

# Care Coordination Measurement Tool<sup>©</sup> Adaptation and Implementation Guide

The Care Coordination Measurement Tool (CCMT) is of value to all that are attempting to quantitatively describe care coordination activities and outcomes. The tool collects data that connect care coordination activities to occurred and prevented outcomes, i.e. what occurred for patient/family and what was prevented because care coordination was provided. It also collects data that provide information on time and staff needed to complete the care coordination activities. It is adaptable and can be used in both clinical and nonclinical settings.

## Introduction

The Care Coordination Measurement Tool (CCMT) is useful in measuring the value of care coordination activities and outcomes. The CCMT allows individuals to track care coordination activities currently implemented but not quantitatively tracked or reimbursed, as well as occurred and/or prevented outcomes related to the activities. The tool therefore informs both the true cost and value of care and allows individuals to quantitatively demonstrate how successful care coordination leads to cost-savings and better outcomes for patients and their families. The core tool can be adapted to fit the needs of various entities including pediatric and adult ambulatory, in-patient, research and family-partner settings, such as *Family Voices* state chapters.

## Development of adapted tool

The CCMT is best utilized when it is tailored for each individual setting. The current CCMT is a template. Users should review domains listed below and accompanying suggestions in the appendix. Included in this section is a short guide of recommended steps to take in developing a tailored version of the CCMT that will work best in your own setting.

### **Step 1: Review domains and accompanying appendices**

Consider what elements listed in the domains and appendices are relevant to work that is being done by those who will be using the CCMT in your program/institution. These should then be included in your CCMT.

*Questions to consider: 1) Is this applicable to what we do? 2) How will the data collected by this question be used?*

### **Step 2: Brainstorm additions to the tool**

Collect qualitative data. The CCMT is meant to track care coordination activities that are currently performed but are not necessarily tracked. Therefore, before you start adapting the tool, it is helpful for the individuals who will be completing the tool to spend time writing down care coordination activities and outcomes that occur routinely. This will then inform the CCMT adaptation process.

Additional response options should be developed based on care coordination activities in your particular setting. Below are some examples:

- A) One type of modification is taking a general response and specifying exactly what it is that your group is doing. In example #1: maybe you communicate with Early Care/Head Start Programs on a regular basis or you communicate frequently with DPH or DCF
- 1.) Core Tool: 3h. Communication with a community agency/educational facility/school [via telephone/email]
    - Adaptation: Communication with Early Care/Child Care/Head Start
    - Adaptation: Communication with Public Health Agency
  - 2.) Core Tool: 3q: Connection to family navigator/family support group
    - Adaptation: If your group regularly refers to a) a family navigator or even a local advocacy/family support organization (i.e. Family Voices), you could specify that in your tool
  - 3.) Core Tool: 3n. Referral management or appointment scheduling
    - Adaptation: Referral Tracking
- B) Another type of modification is adding a new response option.
- 1.) Outcomes Occurred: Adding “Respite Care Arranged”

### **Step 3: Develop a set of definitions for terms used in the CCMT**

This is to ensure that everyone completing the CCMT is using the same definitions of terms used in the CCMT so that the CCMT is measuring activities in the same way independently from who is completing the tool.

- Examples of definition for “patient level-complicating family/social issues”: Language/cultural barriers, Poverty/Unemployment, Homelessness, Department of Children and Families (DCF) involvement
- Examples of definition for “Outcomes Occurred-Medication-related discrepancies reconciled”: when clinical guidance is provided over phone specifically to solve medication-related issue, i.e., if caregiver and health care delivery system are not aligned on type of medication, dosage, frequency of administration *or* if patient is missing medication/needs refill
- Examples of definition for “secured prior authorization for patient”: filling out an insurance prior authorization form, speaking to insurance company, writing letter of medical need for insurance authorization.

### **Step 4: Develop a draft tool**

Pilot test the draft tool for at least a week in a paper version. Most likely, you will identify things that you would like to add to the tool or remove categories that are not relevant.

### **Step 5: Validate the tool**

This step is to ensure that, if multiple people are collecting data with the tool, they are using the CCMT in the same way. This is what we refer to as “inter rater reliability”. This step may not be applicable in all situations, but is generally useful and could be required based on the goal of the CCMT utilization. General steps taken by users to achieve inter-rater reliability for their CCMT adaptation are the following:

- (1) Develop a set of definitions for users of your adapted CCMT (Step 3)
- (2) Create a set of vignettes each describing different care coordination needs of a patient/family and different activities performed
- (3) Engage multiple CCMT users in the process of completing the adapted CCMT for the vignettes
- (4) Calculate inter-rater reliability
- (5) Potentially adapt the tool and/or the set of definitions based on the results

### **Implementation of adapted tool**

The CCMT can be implemented in a variety of different ways, however, based on experience, the following is recommended:

1. The CCMT is most easily utilized when developed into an electronic data capture tool. [Examples: REDCap, Qualtrics, Survey monkey].
2. The CCMT should not be used to capture every care coordination encounter as this will result in unnecessary burden to those performing the care coordination activities. Recommended data collection is to select a time period in which to collect data. For example: 1 week every quarter; the first 10 encounters a week for a month, etc. Currently, there is no recommended amount of completed CCMTs to accrue sufficient amounts of data.
3. One CCMT form (or survey) is intended to be used per care team member per patient per “encounter”. An encounter is defined as the time from identification of a new care coordination need to either 1) resolution of need or 2) decision to handoff need to another care team member (therefore ending the encounter for that particular care team member).
4. It is important to identify the goal(s) of collecting data using the CCMT. Below are the two main domains.
  - Quality Improvement
    - Questions to consider: is everyone working to the top of their license/ training? Is there duplication of tasks? Are there gaps in service provision? Can activities be delegated to some else on team to ensure every team member’s skill set is being optimized?
  - Inform financing mechanisms
    - Questions to consider: how much does effective care coordination COST and how much does effective care coordination save? How can data be used to support the “value proposition” of care coordination, or, the concept that care coordination adds value by improving patient outcomes and reducing overall cost?

## Domains of tool

Domain #	Domain Name	Domain Definition
1	Patient Level	Stratification of patient population-including medical, behavioral and social determinants.
2	Care Coordination Needs	Category of care coordination service delivery needs.
3	Care Coordination Activities	Description of activities performed to fulfill care coordination need for patient/family.
4	Occurred Outcomes	Value capture domain- outcomes that occurred due to effective care coordination service delivery.
5	Prevented Outcomes	Value capture domain- consider potentially adverse outcomes prevented due to effective care coordination service delivery.
6	Time	Calculate total time of care coordination encounter- include identification to resolution of care coordination as part of encounter.
7	Staff Type	If more than one person is completing the tool within a care team, this domain allows stratification of activity by staff type.
8	Clinical Competence	For clinical team members, this domain captures if clinical competence was required to complete the care coordination activities listed. The purpose of this domain is to determine if staff activities are properly allocated, or, if everyone is working "to the top of their license".

## Appendices

	Domain	Suggested Response Options Included	Notes
1	Patient Level	1a. Child/Youth with Special Health Care Needs* –with complicating family/social issues 1b. Child/Youth without Special Health Care Needs- with complicating family/social issues 1c. Child/Youth with Special Health Care Needs- without complicating family/social issues 1d. Child/Youth without Special Health Care Needs- without complicating family/social issues 1e. Interpreter needed 1f. Interpreter not needed	
2	Care Coordination Needs	2a. Clinical or Medical Management related to [THIS] clinic (including education about medical or behavioral condition) 2b. Mental/Behavioral/Developmental Health 2c. Referral and Appointment Management 2d. Educational 2e. Social Services (housing, food, transportation) 2f. Financial/Insurance 2g. Advocacy/Legal/Judicial 2h. Connection to Community/Non-Medical Resources 2i. Prior Authorization	
3	Activities to Fulfill Needs	3a. Pre-visit review 3b. Patient education/anticipatory guidance 3c. Communication with family [via telephone/email] 3d. Communication with an internal clinic team member [via telephone/email/in-person] 3e. Communication with an external health care provider, hospital, or care team member [via telephone/email] 3f. Telehealth encounter 3g. Update of clinical chart [electronic medical record system] 3h. Communication with a community agency/educational facility/school [via telephone/email] 3i. Reviewed labs, diagnostic tests, notes, IEP 3j. Form processing (school, camp, etc.) 3k. Research of clinical/medical question 3l. Research of non-medical question/service/etc. 3m. Development/modification of care plan 3n. Referral management or appointment scheduling 3o. Prescription/supplies order placement 3p. Secured prior authorization for patient 3q. Connection to family navigator/family support group	

4	<p>Occurred Outcomes <i>(what occurred for patient/family because care coordination was provided)</i></p>	<p>4a. Medication-related discrepancies reconciled            4b. Medication treatment adherence            4c. Non-medication-related discrepancies reconciled, adherence to care plan            4d. Ability for family to better manage at home care and treatment due to education/guidance provided virtually            4e. Modification of medical care plan (testing, medication, etc.)            4f. Modification of care plan [non-medication component] to reduce unnecessary family burden/stress; increase adherence to care plan            4g. Scheduled necessary clinic visit [for THIS clinic]            4h. Specialty referral            4i. Necessary ER referral            4j. Referral to community agency            4k. Prior Authorization completed            4l. Prescription/medical supplies ordered</p>	
5	<p>Prevented Outcomes <i>(what was prevented for patient/family because care coordination was provided)</i></p>	<p>5a. Abrupt discontinuation of medication by family/caregiver due to prior authorization requirement            5b. Non-adherence to treatment plan due to misunderstanding between care team and family            5c. Medication error            5d. Presence of adverse medication side effects unnoticed by family/clinic team            5e. ER Visit            5f. Unnecessary clinic visit [for THIS clinic]            5g. Unnecessary specialist visit            5h. Missed clinic visit            5i. MD/NP call to the family            5j. Unnecessary lab/test [prevented duplicative testing]            5k. I don't know**</p>	
6	<p>Time</p>	<p>6a. less than 5 minutes            6b. 5-9 minutes            6c. 10-19 minutes            6d. 20-29 minutes            6e. 30-39 minutes            6f. 40-49 minutes            6g. 50+ minutes (please note actual time): _____</p>	<p>Based on goal of collecting data, it could be useful to, in addition to collecting data on overall time, also collect data on "time spent on clinical activities". This would be useful if part of goal is to understand if set of activities could be divided among clinical and non-clinical team members to improve productivity.</p>

7	Staff type	7a. RN (Nurse) 7b. NP (Nurse Practitioner) 7c. PA (Physician Assistant) 7d. MA (Medical Assistant) 7e. Administrative 7f. Care Coordinator 7g. Social Worker 7h. Physician	
8	Clinical competence	8a. Clinical competence required 8b. Clinical competence not required	

\* Children with special health care needs (CSHCN) is defined by US Maternal and Child Health Bureau as “those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally”.  
[<http://childhealthdata.org>]

\*\* If you are unsure about what you prevented, you may select “I don’t know” as an option.

**Thank you to the following individuals for their expert review of this guide:**

Jennifer McCrave, RN  
Boston Children’s Hospital

Lori Parker-Hartigan, ND, RN, CPN  
Boston Children’s Hospital

Louise Vaz, MD, MPH  
Doernbecher Children’s Hospital  
Oregon Health & Science University

Sonja Ziniel, PhD, MA  
Children’s Hospital Colorado  
University of Colorado

© Boston Children’s Hospital, 2017. For permission to use, please contact: [Richard.Antonelli@childrens.harvard.edu](mailto:Richard.Antonelli@childrens.harvard.edu)  
The National Center for Care Coordination Technical Assistance is working in partnership with the National Center for Medical Home Implementation (NCMHI) in the American Academy of Pediatrics. The NCMHI is supported by the Health Resources and Services Administration (HRSA) of the United States Department of Health and Human Services (HHS) grant number U43MC09134.