

Integrated Behavioral Health in Pediatric Primary Care

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Abstract There are multiple barriers to accessing high quality, evidence-based behavioral health care for children and adolescents, including stigma, family beliefs, and the significant paucity of child and adolescent psychiatrists. Although equal access continues to be an unmet need in the USA, there is growing recognition that integrated behavioral health services in pediatric primary care have the potential to reduce health disparities and improve service utilization. In a joint position paper, the American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP) highlighted the multiple benefits of children receiving initial behavioral health screening, assessment,

and evidence-based behavioral health treatments in the medical home. The purpose of this paper is to review the current state of the literature related to integrated behavioral health services in pediatric primary care. Specifically, innovative models of integrated behavioral health care are discussed.

Keywords Primary care · Mental health · Evidence-based · Integrated practice: children: adolescents · Pediatric settings · Behavioral health · Preventive child health care · Colocation · Collaborative care

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Introduction

Limited access to pediatric behavioral health care continues to be a significant problem in the USA. Up to 40 % of children and adolescents have mental health disorders, but only 30 % of them actually receive care [1], and on average, there is a delay of 8 to 10 years between symptom onset and engagement in intervention for children [2]. Lack of access to care is underscored by the shortage of pediatric behavioral health providers. Specifically, there are fewer than 8500 practicing child and adolescent psychiatrists nationally [3]; however, it is projected that 30,000 are required to adequately meet the needs of children and families [4]. This workforce shortage crisis was highlighted in a policy brief published by the American Academy of Child and Adolescent Psychiatry (AACAP) [5]. To begin to address the crisis, AACAP drafted a policy statement highlighting the importance of collaboration with pediatric medical professionals [6] and guidelines for the best principles of integration of child psychiatry into the pediatric medical home [7••].

The data reflect that approximately half of all pediatric primary care office visits involve behavioral, psychosocial, and/or educational concerns [7••]. As a result, pediatric

providers often are “de facto” behavioral health providers; however, they frequently are unable to fully meet the behavioral health needs of their patients. When queried, primary care providers (PCPs) often state they are not able to provide the range of behavioral health services needed due to limitations in professional competence as well as role and time constraints [8]. Additionally, only about two thirds of referred families are able to access mental health providers in the community within 6 months of referral by a PCP [9]. Recognizing the significant access challenges families face, the American Academy of Pediatrics (AAP) affirmed that PCPs should have a role in addressing the mental health difficulties of their patients, and a toolkit was developed to assist pediatricians in this work [10, 11].

In an additional effort to address these challenges, models of integrated, interdisciplinary care have been implemented across the country. Behavioral health providers based in primary care can help improve the quality and accessibility of preventative behavioral healthcare in these settings. The purpose of this paper is to summarize the current and pertinent data regarding innovative integrated behavioral health models. All of the models highlighted have the stated goal of providing comprehensive and patient-centered mental health care in pediatric primary care practices (i.e., the medical home).

Method

Systematic literature searches were conducted in PUBMED and PSYCHINFO to identify the articles included in this review. The following terms were included in a single search: Pediatric Primary Care, Psychology, Psychiatry, Behavioral Health, Mental Health, Collaborative, Integrated/Integrative, Co-located, and On-site. Abstracts were reviewed to determine whether the following inclusion criteria were met: (a) publication dates between 2012 and 2016 and (b) focused on the integration of mental health services within pediatric primary care (ages 0–18). The PUBMED search yielded 74 results and 22 articles met initial inclusion criteria. The PSYCHINFO search yielded 50 results and 30 met initial inclusion criteria. Eleven articles were redundant between PSYCHINFO and PUBMED, resulting in a total of 42 unique articles. A second abstract review was conducted by the first and senior authors to identify the final sample; articles were excluded for the following reasons: (a) case reports or commentaries that were not empirical studies and (b) studies that were implemented outside of the USA, yielding a total of 19 articles for inclusion in the review. Finally, a review of the relevant references of selected articles was conducted yielding an additional three articles that met the inclusion criteria, for a total of 22 articles. Included articles were sorted based on the model of integrated care described and are discussed below.

Integrated Care Models

Models of integrated care fall on a continuum and are typically organized into coordinated, co-located, and integrated depending on the level of integration of providers [12–14]. The terms, “co-located,” “embedded,” “collaborative,” and “integrated” often are used interchangeably across studies despite their different meanings and different impacts on the level of integration of behavioral health care into the medical setting. Therefore, for the purposes of this review, “coordinated care” refers to mental health services that are coordinated with the PCP but are not provided in the primary care practice (e.g., telephone consultation) [13], “co-located care” refers to mental health providers who practice within the primary care setting but share little more than an expedited referral system, and “integrated care” refers to mental health services that are offered on site, with some degree of direct collaboration with PCPs throughout the treatment process. The integrated care category also includes blended or hybrid programs, which could be a combination of all three models. See Table 1 for a brief description of these models and Table 2 for information about the recently published studies evaluating each model [12–14].

Coordinated Models

Coordinated models typically involve care that is coordinated with primary care, but may not be directly provided within the primary care clinic. Instead, services range from providing information to the PCP, facilitating referrals, and keeping the PCP informed of treatment progress. All of the coordinated models identified in this literature review were telephonic models, with three providing psychiatric services to PCPs and one model using psychologists to respond to phone messages left by families for PCPs regarding behavior problems [15–18]. The psychiatric models addressed the broadest range of clinical services and age groups.

The telephonic model is one of the more successful coordinated care models, as evidenced by the robust literature base on the Massachusetts Child Psychiatry Access Project (MCPAP) [18] model and the Partnership Access Line (PAL) [15]. Both programs employ telephone consultation from psychiatrists to remotely evaluate patient needs. Coordinated services such as these help connect providers with needed consultation for behavioral health and psychiatric needs without on-site coordination, which can be helpful for expansive and/or rural practices and for addressing the needs of typically underserved patients (e.g., children living in poverty). These models have been noted to be successful secondary to the fact that they have a circumscribed scope of services and well-defined focus of treatment. The intervention is brief and immediate and includes suggestions regarding screening tools as well as starting a specific medication. The telephonic

Table 1 Descriptions of integrated care models with key features

Models ^a	Description	Features
Coordinated/telephonic	Care that may not take place within a primary care clinic, but a behavioral health provider works with PCP to coordinate a care plan typically through consultation, facilitated referrals, and close communication	<ul style="list-style-type: none"> • Increased collaboration between PCPs and behavioral health provider • Support for remote consultations, including psychiatry and medication management • No face-to-face consultation and integrated care coordination • Not truly integrated as a member of the medical team
Co-located	Behavioral health care provided within the primary care clinic without significant collaboration. Behavioral health providers typically have separate treatment plans.	<ul style="list-style-type: none"> • Located in the same physical space, ideally leading to an ease in referral and patient comfort as the “know” the setting • Potentially separate EMR and little connection with PCPs for on-going collaboration
Integrated	Services often delivered within the primary care location with significant collaboration between PCP and behavioral health provider including working collaboratively on single treatment plan that often includes both behavioral and medical elements	<ul style="list-style-type: none"> • Direction collaboration and integration in medical team • Potential conjoint treatment planning • “Warm-handoffs” for direct patient engagement • Office space in primary care practice

PCP primary care provider, EMR, electronic medical record

^a Blount [12]; Collins et al. [13]

model has been evaluated in multiple studies in several states replicating the original model and reflecting the clear benefits of this kind of phone program [19]. In fact, secondary to the success of these models, a current national network exists consisting of programs in over 30 states [20].

In addition to the models of psychiatric phone consultation described above, Valleley and colleagues [17] described a phone consultation model wherein an on-site psychologist answered patient phone inquiries regarding externalizing concerns. Phone calls were reported to be between 11 and 15 min in duration and 50 % of the calls resulted in families scheduling an appointment with the psychologist. This type of coordinated service, particularly as combined with an on-site behavioral health program in this study, can increase access to care by connecting earlier with specialized providers who are better trained to triage and provide advice for behavioral concerns.

Co-located models

Co-located service delivery involves the provision of behavioral health services within the same clinic as a primary care provider, but without significant collaboration between the behavioral health provider and PCP (i.e., each provider has separate treatment plans). Current research with outcome data on co-located models are limited due to lack of clarity about model types. In other words, although co-located models

might exist, they may be described in journal articles using multiple terms (e.g., integrated, embedded, etc.) [12–14].

One of the identified articles described a co-located model focused on treating children with behavioral problems within primary care [21], the Positive Parenting Program (Triple P). Triple P was implemented within two primary care centers and used two additional primary care centers as control groups. The control clinics referred patients to either a hospital or university setting to receive the Triple P program. Attendance at the first appointment was significantly higher for the co-located service compared to the control clinics. Overall service use was also significantly higher for the co-located clinics. These results suggest that the location of services in the primary care setting may impact attendance and service use.

Integrated Models

Integrated models combine the advantages of the coordinated and co-located models by providing collaborative services within the primary care clinic and involve the primary care physician and behavioral health provider sharing care of patient using a single multidisciplinary treatment plan. Although models vary in exact execution of screening, referral, and service delivery, the main component of integrated care is regular collaboration between the PCP and mental health provider.

Table 2 Specific program descriptions and key findings

Model type	Model example (program)	Description	Key findings
Coordinated	Partnership Access Line (PAL) - Hilt et al., 2014	PAL provides psychiatric consultation to primary care physicians	<ul style="list-style-type: none"> • PCPs received novel advice in 87 % of calls. • Significant increase in ADHD and antidepressant medication use for Medicaid children
	Lister, 2012	A 24/7 telephone consultation network to provide consultation, reduce demand for subspecialty appointments, improve decision-making and expertise, and realign resources with need	<ul style="list-style-type: none"> • Reported over 70 % reduction in unnecessary psychiatric visits by routing 8 % directly to hospital and 64 % of consultations led to continued management by PCP
	Massachusetts Child Psychiatry Access Project (MCPAP) —Van Cleave et al., 2015	MCPAP provides point-of-care psychiatric expertise and referral assistance by telephone to PCPs	<ul style="list-style-type: none"> • Reported significant variations in implementation • Practices in highest quartile made 15.5 calls/year per 1000 patients compared to 0.4 for lowest quartile.
	Valleley et al., 2015	Behavioral health providers responding to phone messages involving externalizing behavior problems left by families for PCPs	<ul style="list-style-type: none"> • Half of calls resulted in on-site behavioral health appointment with 75 % show rate at initial session. • Indicates increased access to behavioral health services.
Co-Located	Positive Parenting Program (Triple P) in Primary Care (Wildman & Langkamp, 2012)	Implemented for children referred for behavioral concerns within the child's primary care clinic. Treatment was provided in both individual and group format.	<ul style="list-style-type: none"> • Attendance at first appointments was significantly higher for co-located services than enhanced referral condition.
Fully Integrated	Godoy et al., 2014	Universal screening and referral to onsite mental health consultants for children 9 months to 8 years	<ul style="list-style-type: none"> • Likelihood of referral and attendance increased with age
	Montefiore Model (Gross et al., 2015)	Model includes universal screening during the first 3 years. Families screening at risk are further assessed and provided one of three levels of treatment: (1) collaborative monitoring at well-visits, (2) 1–4 session on-site intervention focused on developmental milestones (e.g., language, motor development, toilet training, sleep habits, feeding) and parenting skills (e.g., tantrums, behavior problems, parent–child relationship), or (3) referral for more intensive services or caregiver focused intervention.	<ul style="list-style-type: none"> • Children screened to be at risk in regard to development who participated in an integrated early childhood parenting intervention were less likely to be obese compared to at-risk children who did not participate.
	Doctor Office Collaborative Care (DOCC; Kolko et al., 2012, 2014)	On-site care manager delivered evidence-based interventions for behavior disorders, anxiety, and ADHD. Intervention components included assessment, psychoeducation, individualized goal attainment rating, consultation with PCP, collaboration with the office practice, and linkages with specialty services and the family.	<ul style="list-style-type: none"> • In both studies, DOCC (vs. EUC) was associated with higher rates of treatment initiation and completion. • DOCC also demonstrated greater improvement in behavior problems, hyperactivity, internalizing problems, parental stress, remission of internalizing and externalizing problems, and goal improvement compared to EUC.
	Partnering to Achieve School Success (PASS; Power et al., 2014)	A primary-care based intervention for children with ADHD comprised of the following treatment components: (a) family engagement strategies, (b) family behavior therapy, (c) family–school consultation, (d) collaborative care with the PCP, and (e) trauma-informed care.	<ul style="list-style-type: none"> • Families in PASS attended 9 sessions on average, similar to treatment provided in traditional outpatient settings. • Parents rated PASS as an acceptable treatment

Table 2 (continued)

Model type	Model example (program)	Description	Key findings
	Reaching out to Adolescents in Distress (ROAD; Richardson et al., 2014)	Depression care managers delivered brief CBT that included 2 4-session modules dedicated to increasing positive activities or changing thoughts, and monitored response to antidepressant treatment and facilitated communication between PCP and family.	<ul style="list-style-type: none"> • Greater reduction in depressive symptoms, no differences in impairment, at 12 months intervention group were more likely to achieve response and remission.
	Screening, Brief Intervention, and Referral to Treatment (SBIRT; Sterling et al., 2015)	Universal screening for substance use in primary care, brief on-site intervention with collaboration with PCP, and referral for more intensive intervention when deemed necessary.	<ul style="list-style-type: none"> • Integrated model demonstrated increased odds of receiving brief intervention compared to UC and PCP training only.

PCP primary care provider, EUC enhanced usual care, UC usual care

Of the models of integrated care identified in this literature review, one focused on early childhood behavioral and developmental concerns [22], one focused on ADHD [23], one focused on depression [24], one on substance abuse [25], and two described a collaborative model targeting treatment of behavior problems, ADHD, and anxiety [26, 27]. Each of these disorder-specific treatments involve close collaboration with PCPs at the screening and discharge phase of treatment, while some offer on-going communication and/or collaboration with PCPs during the treatment phase. It is important to note that most of the programs described include a behavioral health provider who operates somewhat independently from the PCP, including separate appointments and brief individual/family therapy.

Increasingly, integrated models of care involve a method for universal behavioral health screening of patients presenting to PCPs. For example, Godoy and colleagues [28] employed a model wherein behavioral health providers who were integrated within the primary care practice supported universal developmental and behavioral screening. When children screened eligible, they were referred to the on-site behavioral health provider. Of the total number of screen-eligible referrals ($N = 136$), only 54.4 % actually attended a session with a behavioral health provider, however. The authors noted that behavioral health providers were not always present at the time of the referral. It is possible that families might be more inclined to pursue the referral and engage in treatment if they were able to meet the behavioral health provider at the time of referral. Findings of this study also suggested that available screening tools were not sensitive to the mental health needs of children under five. It was unclear whether this was due to limitations of the screening instruments or issues with parent report (e.g., “child is too young for mental health problems,” or tendency for parents to adopt a “wait-and-see” approach in early childhood).

In an effort to address barriers to care often experienced by low income, urban families coping with ADHD, Partnering to Achieve School Success (PASS) was developed and evaluated in comparison to a brief education and support program for parents [23]. PASS is a psychosocial intervention integrated into the primary care practice and designed to support family engagement in care. Many of the elements of standard behavioral parent training are included, and the PASS clinicians also worked with families and teachers to support effective family-school collaboration. PASS is unique in its focus on (a) family engagement in care, (b) collaboration with PCPs to address medication treatment issues, and (c) connections between schools and primary care to coordinate treatment planning. Findings suggested that PASS is acceptable and feasible to implement in urban primary care practices. PASS appears to be a promising intervention to reduce barriers to care, ineffective parenting behavior, and child impairment.

In an effort to increase access to care for adolescents coping with depression, Richardson and colleagues [24] developed the Reaching Out to Adolescents in Distress (ROAD) intervention. They developed a collaborative care intervention within primary care, providing treatment to participants randomized to either a CBT trial or to Enhanced Usual Care (EUC). They found that youth that had completed the CBT intervention ($N=51$) had greater decreases in clinician-reported depressive symptoms and were satisfied with their care over the course of 12 months. Their study suggests that effective evidence-based interventions can be integrated into the primary care setting specifically to treat adolescent depression, involving collaborations with PCPs.

The Screening, Brief Intervention, and Referral to Treatment (SBIRT) program [25] addresses adolescent substance abuse in primary care by implementing universal screening, brief onsite intervention with collaboration with the PCP, and referral for more intensive intervention when deemed necessary. Sterling and colleagues [25] compared usual care to two different SBIRT models: (a) PCP training in SBIRT procedures and (b) integrating a SBIRT-trained behavioral health provider within the primary care clinic. Adolescents in the integrated model (i.e., including the behavioral health provider) were 1.74 times more likely to receive brief intervention than those in the PCP-only arm and adolescents in the PCP-only arm were 10.37 times more likely than those in usual care. Adolescents in the integrated model were significantly less likely to require an outside referral compared to both usual care and the PCP model. This suggests that having an integrated model results in increased access to treatment and less need for outside referrals when compared to training PCPs or usual care.

Other models of integrated care focus on multiple aspects of behavioral health and vary in the ways in which they involve collaboration with PCPs. The Montefiore model [22] was the only identified model focused on early childhood ages birth to three. The article included in this review compares rates of obesity at age five for three groups of children: (a) those who were not at risk based on developmental screeners in the first 3 years of life, (b) those who were at risk and participated in one of three levels of intervention (i.e., monitoring, treatment, and/or referral), and (c) those who were at risk but did not participate in any intervention. Findings suggested that there were no differences in obesity at age five between children who were at risk and received intervention and children who were not at risk; however, children who were at risk and did not receive services were approximately three times more likely to be obese at age five compared to those not at risk in the first 3 years of life [22]. Further, parents of children in the at-risk, no on-site intervention group reported lower rates of use of limit setting and were more likely to pressure their child to eat than children in the not at-risk group. This study is particularly interesting as participation in

developmental and behavioral interventions (i.e., interventions not specifically related to weight management) between birth and 3 years of age was related to significantly lower risk for obesity at age five.

The integrated model that addresses the broadest range of conditions was the Doctor Office Collaborative Care (DOCC) model [26, 27]. In the first evaluation of the model [27], the DOCC model was compared to an enhanced usual care group which received facilitated referrals to providers in the community who accepted their insurance. The first evaluation found significant gains in access and effectiveness in the DOCC model compared to enhanced usual care (EUC). Kolko and colleagues [26] replicated these findings with stronger methodology and found similar results. Specifically, DOCC (vs. EUC) was associated with higher rates of treatment initiation (99.4 vs. 54.2 %) and completion (76.6 vs. 11.6 %) as well as greater improvement in behavior problems, hyperactivity, internalizing problems, parental stress, remission of internalizing and externalizing problems, and individualized goal improvement.

Conclusion

There clearly continues to be an unmet need with regard to access to behavioral health services for young people. However, the integrated care models identified in this literature review clearly demonstrate that integration of behavioral health services into pediatric primary care practices can (a) promote accessibility and family engagement in evidence-based behavioral health services, (b) reduce barriers to care, (c) increase the opportunities for providers to reach a greater number of families than standard mental health care, and (d) result in improvements in patient outcomes. When behavioral health providers work collaboratively with PCPs, children, adolescents, and their families clearly benefit.

Though all of the described models appear to be effective, and result in increased access, there are clear differences among the models. The coordinated (telephonic) psychiatric services model has the ability to broadly serve a diverse population of children across age ranges and conditions. The research to date related to integrated and co-located programs, on the other hand, focuses on a very limited number of conditions and age groups given the broad number of behavioral health conditions presenting within primary care settings. Although full integration of behavioral health providers into pediatric primary care practices is becoming increasingly common in actual practice, these models have not been fully evaluated in well-controlled research.

The fact that only one co-located model was identified in this systematic search is likely due to both methodological factors in our review and factors inherent to models of behavioral health in primary care. Consistent with well-established

definitions [12, 13], models with *any* collaboration between PCPs and behavioral health providers were categorized as integrated. In addition, models are becoming more integrated over time [29] and this review focus on articles published since 2012.

This article has illustrated that “integrated care” refers to a diverse set of services, and is not a “one-size-fits-all” approach. The needs of the patients and practice are important and should determine not only which type of model is appropriate, but also if a hybrid approach (e.g., having a collaborative screening process and on-going consultation) might be most effective to meet the needs of the children and adolescents served in each particular pediatric setting. In practice, model development and implementation likely will vary based on a variety of issues, such as patient demographics (e.g., socioeconomic status), payer mix (e.g., Medicaid vs. private insurance), and access to community-based referrals for ongoing mental health care. For example, although most of the services described in research publications likely were grant-supported (and therefore offered free of charge to patients and families), when integrated behavioral health services are available in actual practice, the services usually involve separate billing systems (i.e., potential for additional co-pays and related fees for patients).

Future Directions

Together, the studies reviewed in this paper illustrate that strong evidence exists supporting the use of integrated behavioral health models for screening, referrals, and treatment for specific disorders. At this time, less is known about the effectiveness and acceptability of integrated care models in general and the best approach to meet vast patient and practice needs. Future successful integrated models need to *expand* to cover a broad range of conditions in order to better serve children and adolescents presenting to pediatric primary care settings. Additional research is needed to (a) evaluate the long-term impact of integrated care models on child and family health outcomes and (b) identify the variables that predict successful outcomes for children’s health.

This review demonstrates that there are clear benefits to integrated care models. Future directions for continued integration include (a) training medical and behavioral staff to broaden skills, (b) implementing universal behavioral health screening, (c) developing a tiered approach to treatment based on the identified needs of the patients, (d) utilizing care coordination and management, and (e) involving outside consultation to psychiatry when appropriate for medication management, level of care consultation, and/or inpatient/hospitalization consultation.

The opportunity clearly exists for child psychiatrists and psychologists with specialty training in pediatric primary care to provide integrated behavioral health services to help close

the access gap. The ability of children and adolescents to have accessible, high quality, evidence-based, prompt, and effective treatments to address behavioral health needs *can* be accomplished in pediatric primary care settings, utilizing integrated behavioral health services.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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