WORKING TOGETHER TO MEET CHILDREN'S HEALTH NEEDS:

Primary and Specialty Care Co-Management

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INTRODUCTION

Collaboration between pediatric primary care and subspecialty providers is critical to ensuring children's optimal health outcomes, patient-centered services and efficient care. The work presented in this report will show that shared care, or co-management, provides a model in which primary and subspecialty care providers collaborate to meet patient needs. Shared care also allows many children to receive more services from their primary care provider, thereby increasing access and reducing waiting times for children who need care from subspecialists.

A growing need for pediatric subspecialty care, driven by increases in the prevalence of chronic conditions and behavioral/mental health issues in children, has outpaced the capacity of the pediatric subspecialist workforce to meet this demand. Resulting access problems include long wait times for appointments and delays in receiving care. The co-management model seeks to expand the capacity of PCPs to manage certain conditions traditionally managed by subspecialists. Through the use of evidence- and consensus-based care plans, co-management has the potential to reduce variation in care and avoid unnecessary testing and subspecialty referrals.

Co-management also addresses medical home principles by ensuring comprehensive and coordinated care between primary care and subspecialty services. Medical home has received much attention as the optimal model for the delivery of child health services, with demonstrated potential to improve access, quality of care, and patient outcomes, while also containing costs.[1,2] Medical home refers to primary care that is accessible, community-based, comprehensive, continuous, coordinated, compassionate, culturally effective, and family-centered.[3,4] Research has demonstrated several benefits of delivering care in the medical home model, including improved asthma control, fewer emergency department visits and hospitalizations.[5] Families who receive care for their children through a medical home report reduction of unmet needs as well as higher satisfaction with service delivery.[6]

ACCESS TO CARE

Timely access to pediatric subspecialty care is becoming increasingly difficult nationwide as evidenced by average wait times of three months or more for some pediatric subspecialties, particularly in rural areas.[7] A recent national survey indicates that more than half of children's hospitals reported difficulty in scheduling endocrinology and neurology visits.[7] This is due to a rising demand for care coupled with the declining supply of specialists.

More children are being referred for subspecialty care than ever before:

- Among patients ages 3-18, the probability that an outpatient visit resulted in a referral to another physician increased from 4.7% in 1999 to 7.6% in 2009.[8]
- The number of outpatient visits resulting in a referral to another physician more than doubled from 1999 to 2009, increasing from 4.93 million to 10.5 million.[8]

At the same time as increases in the prevalence of both chronic illness and behavioral and mental health issues in children have increased the demand for subspecialty care, workforce shortages have reduced the availability of this care. The existing pediatric subspecialty workforce is aging and fewer medical residents are choosing careers in pediatric subspecialties.[9] In Connecticut, similar access issues exist for patients seeking subspecialty care at Connecticut Children's Medical Center

(CT Children's), a freestanding children's hospital located in Hartford. Although the CT Children's target time frame for new patient visits is within thirty days, many subspecialty divisions have not been able to consistently achieve this goal due to limitations in workforce capacity.

Reliable and efficient communication between PCPs and subspecialists is necessary if the goals of the patient-centered medical home model are to be met.

THE PRIMARY-SUBSPECIALTY CARE INTERFACE

In addition to access issues, evidence also suggests that inconsistent and inadequate communication between PCPs and subspecialists are part of the problem. In one survey, 98% of PCPs and subspecialists agreed that communication was important for good care but more than 60% of respondents reported that they faced barriers to achieving this communication.[10]

Results from another survey found that 63% of PCPs and 35% of subspecialists were dissatisfied with the current subspecialty referral process.[11] Problems identified with the current referral system include timeliness of information received and inadequate content in the referral letter. Specifically, 68% of subspecialists reported that they received no information from the PCP prior to consultation, while 25% of PCPs had not received any feedback from specialists four weeks after the consultation.[11]

Reliable and efficient communication between PCPs and subspecialists is necessary if the goals of the patient-centered medical home model are to be met. The U.S. Health Resources and Services Administration (HRSA) identified two goals that are necessary in order to improve access to pediatric subspecialty care through the medical home.[12] The first is to increase collaborative arrangements among primary and subspecialty systems of pediatric care at the local, state, and regional levels in order to improve outcomes. The second is to enhance the training and practice of health care professionals to enable them to better manage the care of children with chronic conditions and work collaboratively with pediatric subspecialists within the medical home model of care. The growing recognition of medical home as the optimal approach to pediatric primary care for all children highlights the need for care integration across primary and subspecialty settings.[12]

One area where the interface between the two professionals is critical yet challenging is in mental health, where pediatric primary care providers have expressed lack of confidence in managing children's mental health conditions.[13] Research on models of primary care and subspecialty care for children's mental health shows that a stronger interface results in improved access to mental health services as well as increases in screening and early identification of children with mental health concerns.[14,15] Formal and direct psychiatric consultation has been shown to decrease the need for patients to see psychiatrists and increase the capacity of child health providers to prescribe and manage medications.[16]

CO-MANAGEMENT IS ONE SOLUTION

A potential strategy to enable the relationship and communication channels necessary for improved collaboration between PCPs and subspecialists is co-management.

> *Co-managed care is collaborative and coordinated care that is conceptualized, planned, delivered, and evaluated by two or more health care providers, one being a PCP and the other a subspecialist.*

Health care provider roles are explicitly defined and providers work within a process or system to communicate and document their efforts on behalf of specific patients. Providers' roles may change or fluctuate over time based on the patient's development, patient/family preferences, and/or the patient's response to treatment.[17,18] Despite the perceived value of co-management, few studies have been undertaken to document results for patients, providers, and health service delivery. A summary of care coordination studies across adult and pediatric medicine highlighted only one in which pediatric care was co-managed with specialists.[19]

Improved collaboration among health care providers is favored among both primary care and subspecialty providers.[20] Physician satisfaction with referring to subspecialty services consistently shows improvement when they receive feedback from subspecialists[21] and when they communicate with each other.[21,22] Pediatricians also express a desire to have collaborative relationships with specialists for most referred patients.[23] More than two-thirds of PCPs and specialists report preference for co-management of referred patients.[10]

In response to the challenges in pediatric subspecialty care access and communication, CT Children's implemented an initiative between subspecialists and referring PCPs.

Co-Management in Practice

In response to the challenges in pediatric subspecialty care access and communication, CT Children's implemented an initiative between subspecialists and referring PCPs. Referring PCPs and subspecialty providers envisioned a model of co-management in which structured co-management plans and training would build the capacity of PCPs to more independently provide care for some relatively high-volume, lower-acuity conditions previously managed by the subspecialist.

In this application of co-management, individual care plans and accompanying training programs were developed for specific conditions. The plans included the following components: service agreement, clinical algorithm, PCP visit templates, subspecialist feedback form, PCP clinical support tools, patient/family handouts, and PCP Continuing Medical Education (CME) training. Table 1 provides a description of each of the components of a co-management plan.

Emma's concussion

Emma, a 15 year old high school soccer player, experienced a contact injury to her head during a play-off game and visited a pediatrician participating in a concussion co-management program. She complained of a headache and feeling like she was in a "fog." The pediatrician used the co-management algorithm to confirm the diagnosis of concussion and to initiate a treatment plan to ensure adequate rest. Emma and her mom were provided with clearly written hand-outs from concussion experts to share with Emma's school and soccer coach. Emma's mom was relieved that as long as Emma showed improvement in her symptoms, she could receive all of her care from their medical home.

One pediatrician noted that:

Participation in the co-management program for concussion management helped bring clarity and excellence in care to our patients. Now when a patient presents with head injury, we have a management approach that streamlines the diagnosis and care plan; offers families and patients pertinent educational materials and provides a pipeline to subspecialists when appropriate. We have had higher level of satisfaction from our families with head injuries than before and as providers we feel that we are more comprehensive in our care plans for our patients.

Table 1: Components of the Co-Management Care Plan	
Service Agreement	Outlines expectations for PCPs and subspecialists participating in co-management; inclusion and exclusion criteria for co-management
Clinical Algorithm	A standardized clinical protocol designed to assist PCPs in managing selected conditions
PCP Visit Templates	Forms to be completed by PCPs at patients' initial and follow-up visits for the selected conditions
Specialist Feedback Form	A structured communication tool to be completed by the subspecialist and returned to the PCP after the subspecialist visit
PCP Diagnostic and Management Tools	Tools, such as symptom surveys or medication usage sheets, designed to assist PCPs in establishing the diagnosis and initiating co-management for patients
Patient/Family-Centered Materials	Handouts, symptom diaries, school accommodations forms to engage patients/families in their care
CME Collaborative Care Training Module	Combines education on the condition with walk-through demonstrating use of co-management plan materials in practice

Following the development of a conceptual framework for co-management, a team at CT Children's applied for and received funding from the Children's Fund of Connecticut's (Children's Fund) 2009 Innovation Fund for a pilot study to establish the feasibility and efficacy of the model in achieving desired outcomes for the following conditions: pediatric voiding dysfunction (PVD), migraine, hematuria, chronic fatigue syndrome/fibromyalgia, and Lyme disease. In 2011, the co-management team received a second Child Health Innovation Fund award jointly sponsored by the Children's Fund and the Yale Center for Clinical Investigation to test four conditions (concussion, migraine, PVD and obesity) allowing practices to select the ones they wanted to pursue and using a more rigorous design that would yield outcome measures. In 2011, the Child Health and Development Institute (CHDI), a subsidiary of the Children's Fund, also adapted CT Children's co-management model to help pediatricians work with child mental health providers to address anxiety and depression in children. Descriptions of these three applications of the PCP-Subspecialist co-management model and a summary of findings follow.

2009 to 2011 Co-Management Pilot Program

Twenty-four pediatricians representing ten primary care practices signed up to participate in the pilot study. Participating PCPs collectively enrolled 28 patients: 17 patients with PVD, 6 with migraine, 3 with chronic fatigue/fibromyalgia and 2 with hematuria. When asked about their reasons for participating, 70% of providers responded that children sometimes have to wait too long for an appointment with a subspecialist, and 90% (n=10) thought they might be able to provide more accessible care than a subspecialist for patients with certain conditions.

Analysis of office visit templates demonstrated that PCPs adhered to the majority of recommendations provided in the co-management protocol ranging from 84% of visits for migraine to 100% for hematuria. A satisfaction survey administered at the conclusion of the pilot project asked participating PCPs to reflect on their participation in co-management. All 11 providers responded that participating in co-management allowed them to 'participate in a new system of care'. When asked about general satisfaction with co-management, all but two providers who responded were definitely satisfied with the care their patients received using the co-management plans and all would recommend participating in co-management to a colleague.

2011 to 2013 Co-Management Next Steps Project

Co-management Next Steps was originally implemented at two sites: a suburban private primary care practice (ProHealth Physicians: Children's Medical Group (CMG)) and an urban federally qualified health center (Charter Oak Primary Care Center at Connecticut Children's Medical Center). CMG elected to implement the concussion co-management program and enrolled 148 patients with suspected or confirmed concussion. Charter Oak enrolled six patients with migraine but due to the low number of enrollments their results are not included. The challenges that resulted in low participation in co-management at Charter Oak provided us with important lessons on making co-management work in settings that serve children primarily from low-income families. These are summarized in the Lessons Learned section of this report. Table 2 provides information about the CMG site.

The development and utilization of an online data entry system for all patient information from co-managed care was a hallmark of Next Steps. In addition to serving as the data-capturing tool, the web-based data system generated individual PCP progress reports on metrics related to adherence to the co-management protocols. To capture pre-co-management data for comparison purposes, research and practice staff audited twenty charts per condition for PVD, migraine, and obesity

co-morbidities and fifty charts for concussion. Practice billing data were collected retrospectively for both the patients in the co-managed group and those in the pre-co-management comparison group. PCP satisfaction was evaluated via baseline and mid-implementation surveys.

Adherence data collected for each patient encounter indicated that participating PCPs identified and confirmed the diagnosis of concussion for 100% of the patients treated through co-management using the guidelines in the co-management algorithm. At least one treatment plan (e.g. rest, half day of school, graded return to activity) was identified at the initial visit for 97% of those patients. Ninety-three percent of the patients in the co-management group were provided with concussion management handouts from the concussion co-management toolkit. Comparison of data collected on 352 co-management visits with data from 103 visits pre-co-management showed that the average number of visits per patient for the co-management group was higher (2.4 vs 2.1). The number of patients who received follow-up care from the PCP was also higher in the co-managed group (84%) as opposed to 66% in the comparison group (p=0.0077).

One goal of co-management is to decrease referrals to subspecialists. Over the study's two years, referral rates were not significantly different in co-management versus non co-management groups. However, the timing of referral differed, with 20% of referrals in the co-management group initiated at the first visit compared to 40% in the comparison group. This suggests that when patients receive co-management care, more of their initial work-up and care happens in the primary care setting. PCPs were also more likely to bill at higher levels for co-management visits compared to non-co-management visits; 82% of visits were billed at the higher levels of care in the co-management group.

Table 2: Co-Management Next Steps Site

Co-Management Site	Practice Characteristics
ProHealth Physicians: Children's Medical Group (CMG)	• Private primary care practice with offices in Bloomfield and Rocky Hill • 9 PCPs (7 MDs; 2 APRNs) • Serves approximately 8,500 patients

All six surveyed PCPs indicated that they were satisfied with co-management as a model of care. All reported that co-management improves care coordination for their patients and enhances their expertise in caring for patients with concussion. They all also believed that co-management is an effective model for improving access to care for patients with certain conditions.

Co-Management of Anxiety and Depression

Co-management between pediatric primary care and behavioral health services also is a promising strategy for addressing the needs of a growing population of children with mental health concerns.[24] Co-management gives PCPs access to timely information and necessary supports to assist them in addressing the needs of children who suffer from mental health challenges,[24] and it allows children to receive more services in

All surveyed PCPs reported that co-management improves care coordination for their patients and enhances their expertise in caring for patients with concussion.

their medical home, a site that is familiar to them. Only one in five children who need mental health treatment receive services.[25] Frequent barriers to care such as, stigma[26] and inability to obtain an appointment with a mental health provider,[13] can be addressed by co-management. Research on models of integrated and collaborative primary and behavioral health care suggest that this approach results in improved outcomes for patients and providers such as reduced waiting times for behavioral health services, increased screening and identification of children with possible mental health disorders, and increased options for consultation.[14,15,26]

In 2011, CHDI convened child psychiatry experts and three pediatric primary care practice and behavioral health partner teams in a learning collaborative to help the pediatricians identify, treat and monitor children with depression or anxiety. The group developed and tested evidence-based and best-practice clinical algorithms for each condition. To support the algorithms, the group also created toolkits containing valid screening and assessment tools, parent education materials and tools for communication between the two specialties.

Screening data collected for each well-child visit occurring in the first month of the anxiety and depression co-management program indicated that participating PCPs screened for depression and anxiety using the PSC-17 at 99% of well-child visits. Screening decreased to 45% in the second month of implementation, highlighting the need to remind practices about screening at all well-child visits. Data indicated that PCPs gathered child and family mental health history information at more than 95% of well-child visits across all months of participation.

Assessment data collected for children for whom screening showed concerns indicated that PCPs assessed 71% of children (88 of 124) who screened positive for depression or anxiety. Assessment decreased to 46% during the third month of implementation, again highlighting the need for feedback and reminders to practices on their implementation of the algorithms. When assessment tools were reformatted for easier administration in the second cohort, rates still remained below 50%, suggesting that further training on use of the assessment tools is needed.

Treatment referral data collected during the third month of implementation indicated that PCPs made referrals to their collaborative behavioral health partner for 69% of patients who assessed positive for depression or anxiety. Follow-up evaluation data indicated that at least one in-office follow-up visit occurred for 37% of these patients. Communication exchange between these patients' primary care and behavioral health providers occurred for only 6% of patients despite the inclusion of communication templates in the toolkit.

Co-management between pediatric primary care and behavioral health services is a promising strategy for addressing the needs of a growing population of children with mental health concerns.

Summary of Findings and Challenges

The findings suggest that this co-management model is a promising approach to address mental health concerns in pediatric primary care as evidenced by adherence to the clinical algorithm guidelines for screening at well-child visits, referral to mental health providers, and collection of family mental health history information. During the learning collaborative sessions, pediatricians stressed that gathering family mental health histories was vitally important to understanding children's screening and assessment results. Participating pediatricians also noted that formal screening yielded information about patients' mental health that would not otherwise have been raised during the office visit.

The decrease in screening and assessment from the first to the second months of implementation reflect the frustrations that the pediatricians expressed about the time-constraints placed on well-child visits and their inability to address the myriad health topics efficiently, effectively, and within the time allotted. To address the pediatricians' frustrations, the group created a streamlined approach to assessment by combining the three patient questionnaires into a one-page assessment to reduce interference with office workflow and minimize the amount of patient completed forms. In addition, the clinical algorithm was revised to suggest that pediatricians schedule second problem-focused visits for patients who screen positive for depression or anxiety disorders, which will allow additional time needed to complete assessment tools and connect children to mental health services. A computer-assisted version of the algorithm is also currently being tested in a second cohort of practices to determine how a technology solution can increase adherence to the algorithms. Communication between health and mental health providers continues to be problematic despite the inclusion of communication templates in the tool-kit. This area bears further study as communication is critical to effective co-management.

One Participating Pediatrician's Experience with Co-Management of Depression

An adolescent girl came to my office with a complaint of depression. I had her complete a PSC-17 and a PHQ-9. The PHQ-9 confirmed depression. The mother completed the Family and Child Mental Health History and it turns out she has been treated for depression, was admitted to the hospital as a teenager for attempting suicide and she is a recovering alcoholic. The mother's father has also been treated for depression. I don't think I would have gotten this information if I hadn't used the co-management algorithm. After the visit I reviewed this information with our mental health partner. She'll be seeing the patient next week and already has a leg up on the situation before she's even met the family. We will be discussing the case further after the visit, and I will make a follow up visit with the family to assess progress with her therapy and will stay in the loop. I think this is what co-management is really all about.

Lessons Learned from Co-Management Case Studies

1. It is important to engage both PCPs and subspecialists in developing care templates and algorithms and obtain PCP and subspecialist buy-in on the choice of condition and comfort with expanding primary care responsibilities. Subspecialists bring knowledge about clinical conditions to the development process and PCPs understand the implications of taking on new work within the primary care practice environment.

2. PCPs benefit from data on their performance and patient outcomes. Providers often think that they know what is happening across all patients in their care, but this is not always the case. Feedback helps them analyze where they are missing information or not performing as well as they could.

3. Conditions that are well suited for co-management are those that constitute a high volume at pediatric primary care sites and/or have a behavioral component. PCPs who co-manage a high volume condition have an opportunity to acquire greater familiarity with the co-management plan materials and eventually adopt co-management as standard of care for that condition.

4. Conditions that have a strong behavioral component or are mental health conditions can be successfully co-managed by PCPs who often have longstanding relationships with patients/families; an advantage compared to subspecialists who may not see the patients/families as frequently.

5. Electronic medical records (EMR) pose a special challenge to implementing co-management. One practice addressed this by scanning algorithms and visit templates into their EMR when patients were cared for under the co-management plan. The next iteration of the anxiety and depression co-management work will offer a computer-assisted application that hopefully can be integrated within practice EMRs.

A PROMISING NEW MODEL OF CARE

Adoption of a structured co-management care model for appropriate medical conditions can improve children's access to pediatric subspecialists for those children whose conditions cannot be managed in primary care. By building PCP capacity and reducing subspecialty referrals for less acute patients, the pool of available subspecialists can serve patients with more extensive needs. Co-management plans supply providers with the collaborative care tools needed to deliver the right care at the right time in the right setting. They allow families to receive more care in the primary care site, one that is familiar to them. Further, families can be saved visits to specialists, who are often located in hospital sites, which are less familiar to and convenient for families than their medical home. Co-management has the potential to become increasingly attractive as new models of care demand coordination and collaboration across specialty boundaries and the patient experience in receiving care receives more attention.

Recommendations for Next Steps

Building on the lessons learned from the co-management projects presented in this report, we believe that primary care and subspecialty providers, patients and public and private health insurers together can advance the use of co-management as a health care innovation. Efforts to expand co-management will benefit from the following:

- Identification of more high volume, low acuity conditions that can be managed in the medical home and evaluation of the use of a co-managed approach in their treatment
- Documentation of patient experiences with co-managed care to inform the refinement of co-management programs
- Documentation of the potential of co-management to address: 1) subspecialty shortages that impede access to care, 2) high health care costs
- Exploration of the role of technology in improving communication between patients, primary care providers and subspecialists
- Development of new business models that allow for shared financial risks and savings as an alternative to traditional fee for service payment
- Pre-professional and continuing education for providers to support the new role for primary care called for in co-management

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