A Collaborative Practice Training Model for Pediatric Primary Care

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Preventing students for the needs of the future healthcare system is a challenge. The current healthcare landscape is engaged in a great system overhaul, with changes driven by a variety of factors including rising health care costs, an aging population, and the implementation of the Patient Protection and Affordable Care Act (PPACA, 2010). Educators in the health sciences are scrambling to predict what healthcare practice will look like in 2 to 5 years in an effort to identify the knowledge and competencies that will give their students the greatest advantage when entering the workforce.

A key force in the redesign of healthcare delivery is the Patient Centered Medical Home (PCMH). The PCMH was once a practice “in concept” but now has an official designation sought by medical practices aiming to stay on the cutting edge as policy revisions go into effect. The PCMH establishes that care should be patient-centered, comprehensive, coordinated, accessible, and continuously improved through a systems-based approach to quality and safety (Agency for Healthcare Research and Quality [AHRQ]). Two essential tenets of the PCMH that support the implementation of interprofessional teams comprised of behavioral health and medical professionals: 1) treatment of the whole person, and 2) care that is integrated within the medical home and across healthcare service disciplines (Beacham, Kinman, Harris, & Masters, 2012). Recently, an interprofessional collaborative published the Joint Principles: Integrating Behavioral Health Care into the Patient Centered Medical Home, which recognized the “centrality” of behavioral health as part of the PCMH (Baird et al., 2014).

Policy aside, the utility of a collaborative practice model in pediatric primary care is well established (Kolko & Perrin, 2014). Behavioral, developmental, and emotional concerns are common in these settings. National studies of parent ratings of child behavior in pediatric primary care waiting rooms have shown significant psychosocial concerns among 10-14% of all children (Jellinek, Murphy, Little, Pagano, Comer, & Kelleher, 1999; Wildman, Stancin, Golden, & Yerkey, 2004). Studies using physician report of concerns raised or direct observation of clinic visits have shown even higher rates of 18-21% among otherwise healthy children (Bilfield, Wildman, & Karazsia, 2006; Wasserman et al., 1999), especially in rural areas (Cooper, Valleley, Polaha, Begeny, & Evans, 2006; Polaha, Dalton, & Allen, 2011). Moreover, research has shown that parents identify their child’s pediatrician as the top source of information when they have concerns about behavior, development, or emotional well-being (Polaha et al., 2011). Finally, a recent meta-analysis of 31 studies evaluating collaborative practice models in pediatric primary care showed these were associated with better outcomes than care as usual (Asarnow, Rozenman, Wiblin, & Zeltzer, 2015).

In sum, policy and empirical directives suggest that an important training objective in preparing the future workforce in pediatric primary care should be in the area of collaborative practice. To date, however, no studies have articulated a model of training students in this way. The overarching objective of this paper is to describe one such training program. We have three specific aims including: 1) to describe the elements of the collaborative practice model, 2) to explain how students are engaged in these elements, and 3) to provide preliminary descriptive data regarding the success of this program. In addition, we attempt to explain how trainees in this model are prepared and supported by broader interprofessional training experiences at East Tennessee State University (ETSU). As collaborative practice models become established in pediatric primary care, we expect there will be an increasing demand for sophisticated training.
programs similar to this model. This paper represents a starting point to advancing a literature on this topic.

**Methods**

**Setting**

East Tennessee State University and the Quillen ETSU Physicians Pediatrics Clinic are located in a mid-sized metropolitan area within rural Appalachia. The Quillen College of Medicine (QCOM) at ETSU was created by the Tennessee legislature in 1974 to help alleviate a critical shortage of primary care physicians in East Tennessee and the southern Appalachian Region. The Quillen ETSU Department of Pediatrics provides training to pediatric residents in an accredited three-year training program. The entire region is a designated shortage area for mental health professionals. Moreover, ETSU Pediatrics serves a high-risk population, with over 70% of patients insured through Medicaid/SCHIP programs. A study of parent reports in the pediatric primary care waiting room showed 17% rated their child as having clinically significant concerns (i.e., based on a standardized, norm-referenced rating scale; Polaha et al., 2011). In another study, 24% of 322 observed clinic visits included a behavioral concern, raised by the parent or primary care provider/resident (Gouge, Polaha, & Powers, 2014).

**Procedure**

**Collaborative Practice Model**

The ETSU Pediatrics Collaborative Practice Model was established in 2009 with funding from an American Academy of Pediatrics (AAP) Catch Grant. This initial funding allowed for the placement of one doctoral student from ETSU’s Department of Psychology at ETSU Pediatrics for 2 full days per week. Since 2009, the Department of Psychology has, depending on funding, placed one to three students into ETSU Pediatrics under the supervision of a licensed psychologist/faculty member (the first author, Polaha). As Interprofessional Education (IPE) programming has been developed for entry-level learners at ETSU (see other articles, this issue), the advanced doctoral students training in this collaborative practice model have come prepared with broad and complimentary foundational knowledge such as a general appreciation for the utility of team work, an understanding of various health care professionals’ roles in primary care, and basic interprofessional communication skills.

From the start, collaborative practice at ETSU Pediatrics was designed on a model known as Primary Care Behavioral Health (PCBH; Strosahl, 1998) in which the Behavioral Health Consultant (BHC) works in a flexible manner so that s/he is available to address the wide range of concerns that are generated in this setting. There are two key components to this model that allow the expertise of the BHC to be potentiated in a busy primary care environment. First, *curbside consultations* are brief and spontaneous interactions between the medical provider and the BHC regarding a targeted question or concern. Second, *warm hand-offs* are the medical providers’ spontaneous engagement of the BHC when a behavioral health concern is raised in the context of a regular medical visit.
Over time, the PCBH model described above has formed a solid base for the development of additional targeted pathways for specific presenting concerns. Importantly, all of these targeted programs focus on prevention and early intervention in birth to 5-year-olds and comprise a program of “enhanced wellness visits” for the patients at ETSU Pediatrics. These targeted pathways include:

*ReadNPlay for a Bright Future.* Developed in 2011 by ETSU pediatrics residents and faculty in conjunction with an interprofessional team of university faculty and community partners, this program supports healthy active living among families with children birth to age five ([www.readnplay.org](http://www.readnplay.org)). The program is intended to intervene early in life to address Tennessee's disparately high rates of obesity. *ReadNPlay* engages family in four primary messages including: to Play More (shut off screens), Play Together (be active together as a family), Fuel to Play (eat healthy), and Play Safely (anticipatory safety guidance). These messages are delivered through enhanced clinical counseling during well child visits, monthly support groups, and the use of social media, community-based family events, and forums in partnership with community organizations serving young children.

*Postpartum Depression.* A second wellness effort was initiated in 2013, when the authors of this paper collaborated with a core group of teaching faculty, nurses, and administrative staff to develop and implement a protocol for screening and brief intervention for postpartum depression (PPD). PPD is one of the most common post-natal complications, affecting approximately 10-20% of mothers (Gavin, Gaynes, Lohr, Meltzer-Brody, Gartlehner, & Swinson, 2005). In recent years, the American Academy of Pediatrics Bright Futures initiative developed anticipatory guidelines targeting maternal well-being and PPD (Hagan, Shaw, & Duncan, 2008); however, research shows pediatric practices have struggled to implement these with integrity. The ETSU Pediatrics collaborative approach to PPD includes screening all mothers attending a well-visit with their birth to six-month-old. Mothers who score high on the Edinburgh Postnatal Depression Scale (Gavin et al., 2005; Norhayati, Hazlina, Asrenee, & Emilin, 2015) receive one or more of the following interventions depending on team judgment: education and bibliotherapy, a coordinated referral to another established provider (e.g., OB/GYN, primary care, or specialty mental health), or brief counseling with the BHC. In addition, these mothers are followed closely with a standardized telephone and in-person check-in schedule for mothers who are at-risk. Importantly, in the context of developing the protocol for PPD, the collaborative practice model expanded to include both social work (care coordination and development of resource list for mothers) and public health (protocol development and resource development) professionals.

*The Family Check-Up.* Finally, another enhanced wellness target is 4- to 5-year-olds attending their kindergarten physicals who score at-risk on a parent rating of psychosocial concerns. Specifically, the 17-item Pediatric Symptom Checklist (Jellinek et al., 1999) is administered routinely at these visits and provides a gateway to referral for the Family Check-Up (FCU; Dishion, Shaw, Connell, Gardner, Weaver, & Wilson, 2008). The FCU is an evidence-based intervention for parents struggling with challenging child behavior problems, endorsed by the National Institute for Drug Abuse (NIDA) and the Substance Abuse and Mental Health Services Administration (SAMHSA). Intervention with at-risk young children using the FCU has been shown to decrease behavioral concerns, improve academic performance, and increase positive behavioral support among parents (Dishion et al., 2008). These changes are an important prevention strategy since behavioral concerns in young children are linked to a sequelae of
ongoing psychosocial concerns including substance abuse and delinquency in adolescence (Bierman, Coie, Dodge, Greenberg, Lochman, Mcmohan, & Pinderhughes, 2013). Given this population health/prevention focus, this was another project in which public health team members were involved. At ETSU Pediatrics, physicians work with the BHCs to provide families with feedback about high scores on the screening measure and link them into the 2-3 session FCU. The BHC engages the family in the FCU protocol which involves a thorough assessment of child behavior, parenting style, and contextual factors. The final session is a feedback session which engages motivational interviewing and a strong collaborative set between the parent and primary care team to identify areas of strength and need and target a specific parenting change or changes. The FCU was launched in late January, 2015, and preliminary data show a high adoption rate by medical providers (near 90% referral when screeners are high) as well as a strong reach, with over 60% of parents attending their first visit (Smith, Schetzina, Polaha, Baker & Wood, 2016).

Training Model

It is important to note that the development of best-practices in team care itself is a relatively new phenomenon and there is little research regarding how to best train students to work in this model. Historically, IPE initiatives have been distinct from health care; however, there are several initiatives pushing the development of evidence based interprofessional education and collaborative practice in a way that would improve both patient and learner outcomes (IOM, 2015; Interprofessional Education Collaborative Expert Panel, 2011). In our early work in this area, we have seen value in adopting a curious and pragmatic style about what works best and making adjustments based on our own observations as well as feedback from our students.

The collaborative practice training model has been developed commensurate with the evolution of the service delivery model described above. In general, learning in this training program occurs when the residents and psychology students work together with families presenting for care. Psychology students are the BHCs, providing curbside consultation and responding to warm hand-offs from resident providers. Psychology students and residents work together in the context of ReadNPlay consultation in well-visits, coordinating care for mothers with postpartum depression, and families who are struggling with child behavioral concerns in the FCU. Key training elements within this model are: 1) training the psychology graduate students (BHCs) to engage brief treatments and manage their time so they remain accessible to medical providers, and 2) training residents during their first year to appropriately utilize the BHC for curbside consultations and warm handoffs. In addition, the growth of the training program has been based on strong communication between supervising faculty from psychology and pediatrics, making adjustments to schedules and skills and responding to clinic-wide needs.

Descriptive Study

In an effort to describe preliminary outcomes of this training model, we focused on data collection during the most recently completed academic year of the program, July 2014-June 2015. First, to describe the students’ collaborative practice, we asked psychology students to collect data on the frequency of their interactions with residents in the primary care behavioral health model (curbside consultation and warm-handoffs) by writing these down each time they occurred during the middle 6 months of their position (September 2014-March 2015). Second,
we collected satisfaction data on the collaborative practice model from all residents and preceptors including questions targeted at learning within that model.

**Participants**

The primary focus of training efforts in this collaborative practice training model is on the participating pediatric residents and psychology graduate students. Results described below are focused on the trainees participating during the most recently completed academic year (July 2014-June 2015). These included 3 advanced psychology students who had previously completed their master’s degree requirements within ETSU’s doctoral program in clinical psychology. In addition, 16 pediatric residents participated, including 6 first-year interns, and 5 second- and 5 third-year residents. Both resident and psychology student staff were present, providing real-time services at ETSU Pediatrics during all 40 hours of the clinic operation each week. Psychology trainees were supervised by a licensed psychologist with a long history of work in primary care settings. Residents were supervised by 5 faculty preceptors.

**Results**

**Description of Collaborative Practice**

Data sampling from September 2014 to March of 2015 showed an average of 25 collaborative curbside consultations per week, lasting 4-7 minutes each. Data from the same time frame showed an average of 30 warm-handoffs per week, each lasting 25 minutes on average.

**Satisfaction and Self-Reported Learning**

A “Team Service” survey of residents 9 months into the 2014-2015 year showed strong satisfaction with this care model, endorsing the effectiveness of communication within the team, confidence in the care received, and utility of the model for addressing the broad needs of the patient population at ETSU Pediatrics (i.e., accessibility). Eleven out of 16 residents responded (69%), and results are described in Table 1.

**Table 1. Resident Satisfaction with Team Service Model**

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The BHC pays attention to what I have to say about patient care.</td>
<td>4.9</td>
</tr>
<tr>
<td>2. The BHC works with me to develop a plan for my patients that works for me.</td>
<td>4.9</td>
</tr>
<tr>
<td>3. The BHC communicates in a way that makes sense to me.</td>
<td>4.8</td>
</tr>
<tr>
<td>4. I am satisfied with the quality of care my patients receive from the BHC.</td>
<td>4.9</td>
</tr>
<tr>
<td>5. The BHC’s notes in the electronic health record are clear.</td>
<td>4.7</td>
</tr>
<tr>
<td>6. I would recommend the BHC to a colleague or another pediatric practice.</td>
<td>5.0</td>
</tr>
<tr>
<td>7. The BHC is easy to find and available when I need him or her.</td>
<td>4.7</td>
</tr>
<tr>
<td>8. I have increased my knowledge of behavioral treatments and case conceptualization from working with the BHC.</td>
<td>4.6</td>
</tr>
<tr>
<td>9. Overall, I am very satisfied with the work the BHC does at ETSU Pediatrics.</td>
<td>5.0</td>
</tr>
</tbody>
</table>

1=Strongly Disagree, 2=Disagree, 3=Neither Agree/Disagree, 4= Agree, 5= Agree
Discussion

Results from the study of collaborative interactions within this model show a high rate of engagement between BHCs and residents using curbside consultations and warm-handoffs. Moreover, these data provide support for the presence of strong collaborative care within this model. We feel that two strategies have been critical to sustaining this level of collaboration among trainees. First, the BHCs must remain available and visible during clinic hours (i.e., not tied up in lengthy patient visits). Second, first-year residents must be trained to appropriately engage the BHC, and there is preliminary evidence that this early exposure in residency training has a positive and beneficial impact on collaboration (Gouge et al., 2014). We explicitly train our students toward these two aims in the context of didactics early in the beginning of the year as well as by faculty modeling and prompting throughout the year.

Results from trainee ratings of satisfaction and learning were very positive. Importantly, residents strongly agree with the statement that they have increased their knowledge around behavioral interventions and case conceptualization from the BHC. These data are supported by research in prior years at ETSU Pediatrics in which, during exit interviews, trainees in both disciplines describe this learning experience as invaluable and residents who had access to collaborative practice training reported they perceived a higher quality of patient care, better patient outcomes, and an interest in working collaboratively in the future (Gouge et al., 2014). An important future goal for this work is to articulate specific competencies for medical provider-BHC communication, teamwork, roles, and values/ethics that should be central to a collaborative practice setting and what teaching strategy works best to engage students with these competencies.

In addition to the training that happens spontaneously in the context of team service delivery, several programmatic interprofessional training opportunities are provided for students from these two disciplines. First, psychology students participate in ETSU’s IPE program described in this issue of IJHSE. This program provides introductory content around roles and responsibilities, teams and teamwork, ethics, and values for interprofessional practice consistent with content identified by the Interprofessional Education Collaborative (2011). Long range, it is our plan to incorporate language and competencies from this basic program into direct teaching in this collaborative practice model. Second, psychology students are required to attend at least three community-based training experiences with first-year residents (which is a required part of their curricula). These include observations at schools, a private developmental and behavioral pediatrician’s office, and a clinic using applied behavior analysis with children who have Autism, among others. Third, psychology students, who receive weekly clinical supervision regarding discipline-specific content also receive regular mentoring and supervision around consultation and program development within pediatrics. Finally, these students provide didactic training to second year residents as described below, which serves as a mutual training experience.

In addition, second-year residents are targeted for programmatic interprofessional training in the context of our work at ETSU Pediatrics. These trainees are already engaged in a program of training around behavioral health concerns in pediatrics as part of the Accreditation Council for Graduate Medical Education (ACGME) required 30-day rotation in developmental and behavioral pediatrics, which, among its other objectives, must include normal and abnormal
child behavior and development, including cognitive, language, motor, social, and emotional components, behavioral counseling and referral, and identification and coordinated care for pediatric mental health concerns (https://www.acgme.org/acgmeweb/tabid/430/ProgramandInstitutionalAccreditation/NextAccreditationSystem/Milestones.aspx). This one-month rotation includes three full days with the BHC during which they receive brief didactic and case solving work around the top five presenting behavioral health concerns (ADHD, disruptive behavior, toileting, sleeping, and development disabilities/Autism) as well as shadowing the BHC for all referred cases on those days.

A number of additional opportunities to provide training to other students in the health professions have arisen. The most significant of these is third-year medical students who complete a two-week junior clerkship experience at ETSU Pediatrics. As with psychology students, some of these trainees have participated in the ETSU IPEP described in this issue of IJHSE and again, we are striving toward continuity of language and competencies across the basic didactic experiences and this collaborative practice model. Presently, third-year medical students on their junior clerkship in pediatrics receive a 45-minute didactic on collaborative practice as well as the role of the BHC. In addition, as they are shadowing medical providers and the BHC is engaged, they follow the BHC for more in-depth experience in collaborative practice. Ongoing process data show these students follow 1-4 patients through the collaborative referral and during the BHCs interaction with them. These spontaneous training opportunities are often supplemented by a short debrief for further education about the session content, collaborative aspects, or administration.

In addition to medical students, we have had the opportunity to engage masters-level students from public health and social work as well as one doctoral student in early childhood education. Many of these students have also participated in IPE. We have found this experience prepares them for training in collaborative practice which involves: 1) shadowing BHC and medical providers, 2) participating in a discipline-relevant way on targeted program development (e.g., public health student developed a list of community resources for families in the FCU; social work student developed an educational brochure for postpartum mothers regarding PPD), 3) participating in didactic and/or community-based training with medical students, and 4) providing a brief didactic training to trainees in other disciplines regarding their discipline-specific content.

Future Directions

Our six-year history in collaborative practice training has resulted in some clear successes as well as a clearer view of the development that is still needed. One of our favorite success stories began in our first year, 2009, when a doctoral psychology student, served as the first BHC at ETSU Pediatrics. Three years later, with her graduation immediately pending, she was approached by two of the resident trainees from the 2009 ETSU Pediatric placement, who were beginning their own pediatric practice. These new pediatricians successfully lobbied their large health care network to hire her as their first BHC and the group remains in collaborative practice together two years later. We feel their collaborative practice model outside the University is setting an important precedent in our region and keeping pace with the ongoing changes in healthcare. It is an example of how academic health sciences programs can take best guesses
about up-and-coming practice models and graduate students who can lead a region in that practice.

In considering competencies our students need for future success, at least two strategic areas have emerged. First, we are developing specific, observable, and measurable team competencies such as those identified in TeamSTEPPS (AHRQ) as well as strategies for teaching them such as those identified in the Preceptors in the Nexus Toolkit (https://nexusipe.org/preceptors-nexus). A recent review of the literature showed many IPE efforts to date have focused on satisfaction and attitudes toward IPE with fewer evaluating specific knowledge gained, a proficiency with targeted skills, or the impact of using these skills on patient outcomes (IOM, 2015). We are working to move the field toward those kinds of measures.

Second, rather than developing a static protocol around collaborative practice and a static set of competencies to be taught, we are focusing on couching the development of those elements within a learning healthcare system (Institute of Medicine Roundtable on Evidence-Based Medicine, 2007). The Institute of Medicine defines a learning healthcare system as one that gets the right care to the right people when they need it and then captures the results for improvement. Its values are science and informatics, patient-clinician partnerships, incentives, and culture. We believe IPE will be at its best when it is fully co-opted by a healthcare administration that espouses these values and includes the development of IPE competencies and targets as a part of ongoing improvement in health care. To that end, we aim to train our students in skills that will empower them to engage rapid cycle quality improvement and other evaluation efforts focused on the Triple Aim (i.e., cost effectiveness, patient outcomes, and patient value/satisfaction).

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