 2014. The clinic serves a diverse, largely publicly insured population (52%) through 21,500 annual

visits for over 12,500 active patients (65% White, 22% not specified, 5% Native American, 4% declined to respond, 2% multiracial, 0.6% Asian, and 0.5% Black). As the only pediatric PCMH for the surrounding four-county region that expands 60 miles in all directions, the practice offers a variety of innovative services. The specific PCMH is located in a mountain town with a local population of approximately 18,503 but draws patients from as far as 80 miles away. The area is 7 hours by car to the nearest specialized Children's Hospital. Although there is one qualified pediatric psychiatrist locally, the CAP has a full panel and is not contracted with insurance carriers. The regional behavioral health organization is equally overburdened.

Participants in the current study included both patients served by this pediatric PCMH and medical/behavioral health providers from the practice. A total of 29 patients, ages 5 to 17 years (mean age = 12.6 years) participated in 67 telepsychiatry patient-centered consultation visits. A majority of patients were identified in the electronic medical record (EMR) as White (n = 54 patient visits; 81%) and about half of the patients were publicly insured with Medicaid or SCHIP (n = 34 visits with public insurance; 51%). See Table 1 for complete demographic information.

A total of 16 multidisciplinary medical team members participated in the project (MDs = 8; pediatric nurse practitioners = 2; physician's assistants = 2; BHCs = 3; other provider type = 1). Providers ranged in age from 31 to 72 years (mean age = 46.69 years) and most identified as monolingual English speakers (n = 13; 81.3%) with a small proportion of bilingual speakers in Spanish or French (n = 3; 18.8%). Of the participating providers, 10 (62.5%) were employed by the practice in full-time status and 6 (37.5%) were in part-time status and represented a broad range of length of service to the

Table 1. Demographics of Patient Participants.

Age group	Total patients n = 29	Total visits n = 67
Schoolage (6–12 years)	19 (65%)	35 (52.2%)
Adolescent (13–18 years)	9 (31.0%)	29 (43.2%)
Missing	1 (3.4%)	3 (4.4%)
Race		
White	24 (82.8%)	54 (80.6%)
Asian	1 (3.4%)	1 (1.5%)
Other	3 (10.3%)	9 (13.4%)
Not provided	1 (3.4%)	3 (4.4%)
Primary insurance type		
Medicaid	8 (27.6%)	21 (31.3%)
SCHIP	6 (20.7%)	13 (19.4%)
Private	11 (37.9%)	24 (35.8%)
No Insurance	3 (10.3%)	6 (9.0%)
Not Provided	1 (3.4%)	3 (4.5%)

pediatric practice from 4 months to 37 years (mean time in practice = 9.19 years).

Teleconsultation project overview

This study was part of a larger regional 2014 grant-funded project to assist with improving access to specialty care in the rural southwest area of Colorado through the use of state-of-the-art telemedicine software ("Vidyo": https://www.vidyo.com/) to facilitate consultation between an academic, urban tertiary care children's hospital and this pediatric PCMH. Prior to this project, the urban children's hospital had conducted outreach clinics to rural areas around the state and the surrounding region. These clinics involved traveling to meet the needs of the patients and represented a significant burden for the providers. Although outreach clinics may be beneficial for families living in a USC, these clinics were infrequent and expensive in terms of provider travel and time. Telemedicine-enabled subspecialty clinics offered great potential for the care of pediatric patients with needs for specialty assessment and care. The PCMH identified subspecialties that would meet the most demand and were identified as follows: pulmonology, sleep medicine, cardiology, endocrinology, trisomy 21, diabetes, gastroenterology, and psychiatry/behavioral health.

Unlike patients treated by the other specialties, the patients being seen by psychiatry were not existing patients in the psychiatrist's practice; thus, additional program development was required to support these visits and allow the PCMH to manage patient care. Consequently, the psychiatry teleconsultation model discussed in this article was developed to address the unique needs of the practice in their treatment of patients with behavioral health needs.

Psychiatry teleconsultation

The psychiatry/behavioral health branch of the telemedicine project comprised unique characteristics from the other subspecialty services. Medicaid and Medicare mental health care dollars in this region are allotted to the local community mental health center under a capitation contract. Consequently, outside providers, including the psychiatrist, could not bill for the majority of patients seen through the telemedicine project. In addition, all parties felt that patient-level risks associated with patients receiving psychiatric care were different from patient risks in other medical subspecialties in that acute incidences (such as suicidality) could necessitate immediate availability of their continuity provider to assess and provide recommendation for care. Thus, it made sense for the PCP to remain central to managing psychiatric care with the consultation support from the CAP. Consequently, the service model was conceptualized as psychiatry teleconsultation.

The determination that the CAP provider would deliver services to patients in a consultative capacity as part of a broader teleconsultation model was consistent with the PCMH model that holds the PCP as the team lead in providing whole-person care (Pace et al., 1995; Stancin & Perrin, 2014; Working Party Group on Integrated Behavioral Healthcare, 2014). The CAP's role was defined as both a consultant to the PCMH and an expansion of the practice's existing integrated care team through telemedicine direct service. In practice, this resulted in patients being seen at times by the CAP via videoconferencing telemedicine technology but managed by the PCP with the essential support of the integrated care team. The consultative role of the CAP in ensuring that the integrated care team were involved and aware of patient care issues and recommendations was essential to guaranteeing that responsibilities of immediate and ongoing patient care needs remained with the pediatric PCMH as the patients were not enrolled with the CAP's home institution. The pediatric psychologist joined the team to lead the consultation efforts at the practice and provider levels.

Consultation types

The teleconsultation model was not prescribed at the initiation of the project, but rather developed as a dynamic process over the first year of the grant. The multidisciplinary consultation team worked with the practice to identify consultation needs with respect to telemedicine-enabled patient care videoconferencing visits and consultee-centered consultation to providers, BHCs, and practice stakeholders.

Telemedicine consultation visits

Patients were identified by the PCP, often with consultation from the BHC, as a potential referral for a telemedicine visit with the CAP. The BHCs' role in identifying or triaging patients was critical as they frequently had knowledge regarding patient function, family history, mental health needs, support network, and treatment or resource options within the community. This direct patient service was conceptualized as one aspect of consultation as described under an integrated behavioral systems consultation (IBSC) model wherein a provider requests a consultation from a specialty provider to evaluate their patient, and providers work together to develop and evaluate progress in a treatment plan (Pace et al., 1995; Talmi et al., 2016). The telemedicine visit with the CAP was then facilitated by the integrated BHCs. The BHCs managed the schedule, helped retrieve relevant information for the visit, and were available during the visit to interact with the patient if private time was needed with the parent(s). The CAP telemedicine was followed by a brief, multidisciplinary team wrap-up meeting with the patient where the CAP, pediatric provider if available,

and integrated BHC met with the patient and family to review recommendations and follow-up plans with any prescriptions being written by the PCP. If follow-up visits were indicated, these were scheduled before the family left to decrease the likelihood of patients being lost to follow-up. Initial visits were scheduled for 90 minutes and follow-up visits for 45 minutes. The goals of the patient visit were to decrease the patient's acuity to where the PCP felt confident and capable to assume most of the care, to establish a stable, effective medication regimen, and/or to provide a plan for medication adjustments when indicated. The CAP wrote a note that was downloaded by the practice into their local EMR and entered recommendations into the PCMH's EMR internal communication system, which required previous on-site access authorization and training. For more complex recommendations, the BHC helped arrange a telephone meeting between the PCP, the CAP, and other team members.

Consultee-centered teleconsultation

The process-oriented or consultee-centered consultation part of the IBSC approach included (a) CAP consultation with medical providers, (b) BHC support by the pediatric psychologist for professional development within an integrated model, and (c) joint consultation by the CAP and pediatric psychologist to key practice stakeholders to address transformation challenges associated with growing behavioral integrated care, including telepsychiatry.

Consultation to medical providers. Teleconsultation with the PCP was a critical component to ensuring patients received the highest quality of care from within their PCMH and to reduce the multiple barriers associated with rural access to specialty mental health. If the PCP was available at the end of the telepsychiatry visit, he or she joined the CAP's feedback session to support patient engagement and family-centered care. Critical to this approach was ensuring that the BHCs were integrated with the care team in a nonhierarchical manner. Any medication prescription needs were communicated by the BHC to the PCP on site. In addition, the CAP entered a note with recommendations into the PCMH's internal EMR system, which required previous on-site access authorization and training for the CAP. For more complex recommendations, the BHC helped arrange a telephone meeting between the PCP and the CAP.

Consultation with BHCs. Consultation with the BHCs for this project consisted of biweekly to monthly meetings using videoconferencing along with e-mail and phone communications on an as-needed basis. Considering that the BHCs had only recently begun working within a PCMH, a primary focus of the consultations was on communication strategies and interprofessional

education about BHC expertise in order to effectively function as a valued member of the multidisciplinary medical team.

Consultation with key stakeholders of the practice. The complexity of the telepsychiatry service coupled with the need to bring multiple disciplines and providers together from both rural and urban settings around the state required a transformation effort at the greater practice level. Biannual, two-day site visits were scheduled where the consultants from the urban children's hospital travelled to the practice. The goals for site visits included relationship building, learning about the community and cultural context of the patients and the practice, psychiatric educational offerings to medical providers and BHCs, addressing any technological needs (i.e., local EMR training), and the CAP meeting telepsychiatry patients in person as a mechanism of personalizing future interactions over the telemedicine software. All participants recognized the value of having in-person site visits to complement the telemedicine-enabled visits as an essential component to building and maintaining the consultative partnership.

Data collection procedures

Visit data were collected between September 2015 and November 2016. Data were entered by the CAP using clinical flowsheets in the EMR, which were subsequently abstracted using clinical informatics. Variables included patient demographics, visit type, reason for referral, presenting problem, diagnosis, recommendations provided, previsit preparation type, length of direct patient visit, and time spent in nondirect patient care.

Descriptive data for the teleconsultation program were collected upon commencement of the project in September 2015 ("pretest") and a follow-up measure was completed one year after the project had been running, in September 2016 ("posttest"). Providers completed a paper-and-pencil survey that assessed providers' consultation needs (ex. patient support needs), provider educational needs in the areas of psychiatric care, and their perceptions of the strengths and challenges of the teleconsultation service on their patients and practice.

Data analysis and research design

This study utilized a mixed-methods, cross-sectional and longitudinal, descriptive analysis to explore the impact of the teleconsultation project during its early implementation (September 2015–November 2016). Descriptive patient and visit characteristics were collected across initial and follow-up visits. Data were analyzed using SPSS version 24.0 and were cleaned and screened for missing and erroneous entries. A total of five participants were removed from the study due to erroneous entries (n = 3; patients were not telehealth patients) or if they were

scheduled for telehealth but never participated in a visit ($n = 2$). Frequency reports were utilized to measure demographic and patient/visit characteristics from the clinical flowsheets.

Using a cross-sectional design, the pediatric psychologist employed a conventional content analysis (Hsieh & Shannon, 2005) to identify and characterize themes from the pre- and posttest provider surveys. The provider surveys were examined for consistent themes to explore the benefits and challenges of the teleconsultation project for their practice with patients who have behavioral health needs.

Results

During this initial implementation phase of the project, nearly 100 hours were spent in the practice through telepsychiatry, consultation with the medical providers and BHCs, and consultation with key practice team members. The Full-time equivalent (FTE) allocation of each multidisciplinary team member was as follows: pediatric psychologist (0.2), CAP telemedicine provider (.05), 1 BHC (.05) from a BHC team FTE of 2.0 spread across four providers, a part-time triage nurse, and in-kind support from a PCP. The telemedicine clinic occurred 2 half days per month.

Characteristics of telemedicine consultation visits

The CAP conducted 67 direct telemedicine visits. Of these visits, 29 were initial encounters and 38 were follow-up visits. Visit characteristics were abstracted from the electronic medical record (EMR) using clinical informatics. During the first year of the project, the psychiatry/behavioral health portion of the overall telemedicine project with this rural practice was the second largest subspecialty service, accounting for 19% of all visits (Thomas et al., under review). An examination of patient demographics showed that 83% of telepsychiatry referred patients identified as White, as compared to 66% identifying as White in the practice population. The rate of public insurance in telepsychiatry referrals (48%) was comparable to the practice's overall publicly insured population (52%).

Referral reason

The reason for patient referral to the CAP was documented and represented by a variety of referral questions. The CAP characterized referral reasons as follows: diagnostic clarification, patient presentation was outside of the provider's comfort to treat, second opinion, medication clarification, the patient had exhausted practice resources and needed more specialized care, patient was not responding to provider's medication prescription, patient had a severe presentation, and patient had a positive family history. More than one referral reason could be entered per patient, and in those cases, they were

enumerated by primary referral reason, secondary, tertiary, and so on. The top three primary referral reasons at initial encounter were diagnostic clarification, outside of provider's comfort range, and second opinion. Follow-up encounters were most often referred for being outside provider's comfort range, medication clarification, diagnostic clarification, not responding to medication, or severe presentation. See Table 2 for additional information about reason for referral.

Patient characteristics

Presenting problem, diagnosis given by the CAP, screening instrument used, and recommendations were documented by the CAP telemedicine provider. Similar to referral reason, each of these variables could have multiple selections, which were prioritized (i.e., primary presenting problem, secondary presenting problem, etc.; primary recommendation, secondary recommendation, etc.; primary diagnosis, secondary diagnosis, etc.) The most frequent primary presenting problems at initial encounter were ADHD, symptoms of autism spectrum disorder, and depressive symptoms. At follow-up visits, the most frequent presenting problems included anxiety, irritability, and ADHD. Data on all presenting problems are separated into primary identified presenting problem and total presenting problems and are divided into initial and follow-up encounters (see Table 2 for more detail).

Diagnoses provided by the CAP at each visit were documented and split into primary/all diagnoses and initial/follow-up encounters (see Table 2). Upon initial encounter, the most frequent primary diagnoses were ADHD, autism spectrum disorder, and anxiety, with the most commonly reported overall diagnoses (primary plus secondary, etc.) were ADHD, anxiety, and depression. The CAP did not conduct a full battery assessment for autism spectrum disorder, and instead patients receiving that diagnosis had been previously diagnosed and were most often being seen for a presenting problem related to the diagnosis. Follow-up encounters showed a similar representation of primary diagnoses, including anxiety, ADHD, and autism spectrum disorder, with the most common overall diagnoses being anxiety, ADHD, and autism spectrum disorder.

Recommendations provided

Recommendations provided by the CAP were documented across initial and follow-up encounters and were divided into primary recommendation and total frequency in which that recommendation was provided, regardless of its status as primary, secondary, tertiary, and so on, recommendation (see Table 2 for complete details). The most frequent primary recommendations at initial encounter were follow-up with an external mental health provider (i.e., mental health therapist; n = 14; 48.3%), assistance in the pediatric practice from the BHC (n = 7; 24.1%), and follow-up with the telemedicine CAP provider (n = 4;

Table 2. Patient and Visit Characteristics.

	Initial encounter $n = 29$		Follow-up encounter $n = 38$	
Referral reason	Primary	Total	Primary	Total
Diagnostic clarification	11 (37.9%)	12 (41.4%)	16 (42.1%)	16 (42.1%)
Outside of provider's comfort range	8 (27.6%)	19 (58.6%)	5 (13.2%)	29 (76.3%)
Second opinion	4 (13.8%)	10 (34.5%)	1 (2.6%)	4 (10.5%)
Medication clarification	3 (10.3%)	6 (20.7%)	13 (34.2%)	19 (50%)
Exhausted practice resources	1 (3.4%)	3 (10.3%)	1 (2.6%)	2 (5.3%)
Not responding to medication	1 (3.4%)	5 (17.2%)	2 (5.3%)	17 (44.7%)
Severe presentation	1 (3.4%)	9 (31%)	—	17 (44.7%)
Positive family history	—	2 (6.9%)	—	3 (7.9%)
Presenting problem	Primary	Total	Primary	Total
ADHD	7 (24.1%)	10 (34.5%)	11 (28.9%)	11 (28.9%)
Adherence	—	1 (3.4%)	1 (2.6%)	1 (2.6%)
Anxiety	5 (17.2%)	8 (27.6%)	11 (28.9%)	17 (44.7%)
Autism spectrum disorder symptoms	6 (20.7%)	6 (20.7%)	4 (10.5%)	6 (15.8%)
Behavior problem	3 (10.3%)	11 (37.9%)	1 (2.6%)	10 (26.3%)
Depressive symptoms	4 (13.8%)	10 (34.5%)	2 (5.3%)	10. (26.3%)
Developmental delay	—	1 (3.4%)	1 (2.6%)	2 (5.3%)
Eating disorder	—	—	1 (2.6%)	2 (5.3%)
Family circumstances	—	2 (6.9%)	—	3 (7.9%)
Feeding issues	—	—	—	1 (2.6%)
Hair pulling	—	—	—	3 (7.9%)
History of abuse	—	1 (3.4%)	—	5 (13.2%)
History of trauma	—	3 (13.8%)	—	5 (13.2%)
Irritability	3 (10.3%)	15 (51.7%)	4 (10.5%)	13 (34.2%)
Learning problem	1 (3.4%)	4 (13.8%)	—	2 (5.3%)
Medical concerns	—	1 (3.4%)	—	6 (15.8%)
Other	—	1 (3.4%)	—	2 (5.3%)
Parent–child relationship problems	—	3 (10.3%)	—	2 (5.3%)
Poor social skills	—	1 (3.4%)		—
Psychosocial issues	—	1 (3.4%)		—
Psychotic symptoms	—	2 (6.9%)	—	—
Resource issues	—	—	—	2 (5.3%)
Self-harm	—	1 (3.4%)	—	1 (2.6%)
Sleep problems	—	1 (3.4%)	—	5 (13.2%)
Suicidal ideation	—	(13.8%)	—	—
ADHD	12 (41.1%)	14 (8.3%)	15 (39.5%)	15 (39.5%)
Adjustment disorder	1 (3.4%)	1 (3.4%)	1 (2.6%)	1 (2.6%)
Anxiety	4 (13.8%)	13 (44.8%)	16 (42.1%)	20 (52.6%)
Autism spectrum disorder	6 (20.7%)	9 (31%)	5 (13.2%)	13 (34.2%)
Behavior disorder	—	2 (6.9%)	—	2 (5.3%)
Bipolar disorder	1 (3.4%)	1 (3.4%)	1 (2.6%)	9 (23.7%)
Depression	—	8 (27.6%)	—	8 (21.1%)
DMDD	1 (3.4%)	2 (6.9%)	—	3 (7.9%)
Dysthymia	—	1 (3.4%)	—	—
Eating disorder	1 (3.4%)	1 (3.4%)	—	5 (13.1%)
Intellectual disability	—	—	—	1 (2.6%)
Learning disorder	1 (3.4%)	4 (13.8%)	—	1 (2.6%)
OCD	—	—	—	1 (2.6%)
Other	1 (3.4%)	5 (17.2%)	—	2 (5.3%)
PTSD	1 (3.4%)	1 (3.4%)	—	1 (2.6%)
Substance disorder	—	—	—	5 (13.2%)
Trichotillomania	—	1 (3.4%)	—	4 (10.5%)
BHC assistance	7 (24.1%)	7 (24.1%)	11 (28.9%)	11 (28.9%)
Care coordination by CAP	—	—	2 (5.3%)	4 (10.5%)

(*Continued*)

Table 2. (Continued).

	Initial encounter $n = 29$		Follow-up encounter $n = 38$	
Referral reason	Primary	Total	Primary	Total
Follow-up with CAP	4 (13.7%)	17 (58.6%)	3 (7.9%)	29 (76.3%)
Follow-up with external mental health provider	14 (48.3%)	22 (75.8%)	17 (44.7%)	27 (71.1%)
Follow-up with external medical specialist	—	—	—	4 (10.5%)
Follow-up with primary care provider	2 (6.9%)	15 (51.7%)	5 (13.2%)	30 (78.9%)
Medication adjustment	1 (3.4%)	17 (58.6%)	—	16 (42.1%)
Other community services	—	3 (10.3%)	—	3 (7.9%)
Recommendations for school	1 (3.4%)	7 (24.1%)	—	9 (23.7%)
Referral for family member	—	1 (3.4%)	—	2 (5.3%)
Referral for mental health therapy	—	2 (6.9%)	—	2 (5.3%)
Referral for assessment	—	3 (10.3%)	—	—

13.7%). The most common overall recommendations (primary plus additional recommendations) at initial encounter included follow-up with external mental health provider ($n = 22$; 75.8%), medication adjustment ($n = 17$, 58.6%) or follow-up with CAP telemedicine provider ($n = 17$; 58.6%), and follow-up with PCP ($n = 15$, 51.7%). Primary recommendations at follow-up visits included follow-up with external mental health provider ($n = 17$, 44.7%), BHC assistance ($n = 11$, 28.9%, and follow-up with PCP ($n = 5$; 13.2%).

Visit preparation and time spent by CAP

To better understand the time and resources involved for a psychiatrist in conducting psychiatry telemedicine visits, the CAP documented the type of preparation involved prior to the telemedicine visit, the amount of time spent in direct patient contact, and the amount of time spent in nondirect patient care (i.e., care coordination, documentation, etc.). The most common form of previsit preparation for the initial encounter consisted of a telephone call between the CAP and referring PCP ($n = 26$; 89.7%), followed by a video conference meeting ($n = 4$; 13.8%), and a chart review only ($n = 1$; 3.6%) or an in-person meeting during a site visit ($n = 1$, 3.4%). Follow-up encounters required less previsit coordination with the referring providers and were divided into the following three categories: (a) phone call with PCP ($n = 17$; 44.7%), (b) chart review only ($n = 16$; 42.1%), and (c) e-mail contact with referring PCP ($n = 1$; 2.6%) or a video conference meeting ($n = 1$; 2.6%).

Length of visit with the patient was also documented and consisted primarily of 60- to 90-minute visits ($n = 28$; 96.6%) at initial encounter with only one visit lasting 46–60 minutes ($n = 1$; 3.4%). Follow-up visits required less time: 31–45 minutes ($n = 25$; 65.8%), 46–60 minutes ($n = 11$; 28.9%), and 16–30 minutes ($n = 2$; 5.3%). Time spent in nondirect patient care was separated into 15-minute increments with more time being required at initial encounter than at follow-up encounters. At initial encounters, the

CAP spent 31–45 minutes (n = 10; 34.5%) or 46–60 minutes (n = 10; 34.5%), 61–90 minutes (n = 6; 20.7%), 90 minutes or greater (n = 2; 6.9%), and 16–30 minutes (n = 1, 3.4%). Follow-up visits required less nondirect patient contact time on average: 16–30 minutes (n = 18; 47.4%), 31–45 minutes (n = 8; 21.1%), 0–15 minutes (n = 7; 18.4%), 46–60 minutes (n = 3; 7.9%); and 0 minutes or greater (n = 2; 5.2%).

Needs identified by PCPs for behavioral health management

Using a cross-sectional design, nine providers completed an exploratory measure prior to commencing the consultation project (7 MDs, 1 pediatric nurse practitioner [PNP], and 1 physician's assistant [PA]) and 12 providers completed the same measure at the end of the project year (5 MDs, 1 PNP, 2 PAs, 3 BHCs, and 1 other provider type). Providers were asked to specify areas in which they would like to increase their knowledge related to psychiatric care.

For the initial survey, responses to this question were provided by six providers in contrast to the follow-up survey, which contained responses from twelve providers for this question. Desired areas for increasing provider knowledge in psychiatric care were coded for themes that emerged from the responses, resulting in four areas related to psychiatry in which they desired additional knowledge: support for specific psychiatric disorders, support with managing behavioral health concerns, support with medication, and support with complex psychiatric presentations. All content areas were present at both pre- and posttest surveys; however, the request for support with behavioral health management as well as medication support appeared much more frequently at posttest than at pretest. Themes requesting support with specific disorders appeared 15 times, with providers listing autism spectrum disorder (n = 7) and sleep disorders most predominately, though a variety of different disorders were listed in which they would like increased knowledge. General behavioral health management appeared 10 times and was the second most frequently listed theme, including support with general behavioral health concerns, general knowledge in behavioral health, guidelines around nonmedication support, such as evidence-based practices and therapies, and systems issues, such as understanding how individualized education program (IEP) and 504 plans work. The final two themes included support with medication management (n = 6), including requests for mood stabilizers and antipsychotics, and support with addressing needs of complex patients (n = 6), such as those with comorbid conditions and suicidal ideation.

Benefits and challenges of teleconsultation model after first year

At one-year follow-up, providers were asked to list up to three ways in which their patients or practice had benefitted from this consultation model.

Responses were received from eight providers and were coded into four themes: access to care, specialized quality of care, provider support, and patient-centered medical home. Improved access to care was cited most frequently (n = 12), with emphasis on access to psychiatric care, saving time and travel resources for patients and families, and providing a necessary resource for patients with limited finances. Specialized quality of care was the next most frequently listed theme (n = 7), citing examples of specialized support from a provider with necessary expertise, continuity of care with specialist, and a preference for working with a psychiatrist in this capacity over other community resources. The third most referenced theme was support for providers (n = 5), which included an appreciation for help with complex patients, a sentiment of having an extra layer of support through consultation and second opinion, and support with medication management. Other themes related to the joint principles of a patient-centered medical home were listed four times and included examples such as patients receiving care in one place, increased patient comfort in a familiar environment, team-based care, and families feeling supported by the practice.

Finally, providers were asked at posttest to identify challenges, frustrations, or otherwise constructive feedback that they had with the telepsychiatry model as it related to their patients or practice. Responses were provided by eight providers and were coded into four emerging themes: patient engagement, scheduling/availability concerns, challenges with the CAP telemedicine process, and provider barriers. Challenges related to patient engagement were cited four times and included providers' feeling that the service was not needed for their patients, patients' discomfort with the technology, and difficulty engaging patients in the project. Scheduling challenges and availability of the CAP were also cited four times, noting limited slots for patients and scheduling challenges due to the clinic occurring on only Wednesday mornings. Challenges with the CAP telemedicine model process were also cited four times and included providers feeling unfamiliar or uncomfortable with the model and concerns with the requirements of the referral process. Finally, provider-level barriers were cited twice, with both respondents noting that they would have liked to be available for continuity of care during the CAP telemedicine visit but that this was not logistically possible.

Discussion

This article describes how a pediatric psychologist and CAP provided integrated behavioral systems consultation (IBSC) via teleconsultation to a rural pediatric PCMH to address mental health disparities experienced by rural children and families. Telemedicine consultation was provided to patients with the goal of enhancing the capacity of the PCP and medical team (including the BHCs) to manage ongoing behavioral health needs of the patients and their families. Consultee-centered consultation via teleconsultation to PCPs,

BHCs, and key practice stakeholders supported the uptake of the telemedicine consultations.

Telemedicine consultation visits

The majority of the 67 CAP visits were for a presenting concern outside of the provider's comfort range, medication clarification, diagnostic clarification, not responding to medication, or a severe presentation. This suggests patients are complex, though a measure of clinical severity or comorbidity would be helpful. The most frequent recommendation provided by the CAP to follow-up with an external mental health specialist (i.e., outpatient therapy) referred either to ongoing care that the patient was already engaged in or to an initial therapy referral. This also suggests higher severity, in that patients were referred if the assessment was that they could not be managed from within the practice with brief behavioral intervention. The third highest recommendation, to follow up with the CAP provider via telemedicine, again suggested higher severity in that one visit was not sufficient to reduce acuity to a level that the PCP would prefer. A further study could assess whether this comfort level and number of CAP visits changes over time as providers gain comfort with this model. Dedicating two mornings per month (.05 FTE), the CAP most commonly spent 60–90 minutes for the initial telemedicine intake visit with an additional 31–45 minutes in nondirect patient time and 31–45 minutes for follow-up visits with 16–30 minutes of nondirect patient time. A follow-up study might assess whether this significant amount of time per patient decreases over time.

Consultee-centered consultation

Overall, the integrated care team reported a sense of satisfaction with the teleconsultation and CAP telemedicine service. Initially providers' responses to a question about where they desire additional behavioral health knowledge were few; however, at posttest, the number and variety of responses increased. This pattern was consistent with discussions at the practice level about rural pediatric providers feeling as though they did not have the capacity to take on new behavioral health issues and would have preferred to have the CAP function as a separate provider to whom they could refer (similar to the other telemedicine specialties in this project). The consultee-centered consultation targeted this area, understanding that rural providers are often overburdened and that mental health concerns require extra time, energy, and follow-up to manage in an effective and ethical way. By joining with practice stakeholders around this issue and emphasizing the importance of elevating all providers to equal levels as part of an integrated care team, the sense of being overwhelmed in managing these concerns was reduced. The

consultation process helped providers to reflect on content areas in which they wanted to build capacity and enabled them to feel more comfortable disclosing desired areas of growth. Areas identified for additional knowledge or support were managing behavioral health concerns, specific disorders, medication, and complex psychiatric presentations.

Consultation with the pediatric psychologist supported professional development of primary-care BHCs who had not previously trained in a health service setting, helping them to assume leadership over the telepsychiatry service—a vital aspect of their integrated care team. As part of these consultations, BHCs were able to engage in crucial program development efforts to expand the program into an essential service at the practice. They structured their team to include an administrative lead whose role in part was to liaise with practice leadership, collect and analyze programmatic evaluation data, and identify areas where behavioral health education could fill gaps in patient needs and provider capacity. They instituted "meet and greets" with newborn visits wherein they introduced preventive behavioral health to families, helping to fulfill the principle of whole-person care within PCMHs. In addition, BHCs reported having a greater variety of tasks that supported effectiveness with patient care and expressed a sentiment of feeling like a more valued member of the multidisciplinary medical team within the PCMH.

Both in-person consultation and teleconsultation engaged practice leadership and stakeholders around transformation efforts and supported a successful partnership toward the implementation of a sustainable integrated care program that included CAP telemedicine. Early in the project, consultants became aware that the CAP telepsychiatry provider was viewed as a separate entity from the integrated care team, and that often times, the BHCs were not involved in the referral process or in decision making around patient need for psychiatric services. This often led the CAP to refer patients back to the BHCs for further assessment, which was not an efficient use of time for the patients and their families or for the telemedicine consultation visits. Consequently, the consultants advocated for BHC FTE to be included in the telepsychiatry budget so the project would benefit from the entire integrated care service—ultimately translating into a streamlined approach for the patients and their families. A combination of the efforts described within this consultee-centered consultation in addition to practice stakeholders being highly invested in the integrated BHC service led to the expansion of the consultation team. Ultimately, the team comprised the CAP, a telepsychiatry-appointed triage nurse, a BHC, and a pediatric medical provider. Without each of these consultation experiences, the expansion of an existing integrated care team to broaden the continuum of care they provided, elevate their utilization within the clinic, and introduce a valuable psychiatric service may not have been possible.

Successes and challenges

Consistent with the goal of telemedicine, this program enabled children, adolescents, and their families to have access to a multidimensional behavioral health/psychiatric service within the context of their PCMH and their community. This study was not able to assess whether this led to an improvement in functioning for patients and families. This CAP telemedicine initiative helped to reduce three barriers to care: travel, cost, and to some degree, stigma. For example, the travel time alone that is required for these patients to receive care from the nearest specialized children's hospital requires at least two days away from school and work, constituting a significant burden for families. Alternatively, patients can travel to their PCMH in their home community and in just 60–90 minutes receive integrated care within their pediatric PCMH, facilitating integrated, continuity of care at both current and future visits. Another study conducted as part of this broader telemedicine project revealed that patients participating in all subspecialty telemedicine services in this project were estimated to have saved over $94,000 in travel-related costs, more than 107,000 miles traveled, and over 270 days of travel time (Thomas et al., under review). Given that telepsychiatry accounted for 19% of the visits in the first year, the savings for families with behavioral health needs was substantial. Further cost savings to families include that the CAP is paid out of grant money rather than insurance. Hence, families did not need to worry about whether their insurance covered the visit or whether they would be obligated to pay a coinsurance visit fee (copay). Last, the stigma associated with mental health concerns is often amplified in small communities (Rost et al., 1993). As a result, some families may be reticent to seek care. Receiving care in the safety of the PCP's office minimizes this concern.

Providers' reports aligned with these successes, noting many strengths of the consultation program in enhancing their patient or practice, such as increasing access to care, providing specialized high-quality care, support for providers, and an approach that supported PCMH principles. In-person consultation and teleconsultation promoted these successes through the expansion of the integrated behavioral health team by way of leveraging BHC expertise to triage and manage patient referrals, involvement of the BHCs in telepsychiatry visits, broadening the scope of the integrated care team to provide a continuum of care that included health promotion at newborn visits, and supporting BHC leadership in data tracking and quality improvement. It is notable that many of the themes in which providers noted interest in capacity building (i.e., knowledge of IEPs) could have been delivered by another multidisciplinary team member, which is one consideration in reducing costs associated with the CAP portion of consultation.

As with any multidisciplinary transformational effort of integrating behavioral health into the existing culture of a pediatric PCMH, challenges in the process were noted. We experienced several, including what appeared to be related to the integration of videoconferencing technology; however, it is hard to know, with several interacting factors, which had the most impact and contributed the most to challenges. First, the workflow in a primary care PCMH makes coordination with multiple providers via videoconferencing a logistical challenge. Further, the high volume and busy nature of this rural practice, which is the only pediatric practice of its type in the area, made holding meetings—especially those with a consultee-centered focus on process development and education/training—a particular challenge given multiple competing demands, such as efficiency and patient care in an already resource-limited system. Another challenge that was noted was around the perception of "capacity building," a common goal of integrated behavioral health in primary care. Providers within this rural practice context shared a sentiment of already assuming increased responsibility, forcing expanded capacity due to their limited resources. As such, when provided the option of referring patients to a CAP for telemedicine, they felt as if this would strongly support their practice and reported a hesitance around building additional capacity in their own professional practice in this area. Further discussion and relationship building through the consultee-centered consultation component of the IBSC approach helped the team arrive at common goals and shared language for supporting the care of complex patients—a goal with which all felt strongly aligned. In their qualitative responses, providers endorsed additional challenges related to the consultation process, such as patient engagement, provider barriers around time and workflow, scheduling and availability of the CAP, and technological issues with telemedicine.

Limitations

Limitations to this work include the qualitative data obtained from providers. Not all providers in the practice participated and not all practice participants were the same across both timepoints. In addition, project resources did not support two raters for the qualitative analysis of provider surveys, and thus, interrater reliability was not obtained for that analysis. Flowsheet data regarding the CAP telemedicine visits were not specific as to whether patients were already in therapy or referred to start therapy. Finally, as this was an exploratory study of a multifaceted consultation model, the data and conclusions presented here must be viewed as preliminary. This consultative approach would benefit from a more rigorous program evaluation to understand which aspects of the consultation were most beneficial and how to best improve the process to promote the uptake and sustainability of the integrated care team and practice.

Lessons learned and future directions

During the first year of this project, we discovered that a team-based approach to integrated care delivered in part through telemedicine requires a degree of practice transformation that was supported by an IBSC approach via teleconsultation. This is consistent with findings from the practice transformation literature noting that facilitation is helpful in practice transformation (Harder, Long, Varni, Samuelson, & Shaw, 2017). Second, providing consultee-centered teleconsultation as part of an IBSC approach may have several benefits, such as engaging practice stakeholders to support enhancing integrated behavioral health care and with the ultimate goal of improving patient behavioral health outcomes and access to care. Finally, rather than including only a CAP in psychiatry teleconsultation, involving a variety of clinical professionals, such as a pediatric psychologist, helped to leverage the diverse skill sets of multidisciplinary team members to more effectively achieve programmatic goals.

Future research should evaluate the impact of the telemedicine consultation visits and the consultee-centered consultation in rural communities on the patient experience and patient/family function. In addition, we recommend that primary care practices considering adopting psychiatry telemedicine consider working with a multidisciplinary consultation team to support the uptake. To support this recommendation, it would be beneficial to conduct a rigorous program evaluation of this consultation process to provide improved data regarding the most vital aspects of this consultation as well as areas for improvement. Given the substantial investment in FTE of the multidisciplinary team, it would suggest practices consider having both program evaluation and cost offset data to support this approach.

In an ever-changing and evolving health care environment, delivering health care to children with complex medical needs in USCs is challenging; however, telemedicine consultation has the potential to provide a solution. Although pediatric telemedicine programs are regularly publishing their data and lessons learned, more robust evaluation is needed. The delivery of psychiatric care for pediatric patients via telemedicine to PCMHs in USCs has the potential to strongly impact a high-need, underserved population of youth with mental health conditions, thus addressing important disparities in health care access and utilization. Findings from this project suggest that implementing this type of service within the context of an on-site integrated care team and with the support of a multidisciplinary IBSC team via teleconsultation may be extremely beneficial in supporting program goals and, ultimately, patient care.

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