

Texas Children’s Hospital Healthcare Transition Planning Tool

An Innovation Station Practice

Purpose: This document is intended to support MCH professionals to implement a practice found in Innovation Station. This resource provides the information needed to replicate the practice and is divided into two sections: the first section provides a high-level overview of the practice while the second section describes how to implement the practice. For additional information on any of the content provided below, please reach out to the practice contact located at the bottom of this document.

Section I: Practice Overview

Location:	Texas Children’s Hospital	Title V/MCH Block Grant Measures Addressed
Category:	Best	NPM #10: Percent of adolescents with a preventive visit in the last year NPM #11: Percent of children with and without special health care needs having a medical home NPM #12: Percent of children with and without special health care needs who received services necessary to make transitions to adult health care NPM #15: Percent of children 0 through 17 years who are adequately insured *Essential Public Health Services: 1, 3, 4, 5, 7, 8, 9, 10
Date Submitted:	September 2015; Updated March 2019	

Practice Description

Overall Goal(s): To improve transition readiness among adolescents/young adults with special health care needs (AYASHCN) through provider use of an electronic medical record (EMR)-based health care transition (HCT) transition planning tool (TPT), and in so doing, reduce the morbidity and mortality associated with transitioning from pediatric to adult-based care.

Purpose

Specific need for practice: AYASHCN are not prepared for HCT and there is no evidence, based on a national sample of parent of children and youth with special health care needs, that HCT planning improved between 2005 and 2010 (McManus et al., 2013). Pediatric health care providers are not prepared to assist in transition readiness for AYASHCN and their families, despite universally agreeing that it is an important gap in caring for these youth. Evidence-based methods to promote the successful transition of AYASHCN are needed.

Objective (s):

- To build an EMR-based TPT to facilitate HCT planning;
- To employ quality improvement methods to promote provider use of the TPT;
- To increase the number of AYASHCN who successfully transition to (attend their first adult provider appointment) and engage in adult-based care (attend ≥ 2 appointments); and
- To increase the number of AYASHCN who arrive at their adult appointment with a portable medical summary.

Practice Foundation

Two theoretical frameworks were used to develop and implement of TPT. The first framework is that good clinical outcomes could follow the establishment of structures and processes to facilitate those outcomes, a model developed by Donabedian (1966). Rather than providing a service to transition individual patients, the project's goal was to build a system-wide HCT infrastructure that could be used by all services to help patients prepare for successful transition. A HCT TPT, designed to identify and address gaps in knowledge/skills needed by patients to manage their disease in preparation for transition from pediatric to adult care, was built into the Epic EMR at TCH. The TPT consists of 13 core questions addressing key knowledge, skills and behaviors in disease self-management. When a patient masters a skill, knowledge or behavior, the clinician assigns them a successfully accomplished (SA) score for that question. The TPT ("structure") is currently accessible by every health care provider in every TCH inpatient, outpatient and community-based practice. Processes and outcomes associated with using the TPT are described under "Evaluation Process" below.

The TPT is also based on principals of learner-centered teaching. It is designed to be patient- and family-centered (Mead & Bower, 2000), in that it identifies what each patient (or family, for those patients who are cognitively or developmentally unable to participate in transition planning) knows about his/her disease and its management, provides resources to help ameliorate deficits in knowledge and skills, and is designed as a test of mastery. Upon using the TPT with patients, providers often comment that they did not realize what their patients did not know about the patient's disease. Without asking the patient-centered questions, providers incorrectly assumed the patients understood and could explain to others basic information about their condition.

Many characteristics of effective health education curriculum set forth by the CDC (Centers for Disease Control and Prevention, 2015) were utilized in planning and implementing the TPT. A partial list of these is included here; some specific examples are provided:

- Developing a tool that is research-based and theory-driven;
- Building personal competence and self-efficacy by addressing skills, such as learning to make a doctor's appointment and what constitutes an emergency and who to call;
- Providing functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors, such as knowing how to describe your illness to a friend and what medications you take and why;
- Providing age-appropriate and developmentally-appropriate information, learning strategies, teaching methods, and materials, that include 81 patient-centered transition-related handouts in English and 71 handouts in Spanish;
- A focus on clear health goals and related behavioral outcomes;
- Using strategies designed to personalize information to engage learners (patients and caregivers);
- Incorporating learning strategies, teaching methods, and materials that are culturally inclusive; and

- Providing opportunities to reinforce skills and positive health behaviors.

A literature search of published EMR-based TPTs was conducted using Pub Med and key words transition, youth, adolescents, chronic illness, and CYSHCN. The Maternal and Child Health Bureau's website and library (<http://mchlibrary.info/>) for TPTs and transition related material was also searched. There was a need to expand existing TPTs using methods to help rectify gaps in patients' and families' knowledge and skill in HCT planning identified during the process of preparing them for transition. A specialized TPT was developed in 2005 after two rounds of input from the hospital's Family and Youth Advisory Boards. The resulting TPT is an assessment and education tool designed to facilitate HCT planning during a clinic visit. The patient's and/or family's HCT knowledge and skills are assessed through dialogue initiated using standard questions. The questions were initially divided by patient age group: 11-13, 14-16 and ≥ 17 years of age, and moved from simple to complex. The first question in the 11-13 year old bracket was: "Can you tell me about your disease/disability?" If the patient does not provide a satisfactory explanation of their disease in the judgment of the clinician asking the question, then one or more of three education options is employed: 1) an explanation of the disease is given by a care provider; 2) a written fact sheet with an explanation of the disease is provided; or 3) a printed homework assignment is provided asking the patient to write the name of their disease/disability in the designated space, and write a short letter to a friend describing their disease/disability. At the next clinic visit, the homework assignment is reviewed and, if necessary, the question is asked again. For most TPT questions, there are attendant educational support materials to assist patients master the content and skills, as needed. The age categorization was eventually removed, as regardless of patient age, transition planning had to start with basic questions, such as "Can you tell me about your disease?" A subset of questions is available to use with parents/caregivers whose children are developmentally unable to participate. More information on this TPT is available upon request.

Core Components

From the very start, peer/stakeholder input and identifying and incorporating lessons learned have been integral parts of the process of developing, implementing, modifying, and evaluating the TPT. We highlight these experiences below and refer the reader to two recent publications describing lessons learned in building a hospital-wide transition program from pediatric to adult-based health care for youth with special health care needs (YSHCN) (Hergenroeder, Wiemann, & Bowman, 2015) and a quality improvement process of integrating an EMR-based TPT for YSHCN at a children's hospital (Wiemann et al., 2015).

- A needs assessment was conducted with TCH service chiefs in 2004. Sixty-nine percent of the respondents (9/13) indicated that their service routinely transitioned patients to a physician who cared for adult patients; 8% (1/13) had an unwritten protocol for transition; 46% (6/13) identified physicians to whom they refer their patients; and 83% (10/12) wanted help with transition planning. Committee members met with the hospital's Family Advisory Board, consisting of parents of YSHCN cared for at the hospital, and the Youth Advisory Board, consisting of YSHCN being treated at the hospital, about their knowledge of the hospital's HCT activities and their HCT needs.
- TPT user meetings and individual service provider meetings, held at least quarterly for the past 10 years have provided a continuous feedback loop on barriers to using the tool as well as a venue to share successful strategies to overcome them.

- Providers have completed four surveys every 6-8 months so that provider satisfaction with the TPT, perceived changes in transition provider planning activities since being introduced to the TPT, barriers to use, and suggestions for improvement could be assessed at timely intervals. Stakeholder input led directly to the development of an improved, streamlined version of the TPT (2.0) that is easier to locate in the EMR and use.

Practice Activities

Main Activities: The TPT is an assessment and education tool designed to facilitate HCT planning during a clinic visit in order to prepare AYASHCN and their families to transition to adult-based care. Implementation included training providers to use the tool, promoting and troubleshooting its use, and expanding its use in multiple hospital clinics as well as inpatient and community-based practice settings. Stakeholder feedback also helped to improve instructions on how to create a tool.

Core Component	Activities	Operational Details
Needs Assessment	Conducted a needs assessment with 13 TCH service chiefs and with family and youth advisory boards.	A needs assessment was conducted with TCH service chiefs in 2004. Sixty-nine percent of the respondents (9/13) indicated that their service routinely transitioned patients to a physician who cared for adult patients; 8% (1/13) had an unwritten protocol for transition; 46% (6/13) identified physicians to whom they refer their patients; and 83% (10/12) wanted help with transition planning. Committee members met with the hospital's Family Advisory Board, consisting of parents of YSHCN cared for at the hospital, and the Youth Advisory Board, consisting of YSHCN being treated at the hospital, about their knowledge of the hospital's HCT activities and their HCT needs. The needs assessment set the stage for establishing stakeholder investment in the project.
TPT user meetings	Meeting with user and services	TPT user meetings and individual service provider meetings, held at least quarterly for the past 10 years have provided a continuous feedback loop on barriers to using the tool as well as a venue to share successful strategies to overcome them.
Provider Surveys	Conducted provider satisfaction surveys	Providers completed four surveys every 6-8 months so that provider satisfaction with the TPT, perceived changes in transition provider planning activities since being introduced to the TPT,

		barriers to use, and suggestions for improvement could be assessed at timely intervals. Stakeholder feedback also helped to improve the TPT.
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Evidence of Effectiveness (e.g. Evaluation Data)

Measures of success/results: Structure, process and outcome measures included building the TPT in Epic; TPT use (provider uptake); provider satisfaction with the TPT and changes to the TPT structure based on feedback; changes in patient and family HCT knowledge and behavior; the number of AYASHCN who met the core transition outcome (Lotstein et al., 2009) and the number who transitioned to and engaged in adult care; and the use of a portable medical summary. Data demonstrate that providers will use and are satisfied with the TPT, and that its introduction has changed the culture of transition planning within the clinic setting. TPT use is associated with increased likelihood of meeting the core transition outcome, which is associated with attending a first adult appointment.

An ongoing evaluation focusing on structure, process and outcomes was established from the start. Over the past 10 years, grants from the Texas Department of State & Health Services (DSHS) (2009-2015) and Health Resources and Services Administration (HRSA) Children with Special Health Care Needs (CSHCN) program (2011-2014) have funded projects to promote and evaluate TPT use in four specialty clinics (Hematology, Retrovirology, Congenital Cardiac Disease and Physical Medicine and Rehabilitation); to expand the TPT use to the remaining TCH clinical enterprise; and to evaluate outcomes as youth transfer out of pediatric and into adult care. Later in this report, these four clinics are randomly referred to as Clinic A, B, C, and D for the sake of anonymity.

- **Structure** was evaluated by creating the TPT and verifying that it was available to providers throughout the TCH enterprise via the Epic EMR, and making modifications based on user feedback and patient outcomes.
- **Process** was evaluated by noting which providers attended user and individual service meetings; the number of providers who were trained to use the TPT and who actually used it; the number of patient encounters with TPT use and the number of “successfully accomplished” questions per patient; the number of outpatient services and community-based practices that used the TPT; provider satisfaction with TPT use; and improvements to the TPT over time.
- **Outcomes** included the number of transitioning youth who met the “core transition outcome” (Lotstein et al., 2009), the number of youth who transferred out of pediatric care who attended their first adult appointment (transitioned) and the number of youth who transferred out of pediatric care who attended at least two adult appointments (engaged), the number of transitioned youth who brought their portable medical summary to their adult doctor’s appointment.

Methods to promote TPT use and evaluate structure, process and outcomes

The methods used to evaluate and improve the TPT included Plan, Do, Study, Act (PDSA) cycles, incorporating weekly data reports on TPT use, weekly contact with the services using the TPT through email and support in clinic, regular meetings (every 6-12 weeks) with TPT users to obtain feedback, and interviewing youth and parents about their experiences during transition planning

and after transition to adult care. Five PDSA cycles, used to promote and evaluate the main process measure, TPT utilization, were carried out over a 35-month period:

- **PDSA 1** (March 2012-July 2012): Baseline phase that studied passive TPT use prior to formal study commencement.
- **PDSA 2** (August 2012-March 2013): Study providers (n=24) trained in TPT 1.0 use.
- **PDSA 3** (April 2013-November 2013): Increased frequency of study provider meetings to problem solve TPT usage barriers and increased technical assistance (we had 10 user meetings)
- **PDSA 4** (December 2013 – April 2014): TPT 2.0 was built into the EMR and made available to study providers (n=20), but promotion of its use was limited. This phase served as the baseline for TPT 2.0.
- **PDSA 5** (May 2014 – December 2014): TPT 2.0 training beyond existing users and services, as well as Epic Educators and Care Coordinators.

A subset of TCH patients treated by the four subspecialty services were enrolled in a study on HCT planning and eligible for initial TPT use. These study subjects were: 16-25 years with a special health care need, aware of his/her diagnosis, English speaking, and able to understand and answer questions. The target enrollment was 30 patients per service. Study patients were recruited between February 2012 and March 2013 (PDSA cycles 1 & 2). Of the 143 patients approached as they attended a scheduled clinic appointment, 109 agreed to participate – with 28 patients from Clinic A, 24 from Clinic B, 36 from Clinic C, and 21 from Clinic D.

Process

Utilization of the TPT was the primary process measure. The investigative team reviewed weekly Epic-generated TPT use reports across the four subspecialty clinics. This yielded the number of encounters with use (which includes face-to-face clinic visits and phone encounters) among age eligible study and non-study patients and the number of providers using the TPT. Qualitative information gathered during provider feedback sessions and from open-ended questions on provider surveys assessing barriers to use and suggestions for improvement were summarized as part of planning for the next PDSA.

Provider Satisfaction and Self-reported Transition Planning Activities were secondary process measures assessed by a survey administered in three different phases of the project. Satisfaction items were developed for this project using instruments from published studies on promoting EMR use (Rose et al., 2005; Sittig, Kuperman, & Fiskio, 1999). Providers used a 5-point scale (“very satisfied” to “very dissatisfied”) to report their satisfaction with items such as the ease of using the TPT; the flow between titles, topics, and teaching points; the TPT summary page (review flow sheet); the time it takes to utilize the TPT in clinic; and so forth.

Additional open-ended questions asked about barriers to use and suggestions for improvement.

Each survey also asked providers to evaluate a set of transition planning activities adapted from the Family-Centered Care Self-Assessment Tool (Family Voices, 2008). Using a rating scale of “never,” “some of the time,” “most of the time,” and “always,” providers responded to the prompt “Since starting to use the TPT, how often do you...” Sample items include: Help the patient learn about self-management of their health? Ensure the patient is knowledgeable about their diagnosis and current treatments? Confirm that the patient can discuss their diagnosis with an adult care provider? Help the family and patient develop a formal health care transition plan? Discuss with

the patient eventually seeing an adult care physician or other adult health care provider? Offer the patient the opportunity to be interviewed without parents or guardians present? On the first survey, providers provided a second set of responses using the same rating scale and the prompt “Looking back, prior to starting to use the TPT, how often did you...” A retrospective pretest was used because when compared to traditional pre/post self-assessments, retrospective pre/post ratings provide more sensitive and valid measures (Howard et al., 1979; Skeff, Stratos, & Bergen, 1992) and have been successfully used to evaluate interventions for health professionals (Khanna, Cheyney, & Engle, 2009; Laird-Fick et al., 2011; Yank, Laurent, Plant, & Lorig, 2013).

Outcomes

The TCH patients enrolled in the study completed baseline and follow-up questionnaires (about 12 months later) to assess key elements in successful transition planning for AYASHCN. These included questions assessing the **core transition outcome**: having discussions with a health care provider about future adult health care needs, finding an adult provider and securing health insurance, and encouraging young adults to take more responsibility for their care (Lotstein et al., 2009). The 2016 National Survey of Children’s Health stated that one of the three components of health care transition planning be that youth meet alone with their pediatric provider for transition planning (Lebrun-Harris, et al. 2018). Baseline and 12-month questionnaires also assessed the patients’ and caregivers’ perception of the transition process. Patients completed up to two post-transition questionnaires that asked them if they currently have an adult-based doctor they see for their diagnosis and whether they attended a **first appointment** brought their **Portable Medical Summary** to that appointment. They were also asked if they have seen their **adult provider more than once**. Methods to maintain contact with AYASHCN after leaving pediatric care included collecting detailed contact information, providing gift cards for completing each questionnaire to compensate them for their time, and communicating by phone and through email, text messaging and regular mail.

Outcomes

Structure

The TPT was made available to four services in 2012. This expanded to 36 services by 2019 and is currently available for use across the TCH enterprise, including all outpatient services, inpatient services, and community-based primary care practices. Improvements to the TPT as it moved from version 1.0 to version 2.0 are outlined in Table 1 below. Provider survey data identified that the majority (>90%) of study providers were satisfied with TPT 2.0; all reported that TPT 2.0, as compared to TPT 1.0, was easier and faster to use, has a better flow sheet to follow patients and is more accessible. There was broad uptake in all study and non-study services with relatively little technical assistance, in contrast to TPT 1.0, which required significant research team guidance.

Table 1: Improvements from TPT 1.0 to TPT 2.0		
Item Improved	TPT 1.0	TPT 2.0
Location in Epic	<ul style="list-style-type: none"> • Patient Education 	<ul style="list-style-type: none"> • Doc (Review) Flowsheets
Ease in accessing	<ul style="list-style-type: none"> • 3 screens to access 	<ul style="list-style-type: none"> • Front screen

Number of clicks per question	<ul style="list-style-type: none"> • 19 for first question; at least 10 for subsequent questions 	<ul style="list-style-type: none"> • 2-3 clicks per question
Status of HCT planning	<ul style="list-style-type: none"> • Not available 	<ul style="list-style-type: none"> • Separate HCT status buttons
View progress made	<ul style="list-style-type: none"> • 4 steps to review each question 	<ul style="list-style-type: none"> • Click on flowsheet to see HCT planning progress
Incorporate TPT notes into clinic note	<ul style="list-style-type: none"> • Not available 	<ul style="list-style-type: none"> • Cut and paste into clinic note

Since December 2013, we have gathered feedback from providers about what they would like to see improved in the third iteration of the TPT (TPT 3.0). These changes were implemented in early 2017 and are outlined in Table 2 below.

Table 2: Improvements from TPT 2.0 to TPT 3.0		
Items Improved	TPT 2.0	TPT 3.0
Review Flowsheet tab	<ul style="list-style-type: none"> • Don't know the name of the user or section doing HCT planning unless they enter it manually 	<ul style="list-style-type: none"> • Added department name to the Review Flowsheet • Added dot phrases to copy TPT use to the user's clinic note
Department & Billing Questions	<ul style="list-style-type: none"> • Not existent 	<ul style="list-style-type: none"> • Added new Department button and Billing Questions.
Portable Medical Summary (PMS)	<ul style="list-style-type: none"> • No easy way to identify if the PMS has been sent. 	<ul style="list-style-type: none"> • PMS accessible by patients via My Chart

Process

In our focused study of the four specialty services, 25 providers were trained to use the TPT over the course of the five PDSAs. Twenty-two (88%) trained providers used the TPT at least once during the study period with a total of 182 unique patients (77 study and 105 non-study) during 303 patient encounters. Among those providers with TPT use, the median number of uses was 8.5 (mean 13.9±17.5). TPT use rates varied by clinic, which we identify here. While Clinics A and B integrated the TPT into practice with the largest number of patients, 65 and 77, respectively, Clinic A had the highest average number of encounters in which the TPT was used per provider (19.0), followed by Clinic C (14.8), Clinic B (12.8), and Clinic D (3.0). There are notable distributions among providers according to their discipline: four case managers/social workers had 114 encounters with use (median=15, range=5-79); 102 uses by six nurses (median=15.5, range=3-37), 60 uses by nine physicians (median=5.0, range=1-18), and 30 uses by three others (median=12.0, range=2-16). Of note, the number of uses may be an underestimate of actual use as providers new to using the tool often reported forgetting to save their documentation after the first few times they used it with patients.

TPT use is reported aggregated across the four clinics in each PDSA cycle in Figure 1 below. The bars in each Figure 1 represent the number of study patient encounters with TPT use, as

well as the combined number of study and non-study patient encounters with TPT use. Use with study patients decreased over time. The research team expected this trend because study patients transitioned from pediatric to adult healthcare and recruitment stopped in March 2013 (Figure 1). TPT utilization was higher in PDSA 3 than the prior two PDSA cycles, following intensive targeted interventions by the research team. The most remarkable adoption of the TPT was observed following the dissemination of TPT 2.0 (PDSA 5).

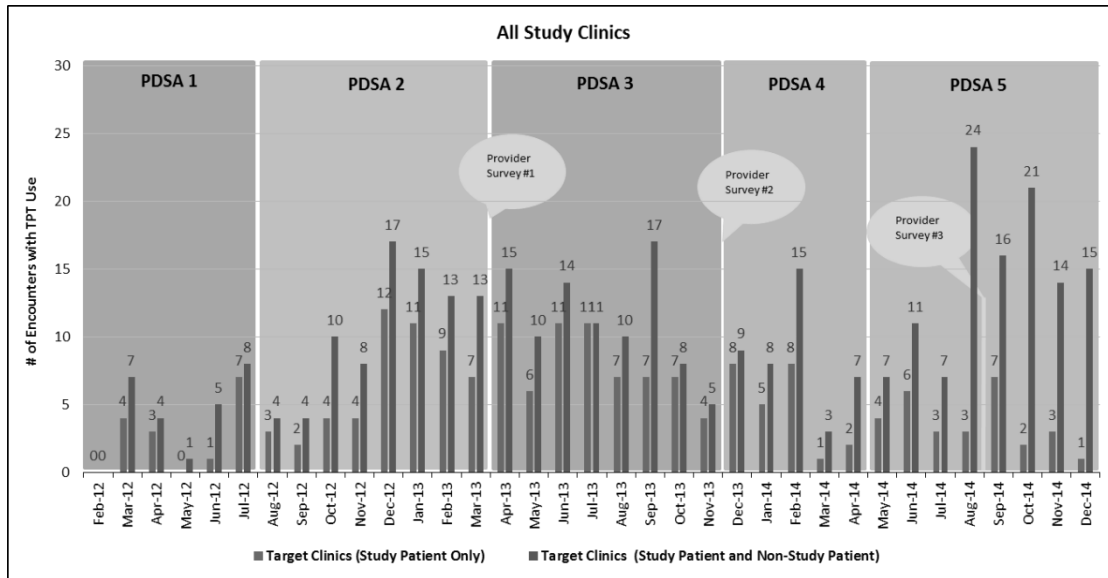


Figure 1. TPT utilization across all four study clinics

During the study period, the TPT was made available to the entire TCH clinical enterprise. Figure 2 illustrates TPT utilization across the same 35-month study period across both study and non-study services (20 services total).

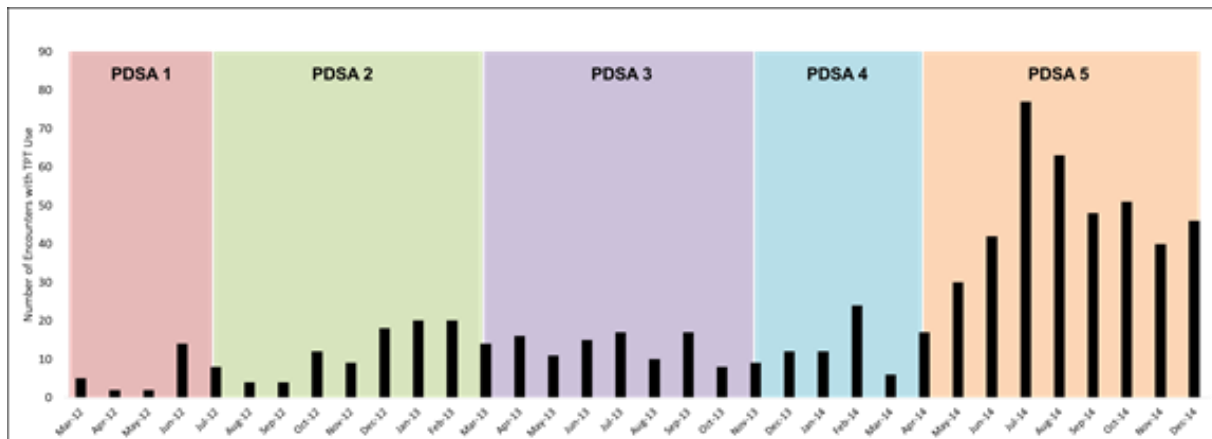


Figure 2. TPT utilization across the TCH clinical enterprise (total of 20 services).

Provider Survey: Satisfaction with the TPT

Twenty-one providers started PDSA 1. One provider left without completing any surveys. Four additional providers left their clinics during PDSA's 2, 3 or 4 and four new providers joined the project during PDSAs 3 and 4. A total of 18 of 20 (90%) providers completed Provider Survey #1 (end of PDSA 2), 17 of 20 providers (80%) completed Provider Survey #2 (end of PDSA 3), and 15 of 20 (75%) providers completed Provider Survey #3 (four months into PDSA 5). On average, at the end of PDSA 2, 51% of providers completing Survey 1 reported being satisfied with the ease of navigating TPT 1.0 (i.e., the flow between the questions, answers and action button; the tool summary page; and the accessibility of the tool). In contrast, by PDSA 5, user satisfaction with the TPT averaged 80% or greater on each satisfaction item. All providers reported TPT 2.0 was easier and faster to use, has a better flow sheet to follow patients and is more accessible as compared to TPT 1.0. These were accompanied by open-ended TPT 2.0 comments recorded on the survey, such as "It is so easy to use," "It is exactly what I needed," "The transition button is terrific," "Patients like it," and "My patient said it makes them think about what they need to know."

Provider Survey: Self-Assessed Transition Planning Activities

On Provider Survey #1, 57% of the providers, on average, reported that before they started using the TPT they most of the time or always understood the needs of patients transitioning into adulthood; offered the patient the opportunity to be interviewed without parents or guardians present; ensured the patient is knowledgeable about their diagnosis and current treatments; helped the patient learn about self-management skills; discussed with the patient eventually seeing an adult care provider; and assisted in helping families plan for support if the patient will be unable to independently manage their care. By PDSA 5, more than 80% of providers stated that they engaged in these transition planning activities with their patients. Provider comments during feedback sessions help interpret these findings. For example, asking the first TPT question "Tell me about your disease" helped providers realize what their patients did not know, which in turn, increased their understanding of the needs of their patients transitioning into adulthood.

Providers also comment that the TPT facilitates transition planning conversations. In the community-based primary care setting, the TPT provides a structure from which to conduct interdisciplinary huddles prior seeing patients.

Outcomes

An important outcome was to assess the impact of the use of the TPT on the "core transition outcome" (National Survey – CSHCN) and completion of the participants' first adult appointment. Participants (ages 16-25 years) recruited from the three specialty clinics between February 2012 and March 2013 completed a baseline questionnaire (n=88) and a follow-up questionnaire about 12 months later (n=74). All participants were followed for at least two years to determine their adult appointment completion status. Of the 88 participants, 44 have transferred out of TCH and their adult provider status is known: 35/44 (79.5%) transitioned to an adult provider and 9/44 (20.5%) have not. An additional 9/88 (10.2%) transferred out of pediatric care and it is unknown whether they have seen an adult provider; 25/88 (28.4%) were still being seen at TCH; 7/88 (8%) have not been seen at TCH during this period, yet we do not know if they have transferred to adult-based care; and 3/88 (3.4%) were deceased.

Of the 88 participants, the mean number of patient encounters with TPT use in those with at least one use (65/88, 73.9%) was 1.9 ± 0.9 times over 12 months. The mean number of successfully

accomplished questions in those with at least one SA (59/88, 67.0%) was 4.9 ± 2.7 . The number of TPT SA questions, but not the number of TPT uses, was related to the participant's perception of the core transition outcome being met ($p=0.035$). Those who met the core transition outcome were more likely to visit an adult provider (88.9%) compared to those who did not meet the core transition outcome (73.1%) ($p=0.186$).

Replication

TPT 2.0 was initially piloted in December 2013 in five services. Since then it has become a core structural element in TCH's overall HCT efforts. It has been used by 36 TCH services/clinics, yielding 7,588 TPT encounters with 1,247 patients by 173 providers. TPT use has also expanded from outpatient main campus use to use across the entire TCH enterprise, which includes inpatient community-based primary care clinics. Provider disciplines who used the TPT have included physicians, psychiatrists, nurse practitioners, psychologists, registered nurses, social workers, dietitians, case managers, fellows, and residents.

The TPT is also available as an Epic Clinical Program. As of April 2014, the Transition Planning Tool Epic Clinical program document has been downloaded 215 times by 109 healthcare systems across the nation.

Section II: Practice Implementation

Internal Capacity

An inter-disciplinary team consists of a project director (adolescent medicine physician), research faculty, quality improvement specialist, the parent of a young adult with special health care needs, transition project manager, transition research coordinator, and an administrative coordinator lead this quality improvement initiative.

Collaboration/Partners

A Quality Improvement specialist served as coach and data analyst and helped to generate run charts from Epic data reports and offered guidance on integrating QI principles into the research design (e.g., utilizing process maps, key driver diagrams, or applying the Kirkpatrick's Training Evaluation Model). Since the initial implementation of the TPT, uptake has increased from 13 services to 36 service across the TCH enterprise.

Practice Cost

Budget			
Activity/Item	Brief Description	Quantity	Total
Project Director	Project oversight	1	0.20 FTE
Research Director	Oversee data collection	1	0.20 FTE
Project Manager	Monitor project implementation, goals, objectives, coordination of	1	0.50 FTE

	clinics, in service training on project tools and data collection		
Transition Research Coordinator	Responsible for data collection and analysis	1	0.50 FTE
Total Amount:			1.40 FTE

Practice Timeline

Practice Timeline				
Phase	Description of Activity	Date/Timeframe	# of hours needed to complete/oversee activity	Person(s) Responsible
Planning/ Pre-implementation	Conduct a needs assessment with service chiefs	Year 1, 12 months	0.5 FTE	Project Manager
	Conduct a needs assessment with family and youth advisory boards	Year 1, 12 months	0.5 FTE	Project Manager
Implementation	Passive Phase: Launch TPT 1.0 without formally training study providers	Year 2, 6 months	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator
	Train and provide ongoing TPT 1.0 technical assistance with study services/providers	Year 2 – 3, 8 months	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator
	Monitor TPT use and continue to provide technical assistance	Year 3 8 months	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator
	Meet quarterly with study services or individual study providers to provide TPT technical assistance to overcome TPT usage barriers	Year 3-4 5 months	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator

	Expand use of the TPT to outpatient and inpatient clinics and community-based practice settings	Year 4 7 months	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator
Sustainability	Continue to meet with services to provide technical assistance and provide transition process support	Ongoing	0.20 FTE 0.20 FTE 0.50 FTE 0.50 FTE	Project Director, Research Faculty Project Manager, Transition Research Coordinator

Resources Provided

1. AC Hergenroeder and CM Wiemann (Eds.) Health Care Transition: Building a Program for Adolescents and Young Adults with Chronic Illness and Disability, First Edition, Springer International AG, 2018.
2. Wiemann CM, Hergenroeder AC. Employing Healthcare Transition Planning Tools. In: AC Hergenroeder and CM Wiemann (Eds.) Health Care Transition: Building a Program for Adolescents and Young Adults with Chronic Illness and Disability, First Edition, A.C. Hergenroeder & C.M. Wiemann, (eds). Springer International AG, 2018: 129-138.
3. Hergenroeder AC, Wiemann CM, Bowman VF. Lessons learned in building a hospital-wide transition program from pediatric to adult-based health care for youth with special health care needs (YSHCN). *Int J Adolesc Med Health*. 2015 Sep 11. pii: /j/ijamh.ahead-of-print/ijamh-2015-0048/ijamh-2015-0048.xml. doi: 10.1515/ijamh-2015-0048.
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5. Hergenroeder AC, Wiemann CM. Texas Children's Hospital Innovates and Collaborates in Transition. AMCHP's Pulse newsletter, submitted March 2015.
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8. *Helping Patients Plan the Transition from Pediatric to Adult-Based Care*, an Epic Clinical Program available for download by Epic users on the Epic UserWeb. <https://galaxy.epic.com/?#Browse/page=1!68!600!1733006>
9. 81 transition-related patient education handouts are available, with 71 of these available in Spanish. These documents have been uploaded to the TCH Epic server for access by TPT users.

Lessons Learned

Lessons learned in the process of building a hospital-wide healthcare transition (HCT) planning infrastructure that could help patients transition from pediatric to adult-based care regardless of disease/disability were identified and described in a recently published peer-review paper (Hergenroeder et al., 2015), and are summarized here. A solid foundation on which to build a hospital-based HCT planning program includes: focusing on structure and processes needed to facilitate medical transition; conducting a baseline assessment of current transition policy/practice; building an understanding of the complexity and necessity of transition planning; identifying advocates for transition planning and adult providers who will accept youth with chronic medical conditions; and establishing methods to evaluate transition program building activities. The implementation of any HCT program will depend on creating a culture that expects successful HCT to be the culmination of successful pediatric care. Hospital support (resources, staff training and an expanded infrastructure into which the program can fit) is necessary for a sustainable HCT planning program.

Next Steps

Next steps include expanding implementation of the TPT to other health care systems, including hospitals and community practices that use the Epic electronic medical record platform. We also plan to extend our evaluation of the TPT to include process and clinical outcomes reflecting the extent to which use the TPT helps prepare youth and young adults to successfully transition to adult-based care.

Practice Contact Information

For more information about this practice, please contact:

- *Name: Blanca Sanchez-Fournier*
- *Phone Number: 832-822-0606*
- *Email: blancas@bcm.edu*