



# Integrating an EMR-based Transition Planning Tool for CYSHCN at a Children's Hospital: A Quality Improvement Project to Increase Provider Use and Satisfaction

Constance M. Wiemann PhD<sup>a,\*</sup>, Albert C. Hergenroeder MD<sup>a</sup>, Krystle A. Bartley MA<sup>b</sup>, Blanca Sanchez-Fournier BA<sup>a</sup>, Marisa E. Hilliard PhD<sup>a</sup>, Laura J. Warren<sup>c</sup>, Sarah C. Graham MPH<sup>a</sup>

<sup>a</sup>Department of Pediatrics, Baylor College of Medicine, Houston, TX

<sup>b</sup>Center for Clinical Effectiveness, Baylor College of Medicine, Houston, TX

<sup>c</sup>Texas Parent to Parent, Austin, TX

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An electronic medical record (EMR)-based transition planning tool (TPT) designed to facilitate transition from pediatric to adult-based health care for youth (16–25 years) with special health care needs was introduced at a large children's hospital. Activities to increase provider use were implemented in five plan–do–study–act cycles. Overall, 22 of 25 (88%) consenting providers in four pediatric subspecialty services used the TPT during 303 patient encounters, with nurses and case-managers the top users and physicians the least likely users. Use was highest with intensive technical assistance and following the introduction of an upgraded tool. Provider satisfaction with the TPT and self-reported transition planning activities notably increased across the PDSA cycles.

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## Project Overview

ADVANCEMENTS IN MEDICINE have increased the likelihood that US children with chronic illnesses will survive childhood—subsequently 750,000 youth with special health care needs (YSHCN) transition to adulthood annually (American Academy of Pediatrics, American Academy of Family Physicians, & American College of Physicians-American Society of Internal Medicine, 2002; Goodman et al., 2011; Scal, Davern, Ireland, & Park, 2008).

As the medical condition becomes more convoluted, transition to adult health care also becomes more complex, resulting in increased morbidity and mortality (Annunziato et al., 2011; Brousseau, Owens, Mosso, Panepinto, & Steiner, 2010; Hersh, Pang, Curran, Milojevic, & von Scheven, 2009; Kelly, Kratz, Bielski, & Rinehart, 2002; Okumura, Hersh, Hilton, & Lotstein, 2013; Quinn, Rogers, McCavit, & Buchanan, 2010). Nevertheless, the expanded emphasis on health care transitions during the past decade has not resulted in measurable improvements in health care transition (HCT) planning (McManus et al., 2013). Therefore, children's hospitals and professional organizations are calling for structures and processes to improve HCT planning for YSHCN and their families (Cooley & Sagerman, 2011; National Association of Pediatric Nurse Practitioners, 2014;

\* Corresponding author: Constance M. Wiemann, PhD.  
E-mail address: cwiemann@bcm.edu.

Peters & Laffel, 2011; Texas Parent to Parent, 2015). In response to this need, Texas Children's Hospital (TCH) developed a transition planning tool (TPT) that serves two purposes: (1) it evaluates the patient and family condition-specific knowledge and skills and (2) it encourages teachable moments between the provider and patient, which facilitates HCT planning. Rather than developing a paper-based tool, TCH integrated the TPT into Epic, its electronic medical record (EMR). While the use of EMR-based planning tools to facilitate transition by pediatric providers is promising, evidence that providers will use these tools is lacking and worthy of investigation. Following Standards for Quality Improvement Reporting Excellence (Ogrinc et al., 2008), this paper describes steps taken to introduce the TPT and increase its use in four subspecialty services.

## Background

### Absence of Evidence-Based Guidelines for HCT Planning

HCT from pediatric to adult-based care represents both a vulnerable period and clear opportunity to alter the trajectory of health outcomes; yet, there is substantial evidence that HCT planning is not happening for many YSHCN and their families (Lotstein et al., 2009; Quinn et al., 2010). Guidelines have been developed for HCT planning in the pediatric medical home and the impact of these guidelines on HCT will require evaluation (McManus, Fox, O'Connor, Chapman, & MacKinnon, 2008). Children's hospitals provide care to many YSHCN with complex medical conditions and have the need to establish successful HCT programs. YSHCN with complex conditions are more likely to receive their care in children's hospitals, which often function as a medical home. This care can be fragmented if it occurs across multiple hospital and subspecialty clinic settings. Some hospitals have developed disease-specific HCT (Hankins et al., 2012), rather than large-scale hospital or system-wide implementation. Other hospitals have developed non-categorical HCT clinics that serve as a consultative or transition support service for a variety of conditions (McLaughlin et al., 2013; Woodward, Swigonski, & Ciccarelli, 2012). One limitation of the former approach is that HCT programs within a children's hospital typically operate in silos and for patients with complex medical conditions who are seen by more than one subspecialty; this limits the coordination of HCT planning activities across services. Care coordination has been linked to improved quality of care and cost savings (National Committee for Quality Assurance, 2011).

### Barriers to HCT Planning

Pediatric providers suggest a structured transition pathway needs to be built into the overall care plan as a part of routine outpatient visits (Clarizia et al., 2009; Telfair, Alexander, Loosier, Alleman-Velez, & Simmons, 2004; van Staa, Jedeloo, van Meeteren, & Latour, 2011). Incorporating HCT planning into a children's hospital is a cultural shift. Many pediatric providers recognize that their patients are living into adulthood and are concerned about the risk of morbidity/mortality

following poorly planned transfer to adult-based care, yet most have no training in HCT planning methods. Providers are looking for mechanisms to help prepare patients for medical self-management and for the cultural differences of the adult care world (Paine et al., 2014; Reiss, Gibson, & Walker, 2005; van Staa et al., 2011). To put these programs in place, institutional support is also needed to facilitate additional time during clinic appointments, staff availability, and financial backing (Clarizia et al., 2009; Scal, 2002; Woldorf, 2007). There is also a lack of adult primary care and specialist providers to whom YSHCN can be referred (Bryant, Young, Cesario, & Binder, 2011; Shaw, Southwood, & McDonagh, 2004). Even when an adult provider is identified, trust and communication between pediatric and adult providers are often sparse (Reiss et al., 2005; Telfair et al., 2004; van Staa et al., 2011). Pediatric providers also lack training in therapeutic termination of their relationship with patients they have cared for long-term, which may impede the formation of new relationships with adult providers (Reiss et al., 2005).

### Implementing Technology to Change Provider Behavior

Barriers to health care providers' uptake of practice recommendations are wide-ranging and include low awareness, disagreement or uncertainty, perceived time or resource burden or inconvenience, low access to sufficient resources, uncertainty of impact on patient outcomes or alignment with patient preferences, and low confidence about one's own ability to execute them (Cabana, Rand, Becher, & Rubin, 2001; Cabana et al., 1999; Foy et al., 2002; Klein et al., 2010; Ludwick & Doucette, 2009). Technology-based assistance including automated prompts, decision-supports, and documentation tools programmed into the electronic medical record, are increasingly available and designed to address many of the logistical and care process barriers to changing practice behaviors to align with guidelines (Abraham, Kannampallil, & Patel, 2014). Moreover, such programs have demonstrated efficacy in changing provider behaviors for numerous conditions and practice settings including: pediatric asthma diagnosis and treatment (Shiffman, Freudigman, Brandt, Liaw, & Navedo, 2000), adolescent cervical cancer screening (White & Kenton, 2013), and inpatient medication orders (Eslami, de Keizer, & Abu-Hanna, 2008). However, as with any change in practice, provider uptake and sustained use of these new technologies and tools remain a challenge (Carlfjord, Lindberg, Bendtsen, Nilsen, & Andersson, 2010; de Veer, Fleuren, Bekkema, & Francke, 2011; Doerr, Edelman, Gabitzsch, Eng, & Teng, 2014).

### Improvement Methods

The primary purpose of this paper is to describe the process of applying improvement science techniques to increase provider use of an EMR-based health care TPT in four subspecialty services of a large children's hospital. A second purpose is to describe provider satisfaction with the TPT and self-reported transition planning activities. The design of this project adheres to the Institute for Healthcare Improvement's Model for Improvement (<http://www.ihl.org/resources/Pages/HowtoImprove/default.aspx>). Improvement

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