2021-01 Care Coordination Track

- Short Description
- Long Description
- Agenda
- Type
- Submitting Work Group/Project/Accelerator/ Affiliate/Implementer Group
- Proposed Track Lead
- Related Tracks
- FHIR Version
- Specification(s) this track uses
- Artifacts of focus
- Clinical input requested (if any)
- Patient input requested (if any)
- Expected participants
- Zulip stream
- Zoom Link
- Track Orientation Date
- Track Orientation Details
- Track Details

Short Description
This track will be hosted by the Multiple Chronic Conditions (MCC) eCare Plan Project and the Logica Care Management Project. The goal is to continue testing of the MCC eCare plan FHIR IG and SMART on FHIR Apps (provider and patient-facing) and the Logica Health Care Management project with guidance on model-driven design and execution of clinical guidelines and pathways. The track builds on a successful series of connectathons testing specifications to support the development and exchange of FHIR based Care Plans and applying evidence-based clinical practice guidelines at the point of care to create and share person-centered care plans and to manage their ongoing care.

Long Description
The Agency for Healthcare Research and Quality (AHRQ) defines care coordination as the activity that "involves deliberately organizing patient care activities and sharing information among all the participants concerned with a patient's care to achieve safer and more effective care. This means that the patient's needs and preferences are known ahead of time and communicated at the right time to the right people, and that this information is used to provide safe, appropriate, and effective care to the patient".

The Care Coordination track focuses on patient and person-level information exchange across acute, ambulatory, post-acute care settings, community-based organizations, and patient digital mobile devices with the goal of generating, sharing, and updating an electronic care plan to support multiple chronic conditions (MCC). Care coordination helps facilitate the appropriate and efficient delivery of health care services both within and across clinical and non-clinical systems. Care coordination activities align with and support the following:

- Clinical Decision Support (CDS): focuses on applying evidence-based clinical practice guidelines at the point of care
- Electronic Long-Term Services and Supports (eLTSS) and Post-Acute Care Transitions: focuses on supporting access to longitudinal information to help inform clinical decision making and promote coordinated patient care; improving discharge planning and health information exchange; and enabling data comparison across healthcare settings
- Social Determinants of Health (SDOH): focuses on the capture and exchange of social risk data within clinical care settings (refer to Gravity SDOH track)

Computable clinical practice guidelines (CPGs) and pathways help deliver actionable knowledge at the point-of-care and support evidence-based care planning and coordination among all participants in a patient’s care team. This track will evaluate, test, and demonstrate implementation guidance that leverages the strengths of both HL7 and OMG standards to deliver evidence-based care recommendations integrated into the clinical workflow.

The goals for this track are:

- Create and update MCC eCare Plan in provider facing SMART on FHIR App
- Expose MCC eCare Plan to patient-facing SMART on FHIR App
- Evaluate and test methodology to transform BPM+ decision models to HL7 FHIR Clinical Reasoning artifacts
  - Test case focused on COVID-19 ED Severity risk assessment and classification
  - Create patient-specific intervention and add to a patient's care plan
- Create or update patient-specific care plans to coordinate care between primary care and specialists, different provider organizations, and with patients and caregivers.
Please view the Proposed Connectathon Schedule: Please note the connectathon schedule is in the Pacific Standard Time.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Agenda</th>
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<tbody>
<tr>
<td>January 14, 2021</td>
<td>9:00-9:30 AM PT</td>
<td>Care Coordination Kick-Off: Presented by Evelyn Gallego, Katiya Shell, and Dave Carlson: Connectathon 26 Care Coordination Track Kick Off 20210114 Final.pptx</td>
</tr>
<tr>
<td></td>
<td>9:30-11:00 AM PT</td>
<td>eCare Plan for People with Multiple Chronic Conditions (MCC) FHIR IG and SMART on FHIR Apps Testing: Presented by Jerry Goodnough and Joe Bormel 2021-01-14 MCC eCare Plan - Overview of MCC FHIR IG.pdf</td>
</tr>
<tr>
<td></td>
<td>11:00-11:30 AM PT</td>
<td>Break</td>
</tr>
<tr>
<td></td>
<td>11:30-1:00 PM PT</td>
<td>Model-Driven Clinical Practice Guidelines (CPGs) using DMN, CQL, and FHIR: Presented by Sean Muir and Ken Lord</td>
</tr>
<tr>
<td></td>
<td>1:00-2:00 PM PT</td>
<td>Lunch break</td>
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<td></td>
<td>2:00-3:30 PM PT</td>
<td>Implementing Clinical Practice Guidelines (CPGs) with CPG-on-FHIR IG and CQL: Presented by Dave Carlson</td>
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<tr>
<td></td>
<td>3:30-4:00 PM PT</td>
<td>Break</td>
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<td></td>
<td>4:00-5:00 PM PT</td>
<td>Care Coordination and Clinical Reasoning joint session broadcasted from the clinical reasoning track</td>
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<tr>
<td>January 15, 2021</td>
<td>9:00-10 AM PT</td>
<td>Day two welcome</td>
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<tr>
<td></td>
<td>9:10-11:10 AM PT</td>
<td>Clinical Practice Guidelines (CPGs): transforming from OMG BPM+ to HL7 CPG-on-FHIR: Presented by Sean Muir</td>
</tr>
<tr>
<td></td>
<td>11:10-11:30 AM PT</td>
<td>Break</td>
</tr>
<tr>
<td></td>
<td>11:30-12:30 PM PT</td>
<td>eCare Plan for People with Multiple Chronic Conditions (MCC) SMART on FHIR Apps Testing: Presented by Jerry Goodnough: ArchitectureRaw.pptx</td>
</tr>
<tr>
<td></td>
<td>12:30-1:30 PM PT</td>
<td>Recap on Lessons learned from the connectathon</td>
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<tr>
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<td>2:00-2:15 PM PT</td>
<td>Track Highlight found here: Care Coordination Track Highlight Connectathon26 Final pplx.pptx</td>
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**Track Prep Meetings Prior to connectathon**

The track will conduct the following meetings to prep for the connectathon. The meeting will be held on the patient care workgroup calls at 5 PM ET on Wednesday

Planning meetings Agenda and Coordinates can be found here: MCC Meeting Minutes

<table>
<thead>
<tr>
<th>Date</th>
<th>Agenda</th>
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<tbody>
<tr>
<td>December 9, 2020</td>
<td>Tentative: Track Orientation</td>
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<td>To view the slides click here to view the recording click here</td>
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<tr>
<td>December 16, 2020</td>
<td>Tentative: Identify Resources/Profiles, scenarios, test data, and test scripts</td>
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<tr>
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<td>To view the slides click here and to view the recording click here</td>
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<tr>
<td>January 6, 2020</td>
<td>Tentative: Review the FHIR IG, Github, and review tracks logistic</td>
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<td>To view the slide deck and notes click here</td>
</tr>
</tbody>
</table>
| Submitting Work Group /Project/Accelerator/Affiliate/Implementer Group | • NIDDK/AHRQ MCC eCare Plan Project  
• Logica Care Management IG project  
• OMG BPM+ Health |
|---|---|
| Proposed Track Lead | Evelyn Gallego evelyn.gallego@emiadvisors.net  
Katiya Shell katiya.shell@emiadvisors.net  
Dave Carlson dave.carlson@bookzurman.com |
| Related Tracks | Clinical Reasoning Track  
Gravity SDOH CC Track |
| FHIR Version | FHIR R4 |
| Specification(s) this track uses | • MCC IG: [https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/index.html](https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/index.html)  
• HL7 FHIR Clinical Guidelines IG (CPG-on-FHIR): [http://build.fhir.org/ig/hl7/cqf-recommendations/](http://build.fhir.org/ig/hl7/cqf-recommendations/)  
• OMG BPM+ clinical pathways  
  • [https://www.bpm-plus.org](https://www.bpm-plus.org)  
  • Plus, OMG MDMI 2.0 standard for mapping pathway data elements to FHIR data sources  
• HL7 CDS Hooks & SMART-on-FHIR apps  
  • Present guideline recommendations within EHR clinician workflow  
  • Engage patients in shared decision making and self-management of chronic conditions |
| Artifacts of focus | Care Planning  
• MCC eCare Plan Profile: [https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/StructureDefinition-mccCarePlan.html](https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/StructureDefinition-mccCarePlan.html)  
  • Note: MCC is re-using US Core profiles, STU3 Release 3.1.1 [http://www.hl7.org/fhir/us/core/](http://www.hl7.org/fhir/us/core/)  
• Chronic Kidney Disease Condition Profile: [https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/StructureDefinition-ChronicKidneyDisease.html](https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/MCC-IG/StructureDefinition-ChronicKidneyDisease.html) - as the core of the care plan (CarePlan.addresses)  
  • CarePlan.activity.outComeReference, referencing MCC defined conditions and labs  
  
  
  
  | Care Management  
  • FHIR PlanDefinition  
  • FHIR ActivityDefinition  
  • FHIR Library (containing CQL logic)  
  • FHIR ValueSet  
| Clinical input requested (if any) | • Health and social services integration within a clinical care setting  
• Hoping for support and participation from EHR actors  
• Need assistance with populating certain scenario information into the EHR sandboxes |
| Patient input requested (if any) | Patient/caregivers perspective on patient application needs and capabilities |
| Expected participants | Attendance sheet found here  
Connectathon Track Participation Sign Up  
AHRQ, Allscripts, Apervita, Cognitive Medical Systems, EMI Advisors, InterSystems, Mayo, NIH NIDDK, Philips, RTI, Veterans Health Administration |
| Zulip stream | Participants can follow the Zulip chat: [https://chat.fhir.org/#narrow/stream/220328-Care-Plan.2FCare.20Coordination](https://chat.fhir.org/#narrow/stream/220328-Care-Plan.2FCare.20Coordination) for relevant information |
| Zoom Link | |
Track Details

COVID-19 Clinical Guideline and Decision Support

This scenario is based on an active, open-source project underway as part of the COVID-19 Healthcare Coalition. The ED COVID-19 Severity Classification project has been developed with the involvement of the American College of Emergency Physicians (ACEP).

For adults presenting to the Emergency Department (ED) with possible or confirmed COVID-19, provide a Clinical Practice Guideline and decision support tool that helps classify patient disease severity, and give guidance on appropriate disposition. This tool will be accessible by emergency physicians in a workflow-friendly manner to assist in the management of their patients in several ways:

- Diagnostic workup – can be accessed early in the encounter of a patient with suspected or confirmed COVID to determine appropriate diagnostic testing.
- Disposition – can be accessed after diagnostic testing has been performed to determine the safest disposition for the patient.
- Resource Anticipation – the algorithm is structured to be able to be run in the background and have data presented on an ED or Hospital Tracking Board to be able to anticipate resource and bed needs.

Connectathon testing will focus on “data enrichment” as a part of the CPG logic that computes derived data values from available clinical data, and then uses those derived values as an input for decision strategies and patient care recommendations. An active group of participants is meeting weekly to analyze and refine these patterns for CPG representation and their application to this COVID-19 use case. See our meeting minutes for recordings of prior meetings.

This use case is covered in three scheduled track sessions:

Session 1: Model-Driven Clinical Practice Guidelines (CPGs) using DMN, CQL and FHIR

- Evaluate use of OMG DMN modeling tools for platform-independent, clinician friendly view of CPG decisions
- Map DMN decision tables to FHIR resource queries and CQL logic for implementation and execution
- Supporting models and resources are in the OpenCPG GitHub repository
- Template for building out an FHIG IG that references the clinical practice guideline FHIR IG and access to the ATOM editor CqFramework GitHub repository

Session 2: Implementing CPGs with HL7 CPG-on-FHIR IG and CQL

- Work through implementation and testing of ACEP COVID-19 CPG using CQL
- Use CPG-on-FHIR IG to produce patient-specific care plan interventions
- This work-in-progress CQL and associated CPG-on-FHIR artifacts are on GitHub in the COVID-19 ED implementation guide

Session 3: Transforming CPGs from OMG BPM+ to HL7 CPG-on-FHIR

- Evaluate and test an open-source toolchain to transform DMN model of ACEP COVID-19 guideline to CPG-on-FHIR implementation using CQL
- Supporting models and open source tools are in the OpenCPG GitHub repository

MCC eCare Plan Scenarios

System roles:

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role</th>
<th>Participant Name/ Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PMEHR</td>
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<tr>
<td>2</td>
<td>Provider App</td>
<td>MCC SMART on FHIR App, PatientShare by Patient Centric Solutions</td>
</tr>
<tr>
<td>3</td>
<td>Patient App</td>
<td>MCC SMART on FHIR App, PatientShare by Patient Centric Solutions</td>
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<tr>
<td>4</td>
<td>Clinical Practice Guideline Designer</td>
<td></td>
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<tr>
<td>5</td>
<td>Clinical Practice Guideline Implementer</td>
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General Data
### Scenarios

**Scenario Step 1 Name:** Retrieve Patient’s Chronic Kidney Disease Care Plan from an EHR

**Profile**
- Chronic Kidney Disease Care Plan

**Data Element**
- CarePlan.addresses: SliceChronicKidneyDisease

**Sample Data**
- Patient has chronic kidney disease (CKD) and has a CKD Care Plan in the reference EHR

**Code**
- SNOMED CT: 709044004 Chronic kidney disease (disorder)
- VSAC Value Set: 2.16.840.1.113762.1.4.1222.159

**Action:** A Client calls the EHR server to request a CKD focused MCC care plan from the Server

**Precondition:** Patient and Care Plan exist on server.

**Success Criteria:** The Client receives the care plan as expected based on the in parameters provided to the server and successfully displays the data

**Bonus Point:** Query using MCC Chronic Condition Value Set (2.16.840.1.113762.1.4.1222.159)

**Basic Query Flow:**
1. Find the Condition for the patient matching the CKD
2. Find Care Plans that address this Condition

**Basic Query - By Steps:**
1. `{Server}/Condition?subject={{subject-id}}&code=709044004`
2. Extract `condition-id` (i.e. Condition id, e.g. cc-cond-pnoelle-ckd)
3. `{Server}/CarePlan?condition=cc-cond-pnoelle-ckd`
4. Extract the Care plan id as `careplan-id`

**Example:**
1. GET /MCCeCarePlanDraft/open/Condition?subject=cc-pat-pnoelle&code=709044004
2. GET /MCCeCarePlanDraft/open/CarePlan?condition=cc-cond-pnoelle-ckd

**Basic Query - Chained:**
1. GET `/MCCeCarePlanDraft/open/CarePlan?subject={{subject-id}}&condition:Condition.code=709044004`

**Example:**
1. GET `{Server}/CarePlan?subject={{subject-id}}&condition:Condition.code=709044004`

**Bonus Query:**
1. `{Server}/Condition?subject=cc-pat-pnoelle&code:in=2.16.840.1.113762.1.4.1222.159`
2. Extract `condition-id` (i.e. Condition id, e.g. cc-cond-pnoelle-ckd)
3. `{Server}/CarePlan?condition=cc-cond-pnoelle-ckd`
4. Extract the Care plan id as `careplan-id`

**Example:**
1. GET /MCCeCarePlanDraft/open/CarePlan?subject=cc-pat-pnoelle&code:in=2.16.840.1.113762.1.4.1222.159
2. GET /MCCeCarePlanDraft/open/CarePlan?condition=cc-cond-pnoelle-ckd

**Scenario Step 2 Name:** Retrieve COVID diagnosis
Action:

Precondition:

Success Criteria:

Bonus Point:

Scenario Step 3 Name: Retrieve patient CKD relevant labs from EHR

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</table>
Action: TBD
Precondition: TBD
Success Criteria: TBD

1. Fetch Active Medications for Subject
2. Fetch Med associated with CarePlan
3. Fetch Active Medication Statement
4. 

Bonus Point: NA

GET /MCCeCarePlanDraft/open/CarePlan?subject=cc-pat-pnoelle&code=709044004/USCoreGoal/WeightTarget

Scenario Step 5 Name: Retrieve QuestionnaireResponse for pain perception from EHR

<table>
<thead>
<tr>
<th>Profile</th>
<th>Data Element</th>
<th>Sample Data</th>
<th>Code or URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChronicPainConditions</td>
<td>CarePlan.supportingInfo. QuestionnaireResponse.PainPerception</td>
<td>Patient has completed a pain perception Questionnaire in the EHR and QuestionnaireResponse is available</td>
<td>LOINC 38212-7 Pain assessment panel <a href="https://loinc.org/75259-2/">75259-2</a></td>
</tr>
</tbody>
</table>

Action: A Client calls the EHR server to request for chronic pain conditions for EHR Problem list (or encounter documentation (??)).
Precondition: A completed lHC Form for [https://loinc.org/75259-2](https://loinc.org/75259-2) exists in the HER server
Success Criteria: The Client receives the completed FHIR R4 Compliant QuestionnaireResponse from EHR server

- GET /MCCeCarePlanDraft/open/CarePlan?subject=cc-pat-pnoelle&code=709044004/supportingInfo/QuestionnaireResponse/PainPerception

Options: use QuestionnaireResponse resource or Observation Derived from a QuestionaireResponse

Main
1. Fetch from Right Questionnaire Response
2. Add Condition based Questionnaire

Bonus
1. Scan Questionnaire for Correct Item
2. Fetch Response
3. Get Right Item
4. Create Condition for Chronic Pain

Scenario Step 6 Name: Retrieve Patient’s Chronic Pain Condition from EHR and add to Client MCC Care Plan

<table>
<thead>
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<th>Profile</th>
<th>Data Element</th>
<th>Sample Data</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>ChronicPainConditions</td>
<td>CarePlan.supportingInfo.Condition. ChronicPainCondition</td>
<td>Patient has chronic pain on EHR Problem list or in EHR Care Plan</td>
<td>SNOMED CT: 102481003 Generalized chronic body pains (finding)</td>
</tr>
</tbody>
</table>

Action: A Client calls the EHR server to request for chronic pain conditions for EHR Problem list (or encounter documentation (??)).
Precondition: A chronic pain condition has been added to the problem list in the EHR
Success Criteria: The Client receives the chronic pain condition (profile instance) as expected based on the in parameters provided to the server and successfully displays the data
Scenario Step 7 Name: Retrieve Patient’s Weight observation from EHR and add to Client MCC Care Plan

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<tr>
<th>Profile</th>
<th>Data Element</th>
<th>Sample Data</th>
<th>Code or URL</th>
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</table>

**Action:** A Client calls the EHR server to request for a body weight observation.

**Precondition:** A body weight observation has been added in the EHR

**Success Criteria:** The Client receives the body weight observation (profile instance) as expected based on the in parameters provided to the server and successfully displays the data

GET {{Server}}/Observation/?subject={{subject-id}}&code=29463-7

**Bonus Point:** NA

Scenario Step 8 Name: Retrieve Patient’s Weight Goal from EHR and add to Client MCC Care Plan

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<th>Profile</th>
<th>Data Element</th>
<th>Sample Data</th>
<th>Code or URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Weight Target (Goal)</td>
<td>BodyWeightTarget</td>
<td>29463-7</td>
<td>Body weight</td>
</tr>
</tbody>
</table>

**Action:** A Client calls the EHR server to request for a patient weight goal

**Precondition:** A patient weight goal has been added to the EHR Care Plan

**Success Criteria:** The Client receives the weight goal (profile instance) as expected based on the in parameters provided to the server and successfully displays the data

GET {{Server}}/Goal/S?subject={{subject-id}}&code=29463-7

**Bonus Point:** NA

**Scenario Step 9 Name: Retrieve Patient’s Dietician Referral (BSeR)**

<table>
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<tr>
<th>Profile</th>
<th>Data Element</th>
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</table>

**Action:** TBD
Precondition: TBD
Success Criteria: TBD
Bonus Point: NA

• GET TBD

TestScript(s):
TBD this will be updated by Dec 18th

Security and Privacy Considerations:
TBD this will be updated by Dec 18th