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The Integration of Behavioral Health Interventions in Children's Health Care: Services, Science, and Suggestions

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Abstract

Objective—Because the integration of mental or behavioral health services in pediatric primary care is a national priority, a description and evaluation of the interventions applied in the healthcare setting is warranted. This paper examines several intervention research studies based on alternative models for delivering behavioral health care in conjunction with comprehensive pediatric care.

Method—This review describes the diverse methods applied to different clinical problems, such as brief mental health skills, clinical guidelines, and evidence-based practices (EBP), and the empirical outcomes of this research literature. Next, several key treatment considerations are discussed to maximize the efficiency and effectiveness of these interventions. Some practical suggestions for overcoming key service barriers are provided to enhance the capacity of the practice to deliver behavioral health care.

Results—There is moderate empirical support for the feasibility, acceptability, and clinical utility of these interventions for treating internalizing and externalizing behavior problems. Practical strategies to extend this work and addressing methodological limitations are provided that draw upon recent frameworks designed to simplify the treatment enterprise (e.g., common elements).

Discussion—Pediatric primary care has become an important venue for providing mental health services to children and adolescents due, in part, to its many desirable features (e.g., no stigma, local setting, familiar providers). Further adaptation of existing delivery models may promote the delivery of effective integrated interventions with primary care providers as partners designed to address mental health problems in pediatric healthcare.

Keywords

pediatric primary care; integrated mental health services; collaborative care; behavioral health services; pediatric mental health care

The Pediatric Primary Care Setting as a Context for Mental Health Services

Primary care settings, such as pediatric or family medicine practice, play an important role in addressing the mental health needs of children and adolescents (Kelleher & Stevens, 2009; Stille et al., 2010). In the healthcare arena, mental health disorders are commonly referred to as behavioral health (BH) problems, which reflect those broad conditions related to emotional health that include substance use, abuse, or addiction, mental illness, and mental disorders (Substance Abuse and Mental Health Services Administration, 2011).

Some of the more common child or adolescent BH problems seen in primary care include oppositional or aggressive behavior, attention deficit hyperactivity disorder, anxiety and depression, autism spectrum disorders, learning problems, and substance use (Roongpraiwan, Efron, Sewell, & Mathai, 2007). At least four reasons contribute to the importance of primary care as a venue for the delivery of services to address these problems, as briefly noted below.

Behavioral Health Problems in Pediatric Settings are Prevalent and Burdensome

Pediatric BH problems convey significant public health impact on home and school adjustment, family functioning, and health service costs (Wissow, Anthony, et al., 2008). For example, children with disruptive behavior disorders (i.e., oppositional and aggressive behavior, hyperactivity and inattentiveness) represent the largest single source of referrals to child mental health settings (Schuhmann, Durning, Eyberg, & Boggs, 1996). Commonly identified initially by primary care providers (PCP), such problems are prevalent from preschool through adulthood (16–19%), are associated with significant clinical comorbidities (e.g., anxiety, depression) and functional impairments (Caspi, Moffitt, Newman, & Silva, 1996), and are highly stable over time (Shaw & Gross, 2008). Anxiety, depressive, and substance use disorders are also prevalent and associated with broad psychosocial impairments (e.g., early school dropout, social withdrawal, peer problems, suicidality; [Costello, 1989]). Due to their limited use of services, many children with behavioral health problems have multiple system involvement (e.g., child welfare, juvenile justice).

Specialty Mental Health has Many Limitations

Despite the high rates of pediatric BH disorders, four of out five children ages 6 to 17 with a mental health problem do not receive any help (Soni, 2009). Some of the reasons for this scenario reflect limitations in treatment access, acceptability, and impact that cut across problems and disorders (Kelleher & Stevens, 2009). Common obstacles include the unavailability of appropriate providers, insurance restrictions, long delays for services, high drop-out or no-show rates, limited quality but high cost of care, stigma, and poor communication between the mental and physical health professions (Kolko, 2009). Thus, many children with BH problems receive suboptimal care and suffer significant long-term impairments.

The Chronic Care Model Can Improve Illness Care

The increasing need to address chronic health conditions requiring extended care and lifestyle modifications has been promoted through use of the Chronic Care Model or CCM, an established method for improving chronic illness care (Von Korff, Gruman, Schaefer, Curry, & Wagner, 1997). The CCM incorporates six core elements to organize and manage several clinical resources (e.g., practice re-design, information systems; see next section for more details), including the flexible use of clinical care managers as educators, consultants, and clinicians working collaboratively with the PCP (Katon et al., 1995; Wagner, Austin, & Von Korff, 1996). In the context of BH problems, the CCM has been adapted to address the demands of chronic mental health conditions that require ongoing treatment activities completed by both patients and their providers (Katon, Unützer, Wells, & Jones, 2010).

Nearly 60 clinical trials evaluating a CCM-based intervention in primary care have documented improved outcomes for several psychiatric disorders in adults, including depression, anxiety, and bipolar disorder (Woltmann et al., 2012). The CCM provides an important treatment direction for providing comprehensive care to pediatric patients (Bower-Russa, Knutson, & Winebarger, 2001; Wissow, Anthony, et al., 2008).

Health Policy Initiatives Seek to Improve Care Access, Comprehensiveness, and Quality

As the standard of care for health care delivery, the patient-centered medical (or health) home (PCMH) has encouraged a type of care that is easily accessible, continuous, comprehensive, family centered, coordinated, and delivered or directed by well trained physicians known to child and family (Turchi, Gatto, & Antonelli, 2007). When combined with additional service elements (e.g., patient involvement in their own health and well-being, using the best available evidence and appropriate technology (Stille et al., 2010), the PCMH is a natural venue for incorporating pediatric BH services. Integration is also a priority (Kelleher & Stevens, 2009) in the Affordable Care Act [ACA](Department of Health and Human Services, 2012), driven, in part, by the need to address the availability, quality, and cost of services. One implication of the ACA for pediatric patients is its focus on fostering access to care for all children in a PCMH, especially those with unmet BH needs (Asarnow et al., 2005; Committee on Psychosocial Aspects of Child and Family Health and Task Force on Mental Health, 2009; Foy, Kelleher, Laraque, & The American Academy of Pediatrics Task Force on Mental Health, 2010; Roongpraiwan et al., 2007; Turchi et al., 2007).

Models for the Delivery of Pediatric Behavioral Health Services

Several approaches have guided the delivery of mental health services in the pediatric setting (Perrin & Sheldrick, 2010; American Academy of Child and Adolescent Psychiatry, 2010; Guevara, Greenbaum, Shera, Bauer, & Schwartz, 2009; Novotney, 2010). These models reflect the different programmatic and fiscal needs or resources found in a given practice (e.g., scope, complexity, and cost of services, use of evidence-based practices or EBP, provider and family burden [Kelleher, Campo, & Gardner, 2006]). Five approaches that vary primarily in level of service integration have been described: 1) external coordination, 2) consultation, 3) training for the PCP, 4) on-site intervention (but without apparent PCP collaboration), and 5) on-site intervention with collaboration (American Academy of Child and Adolescent Psychiatry, 2010; S. McDaniel, Campbell, & Seaburn, 1990; Perrin & Sheldrick, 2011; R. C. Sheldrick & Perrin, 2010). These models incorporate and extend some of the components noted in recent frameworks (Brown & Wissow, 2012; Wissow, Anthony, et al., 2008) that describe key mental health skills for the primary care setting (i.e., general mental health skills, brief interventions for major mental health problems, EBPs for diagnosis-specific disorders). We briefly review some empirical examples of each model in this section.

Coordination with an External Provider

A few reports have described or evaluated programs in which the PCP and an outside mental health provider have shared cases to deliver coordinated BH services but in each of their

respective offices. In one recent program (Targeted Child Psychiatric Services; Connor et al., 2006), a psychiatrist, nurse, or social worker provided consultation after conducting and discussing the results of an initial evaluation (Aupont et al., 2012). They jointly determined the treatment plan. One third of all referrals were returned to the PCP for follow-up services; the rest were treated by an outside provider. Brief ratings by the outside provider collected during treatment showed improvements in severity of symptoms and psychosocial adjustment, though the absence of controls and formal patient self reports limits the significance of these outcomes. Importantly, this model allows for children with diverse BH needs to receive services in an appropriate setting. It is worth mentioning that this arrangement occurs far more often in practice than it is studied or even reported, as this model is typical of how PCPs work with specialists, including those who deliver BH services.

Consultation with the Primary Care Provider

The consultation model has generally provided brief and focused clinical advice and recommendations to a primary care provider (e.g., diagnostic feedback, medication options) by peer experts or specialty mental health providers (e.g., psychiatrists, social workers). These contacts vary in terms of their intensity/frequency (single vs. ongoing), relationship to the consultant (familiar/local vs. distant expert), and format (phone consultation, written reports, web-conferencing), but do not include on-site or co-located BH services. Thus, access is influenced by schedule and availability. Several regional networks and state-wide initiatives have developed programs that provide phone consultation to the PCP with a clinical resource (psychiatrist, social worker) and occasional follow-up client appointments or referrals (National Network of Child Psychiatry Access Programs, 2012). In one state-wide program (Massachusetts Child Psychiatry Access Project, MCPAP), the PCP can call to obtain consultation about care decisions (e.g., diagnostic dilemmas, choice and dose of medication, recommended monitoring, follow-up) and there is an option to provide short term intervention and referral assistance (Sarvet et al., 2010; R.C. Sheldrick, Mattern, & Perrin, 2012). These authors note that caregivers informally reported improvements in child symptoms and that the PCPs were satisfied with the program.

Training the Primary Care Provider in Mental Health Skills

Ongoing peer consultation has been used to help PCPs diagnose and manage children with ADHD more effectively (e.g., recommendations for medication management). For example, work by Epstein has examined a collaborative consultative service with an expert pediatrician to promote the use of clinical practice guidelines for ADHD established by the American Academy of Pediatrics or AAP (American Academy of Pediatrics, 2001) in a large practice network, such as using titration trials and periodic monitoring during medication maintenance (Epstein et al., 2007). Self reports revealed greater use of these practices by community pediatricians, but there was no significant improvement in children's ADHD symptom relative to a comparison group. Within the consultation group, however, those PCPs who used these methods had children whose ADHD symptoms had improved. Extensions of this program that included focused academic detailing have documented greater use of rating scales, systematic monitoring of response (Epstein et al., 2008), and improvements in children's ADHD symptoms at home and school (Epstein et al.,

2010). Other programs for training PCPs in various psychosocial and pharmacologic skills to help manage BH problems in children and adolescents have been provided through the REACH Institute (<http://www.thereachinstitute.org>). This program is also evaluating the impact of training on attitudes, skills, and clinical practices related to treating ADHD, which will provide novel data on large-scale practice change efforts.

Other programs have sought to more formally enhance the PCPs repertoire using brief mental health assessment and communication skills (Brown, Wissow, & Riley, 2007; Gledhill, Kramer, Iliffe, & Garralda, 2003; Regalado, Larson, Wissow, & Halfon, 2010) or by using group workshops or tutorials to improve communication among parents, teachers, and primary care providers of children with ADHD (Wolraich, Bickman, Lambert, Simmons, & Doffing, 2005). In one of the more extensive curricula reported, PCPs were trained in seven broad mental health management skills, such as agenda setting, problem-formulation, managing negative affect and resistance, and advice giving (types of “common factors”; see next section). Training was associated with improvements in parent-rated child functioning and youth-rated symptoms at 6-month follow-up (Wissow, Gadowski, et al., 2008). Other training programs have documented greater use of screening measures for depression (Gledhill et al., 2003) but some reports document limited impact on the delivery (Gadowski, Wissow, Slade, & Jenkins, 2010) or impact of similar interventions (Brown & Wissow, 2009; Wolraich, Bickman et al., 2005).

On-site Intervention

On-site programs typically use a trained or prepared clinician to deliver BH services in the practice, but often with minimal PCP or team participation. Because such practitioners may work fairly independently, this arrangement often involves limited care coordination or collaboration with other members of the child’s healthcare team. In some cases, this may involve renting space in the practice to a mental health practitioner. Several reports are based on controlled studies evaluating the delivery of standardized EBPs with children or adolescents.

Two case reports treated internalizing problems using a brief 8-session behavior therapy that targets anxiety and depression (Weersing, Gonzalez, Campo, & Lucas, 2008) that includes educational (e.g., flight or fight reaction), skill-building (activation, exposure), and practice sessions (e.g., engagement plans). An extension of this approach also focused on somatic symptoms (Weersing, Rozenman, Maher-Bridge, & Campo, 2012). Case examples reported improvements in all three problems using indigenous clinicians in two pediatric practices. The authors suggest that an active behavioral approach may promote improvement, though they also recognize the need for a more rigorous evaluation.

One other study targeting depression examined an internet-based depression prevention program (CATCH-IT [Van Voorhees et al., 2007]) with two different engagement approaches applied by the PCP in a randomized trial in 84 adolescents with persistent subthreshold depression (B. W. Van Voorhees et al., 2009). One version was delivered using a motivational interview (MI) with 3 follow-up phone calls from a social worker, and the other was delivered using more directive, brief advice (BA). Both groups had a high level of contact with the internet program (91%, 78%) and showed improvements (fewer depressive

symptoms and cases with significant depressive symptoms), but the MI group showed some additional benefits (fewer self harm thoughts, less hopelessness, fewer depressive episodes) at 12-week assessment. These promising results highlight the potential benefit of PCP-delivered and supported internet-based interventions that may reduce cost and promote efficient access to effective care for adolescents.

Turning to the externalizing problems, several novel interventions or existing EBPs have been applied, consistent with policy recommendations to improve services for this problem (Scholer et al., 2006). A set of studies by Lavigne and colleagues were based on a rigorous randomized trial in preschoolers with Oppositional Defiant Disorder (ODD) that found significant but comparable improvements in 1-year outcomes after an EBP (Incredible Years) that was either delivered on-site by a nurse or off-site by a local pediatric psychologist, or the receipt of bibliotherapy only (Lavigne, LeBailly, Gouze, Cicchetti, Jessup et al., 2008). Girls showed more improvement than boys in the nurse-led EBP, but boys showed more improvement in bibliotherapy (Lavigne, LeBailly, Gouze, Cicchetti, Pochyly et al., 2008). Several baseline variables were related to greater improvement in ODD outcome (e.g., life events, parenting distress, child internalizing problems, functional impairment, difficult temperament). Follow-up analyses found that caregivers with lower or higher levels of education were more likely to attend the psychologist-led and nurse-administered EBPs, respectively (Lavigne et al., 2010).

These results are consistent with other recent studies that have evaluated alternative EBPs. One trial with 30 young children evaluated a brief, 4-session, group version of Parent Child Interaction Training (PCIT), called Primary-Care PCIT, relative to a condition in which parents received a basic manual with guidelines (PCIT-Anticipatory Guidance). The two conditions had comparable effects on caregiver-reported child problem behaviors, ineffective parenting strategies, and satisfaction at posttreatment which were maintained by 6-month follow-up (Berkovits, O'Brien, Carter, & Eyberg, 2010). Likewise, caregivers of 30 young children were randomized to a 4-session behavioral family intervention (Primary Care Triple P-Positive Parenting Program) or a wait-list control condition (Turner & Sanders, 2006). Relative to controls, the Primary Care Triple P program reported several significant improvements (severity of targeted child behavior problems, dysfunctional parenting, parental stress and anxiety, parental satisfaction with parenting), most of which were maintained by 6-month follow-up. No differences were found on other reports (child behavior problems, disruptive behavior) and parent-child observations (e.g., child behavior, aversive or positive parenting).

Finally, three studies examined the impact of exposure to media-based programs. In one randomized trial (n = 224), caregivers who completed a brief screen (Pediatric Symptom Checklist; PCS-17 [Jellinek et al., 1999]) were assigned to an intervention or control group. In the intervention group, the PCP reviewed the screen, made a referral, and scheduled a follow-up visit, and then a parent educator conducted counseling sessions by telephone using a positive parenting curriculum (nurturance, discipline, respect). The intervention group showed significant improvements on self-reports of child problems (aggression, delinquency, attention problems, including reports of children fighting, being bullied, or sustaining fight-related injuries). The study highlights the potential benefit of phone calls for

sessions, though the wide variation in treatment exposure suggests that further evaluation of these components is warranted. Two uncontrolled studies of parental exposure to a brief (15 minutes) multimedia educational program (Play Nicely, 2 ed.) that teaches childhood aggression management skills found that parents reported benefits in terms of their practices after viewing (Scholer, Mukherjee, Gibbs, Memon, & Jongeward, 2007) and at one year follow-up (Scholer et al., 2006).

On-site Collaborative Care

On-site collaborative care represents the integration of a clinical resource who works directly with the PCP and/treatment team to prevent, identify, and manage BH problems in the practice (Kolko, 2009), thus facilitating the sharing of a number of key clinical functions (Perrin, 1999). Successful collaborations often include practice-wide BH functions, such as timely access to consultation, direct clinical service, care coordination and communication with shared-decision making, PCP education or training, and continuity of care (American Academy of Child and Adolescent Psychiatry, 2010). A practical model is found in the work of Campo et al., 2005, which described a model for treating BH problems in pediatric primary care using a trained nurse practitioner who is a member of the treatment team.

In contrast to the extensive literature on CCM-based collaborative care intervention trials with adult patients, there are only a few such trials with pediatric BH problems. Two trials reported positive results with adolescent depression. Asarnow et al. (2005) conducted a randomized trial (n = 418) in five healthcare settings that compared collaborative care management with treatment as usual (TAU). The care management intervention was broad-based (e.g., expert leader teams, care managers who supported PCPs in evaluating and managing depression, patient and clinician choice regarding treatment modality, clinician training in evaluation and psychosocial and pharmacological treatment). Relative to TAU, collaborative care was more effective in promoting service use, reducing depressive symptoms and disorders, promoting adjustment, and enhancing satisfaction. However, modest rates of psychotherapy (32% vs. 21%) and medication use (13% vs. 16%) were reported for both conditions. A follow-up study revealed a significantly lower likelihood of severe depression for collaborative care (vs. EUC) at 6-month, but not at 18-month, follow-up (Asarnow et al., 2009).

A pilot study extended the collaborative care model for adolescent depression by incorporating additional CCM principles (care manager, enhanced patient and parent psychoeducation, patient choice for medication [mostly SSRI's] and/or psychotherapy [6–8 sessions of CBT], follow-up tracking of symptoms. oversight by a mental health specialist). The 42 patients received an average of 9 visits or calls in their chosen intervention option. At 6-month follow-up, 74% of the youth showed at least a 50% reduction in self-reported depressive symptoms with high levels of patient and provider satisfaction (Richardson, McCauley, & Katon, 2009), which compares to the results of Asarnow et al. (2005). The adolescents were especially supportive of teaching parents more about the treatments they received.

Several trials have targeted children with behavior problems. A randomized trial with 163 children and their caregivers compared a protocol for a pediatric office-based, nurse-

administered intervention (PONI) to enhanced usual care (EUC) consisting of brief assessment recommendations and a facilitated referral to a local specialist (Kolko, Campo, Kelleher, & Cheng, 2010). Nearly two-thirds of these children had co-morbid ADHD. PONI included several abbreviated content modules (e.g., child CBT, parent management practice, family problem solving, peer and school programs, medication regimen) from a prior intervention for behavior problems and ADHD (Kolko et al., 2009). Relative to EUC, PONI was associated with several improvements (e.g., service completion, child health/adjustment, individualized behavioral targets, client and PCP satisfaction, fewer treatment barriers, ADHD remission) at 1-year follow-up. However, both groups showed improvements on several outcomes (e.g., severity of behavior, inattention, and internalizing problems, functional impairment, peer relations). One-half of the children with ADHD or either ODD or CD were in remission by one-year follow-up. A few variables predicted overall child health improvement, such as the severity of child depression or anxiety, and family conflict (Kolko, Cheng, Campo, & Kelleher, 2011).

To improve upon these modest effects, the PONI condition was expanded by incorporating the six principles of the CCM (Doctor-Office Collaborative Care; DOCC) to target both behavior problems and two comorbid disorders (ADHD, anxiety). The components that were adapted to address each principle and the topics within each clinical content area that were included are listed in Table 1. DOCC included additional evidence-based medication management guidelines to target ADHD (American Academy of Pediatrics, 2001) and brief behavior therapy for anxiety (Weersing et al., 2008). Clinicians (nurse, social worker) served as a care manager (CM) who delivered and coordinated services with practice staff, especially the PCP. A two-year pilot effectiveness trial documented the feasibility, fidelity, and acute impact of DOCC for children referred for modest behavior problems, relative to EUC (Kolko, Campo, Kilbourne, & Kelleher, 2012). Although improvements were found in several outcomes for both conditions, DOCC showed significantly greater service use, improvement in individualized target behaviors, reductions in severity of oppositionality, inattention, hyperactivity, and functional impairment, and consumer satisfaction. However, this study was limited by the small sample size, absence of follow-up, and limited training of PCPs in ADHD management.

Feedback from the families and PCPs in this pilot study was used to extend the scope, procedures, and evaluation of the DOCC approach (Kolko, Campo, Kilbourne, Hart, & Sakolsky, 2013; Kolko, Jackson, Kilbourne, Sakolsky, & Campo, 2013), which included several elements (e.g., PCP training in ADHD care management, improved case tracking, expanded referral network). Focus groups were conducted with PCPs in both conditions every six months to solicit and address perceived study benefits, barriers, and recommendations. Eight pediatric practices were randomized to DOCC or EUC with a sample of 321 families. Relative to EUC, DOCC was associated with several improvements on patient (e.g., child and caregiver participation, severity of behavior problems and ADHD symptoms, remission rates for behavior and internalizing problems, treatment response) and PCP self-reports (e.g., perceived competency, skill in ADHD medication management), with maintenance at 1-year follow-up (Kolko, Campo et al., 2013). Based on the focus groups (Kolko, Jackson et al., 2013), DOCC practices reported concerns with practical issues (e.g., space), whereas EUC practices reported concerns about patient reactions (e.g., referral

follow-up or stigma). These results further support the acceptability of CCM-based interventions and incorporation of PCP feedback on implementation over time.

A recent outcome study incorporated practice staff as co-therapists with a mental health provider to deliver an EBP to address young children's disruptive behavior (Perrin, Sheldrick, McMenamy, Henson, & Carter, in press). The Incredible Years (IY) was administered in a 10-week group program to caregivers of 2 to 4 year-old children in a randomized trial in 11 offices. A total of 345 parents were assigned to three conditions: randomly assigned to parent training group (PTG), randomly assigned to wait-list control (WL), and non-random PTG. The groups were led by a psychologist and a trained practice staff member (nurse, social worker). Compared to WL controls, the two PTG groups showed greater reductions in reports of negative parenting behaviors and child behavior problems, which were supported by observed parent-child interactions, after treatment and at one-year follow-up. This study supports the benefits of offering parent training in primary care (Berkovits et al., 2010; Turner & Sanders, 2006) and the feasibility of training pediatric staff to co-lead an on-site, EBP-based, parenting group.

One final and unique application involved the placement of a psychiatrically trained pediatrician in the pediatric practice to conduct several functions (education and consultation, diagnostic evaluations, record reviews, community resources) in nine pediatric practices (Goodfriend, Thomas, Livingood, & Goldhagen, 2006). The primary activities were conducting an evaluation (42%), followed next by teaching lectures (22%). Medical record data indicated a significant increase in the number of mental health diagnoses identified by the pediatricians. The potential benefit of this program is its potential to model all of these comprehensive BH services.

Lessons Learned: How to Make Pediatric Behavioral Healthcare More Effective

Several BH interventions based on different delivery models and levels of care integration have been applied in settings serving children and adolescents, many of which involve common EBPs (Stancin, Perrin, & Ramirez, 2009). These interventions have included external coordination of specialty services delivered in a different setting, PCP consultation, PCP training in brief mental health skills, an on-site clinician to administer intervention, and collaborative care in which on-site services are delivered by a clinician in coordination with the child's PCP. The selection of a particular delivery model is most likely based on the types of practice resources available to administer treatment (e.g., access to an existing clinician or CM) as well as financial arrangements.

Although we did not conduct a meta-analysis of outcomes, evaluations of these diverse interventions using alternative experimental designs (uncontrolled pilot studies, randomized trials) have documented benefits on several BH outcomes. These improvements have included multiple gains (e.g., lower ratings of internalizing and externalizing problems, and functional impairment, higher remission rates for specific disorders). Some studies have reported improvements in observed child behavior, parental functioning and practices, and consumer satisfaction. Most outcomes were maintained at short-term follow-up. At the same

time, these studies raise clinical or practical challenges to service integration, such as the need to find, train, and fund an appropriate clinician, the burden to providing comprehensive but routine mental health care in a medical home, and the expectation of developing a broad range of BH expertise.

The empirical limitations of this literature also bear mention (e.g., uncontrolled designs, small samples, limited collection of PCP measures, few follow-ups that include downstream health-related outcomes). In general, the conduct of large trials with diversity (e.g., geography, practice staff, population, intervention) would expand the knowledge base on integrated care. In addition, several key features of effective collaborative care trials with adults have been identified, including patient self-management, PCP involvement in patient monitoring, patient assessment at baseline and follow-up, and having 16 weeks of care with patient follow-up (Rubenstein et al., 2009; Woltmann et al., 2012). Of course, obtaining sufficient funding for rigorous trials of this kind of “practice re-design” in pediatric primary care is a salient challenge.

To address these and other future directions, several treatment features or practice functions that may enhance the capacity to integrate and sustain effective BH services are discussed. Some of these concepts have been described in recent summaries of EBP knowledge transfer related to the mental health arena (Chorpita, Bernstein, & Daleiden, 2011), social work practice (Barth et al., 2012), and pediatric primary care (Brown & Wissow, 2012; Committee on Psychosocial Aspects of Child and Family Health and Task Force on Mental Health, 2009; Foy et al., 2010; Wissow, Anthony, et al., 2008). These topics are consistent with the theme of this special series designed to “do more with what we already know” in applying recent evidence on children’s BH services.

Coordination and Continuity of Care

The emerging policy developments related to the PCMH and the ACA bear implications for the design of integrated healthcare in pediatric settings based on a few key principles or values. These principles include the efficient coordination and continuity of comprehensive care practices delivered by a prepared treatment team familiar with the family (Stille et al., 2010; Turchi et al., 2007). Of course, promoting “holistic” care that bundles health and BH services requires a strategy that organizes the individuals (e.g. pediatricians, nurses, clinicians), resources (space, time, expertise, money), and activities of the team or practice (e.g., collection of parent ratings, parent education, treatment, follow-up calls to monitor response).

Clear communication among healthcare team members is especially important since continuity of care extends across several decades. With the introduction of electronic health or medical records, conveying the results of a specific BH service (e.g., screening, treatment, referral) using an integrated progress note can facilitate follow-up by the child’s medical team. A common challenge across all models of service delivery involves conflicting confidentiality regulations that limit communication among providers (Levy, Hill, Sheldrick, & Perrin, 2013). Accordingly, some strategies may facilitate the sharing of mental health notes (e.g., obtain caregiver release, establish guidelines for the content of a note).

Collaborative Treatment Infrastructure

A strength of the CCM that may enhance the move towards comprehensive care supported by a treatment team is its emphasis on shared decision-making by providers and family members over the course of a care regimen (Pincus, Hough, Houtsinger, Rollman, & Frank, 2003), among other tasks (Perrin, 1999). The collaborative care applications that have targeted internalizing (Joan R. Asarnow et al., 2005; Richardson et al., 2009) and externalizing problems (Kolko et al., 2012; Perrin et al., in press) clearly rely upon tasks and ongoing feedback from PCPs, caregivers, and children (e.g., assessment, treatment, monitoring, referral). These tasks can be adapted to each unique problem and population to ensure their relevance, feasibility, and flexibility. Of course, many of these functions have been completed in research studies by trained CMs who work closely with the child's PCP, a resource that may not always be available in everyday practice. Still, collaboration among existing team members can ensure delivery of on-site care using brief screening and counseling methods (Brown & Wissow, 2012; Chorpita et al., 2011).

Brief Screening and Assessment Tools

Several brief and validated screening tools for use in pediatric primary care have been applied in these studies, including the Pediatric Symptom Checklist (Gardner, Lucas, Kolko, & Campo, 2007; Jellinek et al., 1999), the Ages and Stages Questionnaire Social-Emotional (ASQ-SE; Squires, Bricker, & Twombly, 2002) and the Strengths and Difficulties Questionnaire (Goodman & Goodman, 2009). All three of these tools are being widely used and include clinical cutoffs for different clinical domains (e.g., attentional or internalizing problems). These instruments may be sufficient for case conceptualization and treatment planning purposes, but could also be supplemented by other assessment measures that capture child, caregiver, and family functioning based on the studies reviewed here and in other sources (see Kolko, 2009). New instruments have been developed as part of the Survey of Wellbeing of Young Children (www.TheSWYC.org): the Baby Pediatric Symptom Checklist (BPSC) for children up to 18 months, and the Preschool Pediatric Symptom Checklist (PPSC) for children from 18 months to 5 years of age (R. C. Sheldrick, B. S. Henson, S. Merchant et al., 2012b; R. C. Sheldrick, B. S. Henson, E. N. Neger et al., 2012a). Other tools are available for more specific screening, e.g. for ADHD (Vanderbilt ADHD Parent Diagnostic Rating Scale (Wolraich, Wibbelsman et al., 2005), Routine regular screening programs in primary care settings have been slow to catch on, related to resource allocation and logistics of implementation. Supervision of a practice-wide program of behavioral screening and appropriate follow-up is an excellent task for a clinician who is co-located in the primary care practice.

Common factors

Engagement and relationship-building—Although few of these studies describe their client engagement activities, such “non-specific” factors that are common across therapeutic approaches help to lay the foundation for behavior change by a healthcare provider (Duncan, Miller, Wampold, & Hubble, 2010). Bickman (2005) articulated the nature and impact of many of these characteristics, such as client characteristics (motivation, expectations), therapist qualities (orientation, training, personal history), change processes (interactions),

treatment structure (therapist focus on key client reactions), and therapeutic relationship (alliance, engagement). In the primary care arena, these basic skills are relevant for medical staff (e.g., eliciting mental health concerns, building rapport, showing empathy) and PCPs (e.g., addressing treatment readiness, preferences, and barriers), among other skills (see Brown & Wissow, 2012, p.492). These foundational skills can enhance relationship-building, treatment engagement, and motivation (Brown, Riley, & Wissow, 2007; Regalado et al., 2010; Wissow, Anthony, et al., 2008).

Monitoring of Client Progress and Feedback—A second method to enhance the impact of common factors involves the monitoring of client progress and collection of ongoing client feedback about the intervention process or outcome. Few treatment trials report engagement measures during treatment, though some in other settings have included child and/or parent engagement measures (Kolko et al., 2009; Lindhiem & Kolko, 2010). In terms of client outcome, several studies documented patient progress across sessions using brief but standardized clinical assessment measures, such as the PHQ-9 or the PSC-Y for adolescents (Asarnow et al., 2005; Richardson et al., 2009) or the PSC for caregivers (Jellinek et al., 1999). One comprehensive system used in numerous pediatric primary care offices allows parents to complete online questionnaires examining health and development for review by the PCP prior to a visit (Child Health & Development Interactive System, 2013, www.chadis.com). Another measurement system described as “client directed and outcome informed” (CDOI) offers efficient methods for monitoring these two important aspects of successful treatment delivery, such as the 4-item Session Rating Scale (SRS) and Child Outcome Rating Scale (CORS [Anker, Duncan, & Sparks, 2009]).

Given increasing attention to the personalization of health care, there is a need to document progress on clinical goals relevant to a given patient. The use of individualized measures of client progress may contribute to treatment adaptation. Some studies have included an interview measure (Individualized Goal Attainment Ratings, IGAR) that includes up to four individualized child target behaviors identified by parents at intake and then rated for level of improvement during treatment and at follow-up assessments. The tool includes a graphic interface showing both progress and care processes delivered which has documented improvements in trials evaluating co-located or collaborative care (Kolko et al., 2010; Kolko et al., 2012). Another measure that captures a child’s more specific problems is called the Top Problems list (Weisz et al., 2011). These measures provide immediate feedback about key process or outcome data using a “dashboard” style medium and may facilitate engagement, individualization, treatment adaptation (Weisz et al., 2011).

Common Elements and Modular Content

The rapid patient flow or pace found in healthcare settings requires the use of targeted and efficient interventions which may be facilitated using common elements and modular treatments to simplify treatment delivery (Chorpita, Becker, & Daleiden, 2007; Chorpita & Daleiden, 2009; Weisz, Mohrman, & McCracken, 2012; Weisz et al., 2012). By common elements, we mean specific procedures or methods found to be commonly applied to address a given problem (e.g., psychoeducation, practice, modeling, monitoring, time-out, cognitive coping, exposure, problem solving, communication); thus, some elements reflect general

content, whereas others reflect a specific training method. Modules reflect a structured routine for the administration of one or more related common elements or procedures.

Brief modular content is especially relevant in healthcare settings where the duration of a session or treatment regimen is far shorter than in specialty care, and the patient population may present with subclinical symptoms or several comorbid conditions (Weisz et al., 2012). Several adaptations of existing treatment protocols (or EBPs) for specific disorders have used core components to target behavior problems (Berkovits et al., 2010; Turner & Sanders, 2006), anxiety (Crawley et al., 2013; Weersing et al., 2012), and depression (Richardson et al., 2009). A brief (8-session) version of cognitive behavioral therapy (CBT) for anxiety disorders (Coping Cat; Kendall & Hedtke, 2006) may also lend itself to primary care (Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008). Other modules abbreviated from treatment packages developed for aggressive families (Kolko, Iselin, & Gully, 2011) and children (Kolko, Cheng et al., 2011; Kolko et al., 2009) include similar content (e.g., parenting, social skills, school behavior management) and specific methods to address comorbidities (e.g., ADHD medication management). Each module has also included common training processes during implementation (e.g., modeling, rehearsal, feedback).

The use of common elements is especially timely as the transition towards more holistic primary healthcare calls for PCPs to address a child's physical and BH conditions in a coordinated system of care. This "generalist" approach achieves a balance between breadth and depth, and parallels the kind of therapeutic model employed by BH practitioners working in an emergency department or a consultation-liaison service (Chorpita et al., 2011). The documentation of a set of common elements for several mental health disorders provides an important resource for PCPs who deliver pediatric behavioral healthcare (Weisz et al., 2012). It is worth noting that the American Academy of Pediatrics (AAP) provides a summary of "Evidence-Based Child and Adolescent Psychosocial Interventions" twice each year on its website (www.aap.org/mentalhealth) using data from the PracticeWise Evidence-Based Services Database (www.practicewise.com). The table is based on an ongoing review of randomized clinical psychosocial and combined treatment trials for children and adolescents with BH needs. A more extensive BH curriculum promoted by the AAP in its clinician toolkit also can be found online (aap.org/health/mentalhealth).

Building the Capacity of Pediatric Providers

Training—Some intervention trials have trained PCPs and office staff in critical assessment and intervention functions (Brown, Wissow et al., 2007; Gledhill et al., 2003; Regalado et al., 2010; The REACH Institute, 2010), and in specific collaboration skills (S. H. McDaniel & Campbell, 1997). In addition to the use of technology, effective training methods for PCPs involve direct methods for skills training (e.g., observation, practice, teaching others), problem-based learning in which discussions of actual case histories generate increasingly more complex reactions and outcomes that integrate one's initial responses to these case histories, and distributed (vs. concentrated -- all or none) learning which involves frequent but brief discussions on a specific topic. Several examples of PCP training are described elsewhere (Epstein et al., 2008; Wissow, Anthony, et al., 2008). In contrast, the clinicians or

nurses who served as CMs in other studies (Kolko et al., 2010; Kolko et al., 2012) were trained more intensively in several intervention tasks using diverse components (e.g., manual review, didactic seminars, review of session tapes, practice role-plays with feedback, delivery of care using pilot cases with supervisory feedback). Some of these methods could be adapted for use in routine practice settings.

Clinical Consultation—Access to clinical or case consultation can enhance treatment integrity, patient response, and provider confidence. Various options for incorporating consultation have been used, including psychiatric phone consultation (Sarvet et al., 2010; R.C. Sheldrick et al., 2012), peer consultation from a PCP (Epstein et al., 2010; Epstein et al., 2008), back-up supervision (Richardson et al., 2009), and weekly supervision from a supervisor (Kolko et al., 2010; Kolko et al., 2012). However, securing ongoing case consultation in routine practice is difficult, especially since it is not reimbursable. Consultation with a local BH professional may be a viable resource for obtaining important feedback on diagnostic challenges, treatment barriers, and referral options.

Implementation Models

Few strategies to promote implementation of integrated care in pediatric settings have been reported, beyond the generic CCM. Thus, there is need to apply existing models to promote treatment delivery and quality. Several models are relevant to promoting EBP adaptation and implementation in healthcare settings, such as the Consolidated Framework for Implementation Research (Damschroder et al., 2009), Interactive Systems Framework (Wandersman et al., 2008), “4 C’s” model of coordination, communication, comprehensiveness, and continuity of care (Horvitz-Lennon, Kilbourne, & Pincus, 2006), Organizational Health Transformation Model (Lukas et al., 2007), key elements for quality improvement in medical practice (Solberg, 2007), and some common factors to improving the mental health capacity of primary care staff (Wissow et al., 2008b; Wissow et al., 2008a). One model, Replicating Effective Programs (REP), has been applied in primary care settings with adults (Horvitz-Lennon et al., 2006). To our knowledge, these models have not been studied in pediatric practice.

Reimbursement and Fiscal Sustainability

Although already an important part of many implementation models, attention to improving reimbursement and fiscal sustainability is needed to cover the costs of integrating BH resources (e.g., space, staff training, assessment instruments, consultation). Pediatric practices cannot afford to hire mental health clinicians as team members due to cumbersome and restrictive credentialing policies, poor payment rates, and idiosyncratic rules about acceptable practices and providers. Recent policy statements offer recommendations to address these challenges to obtaining adequate reimbursement (Adair, Perrin, Hubbard, & Savageau, 2010; American Academy of Child and Adolescent Psychiatry, 2009; Foy et al., 2010), including the use of financial incentives. Strategies such as Pay-for-Performance or Pay for Implementation of an EBP to improve patient outcomes are now common in health care practice (Mehrotra et al., 2007) and insurance programs (Rosenthal & Frank, 2006), but not in BH practice (Bremer, Scholle, Keyser, Houtsinger, & Pincus, 2008).

Conclusions

This brief review describes several clinical trials and intervention studies conducted in pediatric primary care to document the integration of alternative models for the delivery of behavioral services. These studies have yielded positive findings supportive of their feasibility, clinical benefit or impact, satisfaction or acceptability, and, to some extent, maintenance. Families express preferences for receiving mental health services in a primary care setting (Kolko et al., 2010; Kolko et al., 2012) and PCPs support the incorporation of clinical resources in the practice (Kelleher & Stevens, 2009). The use of trained clinicians to coordinate and deliver treatment supported by brief screening and ongoing monitoring permits many of the same routines as are found in a typical mental health setting.

These observations highlight the real-world relevance of integrated care models that can incorporate “best practices” based on brief modular interventions to achieve meaningful outcomes to families and pediatricians, and the potential to promote the quality and continuity of care. These features may ultimately advance the public health impact of BH services by reducing the severity of clinical problems, improving adaptive behavior and functioning, and possibly reducing “downstream” service costs (e.g., sick or ER visits, clinical resources). Of course, the outcomes of these studies are still modest in scope and provide only some direction on how to proceed to enhance and sustain integrated care. Hopefully, some of the lessons learned and directions for practice and research reviewed herein can be applied to enhance the acceptability, cost-effectiveness, fiscal sustainability, and eventual scalability of integrated BH services in the healthcare setting serving pediatric populations.

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Table 1

Description of an Evidence Based Program Integrating Chronic Care Model Principles/Elements and Clinical Content/Topics in Doctor Office Collaborative Care (DOCC)

Chronic Care Model Principle and Core Elements	Clinical Content/Topics
Leadership Team: PCP and CM as treatment team with facilitator	Assessment Measures: Vanderbilt ADHD Parent Diagnostic Rating Scale; IGAR, PEDS-QL
Decision Support: Automated assessments; EBP medication & psychosocial treatment of ADHD	Engagement: Intake assessment findings, orientation, psychoeducation, rules
Delivery System Design: CM delivers services via liaison with PCP; care management process	Self Management: Positive thoughts, managing stress, emotion regulation
Clinical Information Systems: Integrated notes; case reviews with PCP to monitor progress/plans; data collection options	Behavior Change: Attending/ignoring, promoting positives, punishment, home contingencies, problem-solving, social skills
Self-Management Support: Psychoeducational materials & workbook, assessment summary and discharge Suggestions	Maintenance: Family problem-solving & family communication; emotionally and physically harsh interactions
Community Resources: Referral list; mobilization of community resources to assist families (e.g., local ADHD advocacy group).	ADHD Medication Management: triage, psychoeducation, decision making, consultation and monitoring; survival school skills

Key: PCP = pediatric care provider; CM = care manager; EBP = evidence-based practice; ADHD = attention deficit hyperactivity disorder; IGAR = individual goal achievement ratings; PEDS-QL = pediatric quality of life inventory.