eCare Plan for People with Multiple Chronic Conditions (MCC) Testing

Overview of MCC FHIR Implementation Guide (IG)

“Ending the hunt for big game”

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See Implementation Guide for comprehensive references to contributors.
Good morning Doctor Noelle, 
Voice identification authorization confirmed. 
Overnight update.
your patient, Joe Bormelle, has presented with new onset confusion. <a clinical Profile>

He has been triage but no further evaluation yet, with normal vital signs and no change in medication list. 
He has hypertension and no history or prior evidence of kidney disease. <encounter summary> <longitudinal summary>

Cross community (all clinical locations) survey for mental status assessments completed, 
There is no brain imaging or related neurologic evaluations in his 40 year longitudinal record. <context-specific chart review>

He is on telemetry, a chest xray has been ordered as well as a CoVid screen. Blood and urine sent for evaluation of confusion.

Joe, This completes this zero burden review of all potentially relevant, information, dynamically represented at this moment. <information triggered by two words and enabled by this IG>
Agenda
Agenda

• Background
• eCare Plan IG walk through

MCC eCare Plan Implementation Guide
Care Plan definition and scope
(from the HL7 Care Plan DAM v2.0)

1. A care plan as a knowledge asset, also known as a protocol, order set, or plan definition

2. A care plan as a set of activities planned for a patient, whether derived from protocol(s) or not, and including the goals of these activities and their outcomes

3. Care planning as a team process of evaluating a patient and planning appropriate actions

4. Care planning as a synonym for care coordination, exchanging information across teams and organizations to facilitate care delivery and inform providers

5. Care planning as the process of reconciling what different plans say

6. A care plan as a view of the patient record tailored for clinical workflow; e.g., foregrounding more relevant and recent information over older and less relevant information.

Potential Roles of an eCare Plan

- protocol
- care plan
- plan development
- care coordination
- reconciliation
- patient summary
Background
Background

• What is an eCare Plan?
• Which issues are in-scope?
• Why is this needed?
• What is the Vision for Multiple Chronic Conditions?
• What is the larger vision within HL7 and society that we are harmonizing with?
What is an eCare Plan?

Interest in a comprehensive, shared, longitudinal electronic person-centered care plan emerged following ONC’s publication of the 2014 Certification Edition in support of the CMS EHR Incentive Programs.

**Background**
- Well recognized concept
- Longitudinal coordination of care
- Central to payment models
- Static v Dynamic Models
- Well recognized challenges - need for implementation, testing, adoption, effort to align to existing standards
Universe of Care Plan Standards

Static Models

- HL7 C-CDA 2.1 Care Plan Document Template (constrained within C-CDA 2.1 Implementation Guide)
- HL7 Care Plan Domain Analysis Model
- HL7 FHIR Care Plan Resource (constrained by FHIR DSTU)

Dynamic Models

- HL7 C-CDA on FHIR Care Plan
- HL7/OMG Care Coordination Services (CCS) functional model
- IHE PCC Dynamic Care Planning Profile

All standards built upon CDA and FHIR
What is an eCare Plan?

Federal Enabling Initiatives

Harnessing the Potential of Electronic Health Records for Patient-Centered Outcome Research

November 16, 2020
U.S. Department of Health and Human Services

NIH
National Institutes of Health

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<td>2005</td>
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<tr>
<td>2009</td>
<td>ARRA 2010 ACA</td>
</tr>
<tr>
<td>2013</td>
<td>ONC 2015 rule</td>
</tr>
<tr>
<td>2017</td>
<td>CKD</td>
</tr>
<tr>
<td>2021</td>
<td>MCC</td>
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</tbody>
</table>

Patient-Centered Outcomes Research Institute (PCORI): advancing the evidence on health outcomes through comparative-effectiveness research.

Agency for Healthcare Research and Quality (AHRQ): training, dissemination, translation of PCOR.

Office of the Secretary (OS): enabling data infrastructure for PCOR.
What is an eCare Plan?

The eCare Plan Aims to Enable Access to Comprehensive, Person-Centered Information

**Status Quo**

- Patient
- Clinician

**eCare Plan**

- Patient
- Clinician
- Patient Data

Enable Access
What is an eCare Plan?  \(\text{Access} \rightarrow \uparrow \text{Quality} + \downarrow \text{Cost}\)

**Why Use eCare Plans to Enable Care Coordination?**

1. Give the person direct access to his or her information.
2. Put the person’s goals at the center of decision-making.
3. Are holistic, including clinical and non-clinical (e.g., home and community-based) needs and services.
4. Follow the person through both high-need episodes (e.g., acute illness) and periods of health improvement and maintenance.
5. Allow clinicians to 1) view information relevant to their role in caring for the person, 2) identify which clinician is doing what, and 3) update other members of an interdisciplinary team.

Black Horse, White Stripes?  Pre and Post Coordination equivalence

Image Credit: Russell B. Leftwich, MD, Snr Interop Adv
https://www.intersystems.com/fhir
https://www.youtube.com/watch?v=xDp3H0r1FIY
What is an eCare Plan?

Promotes sophisticated coding
What is an eCare Plan?  

• **Everything that is needed** to address an issue
  ○ Clinical, SDoH, Administrative, Workflow

• **Content** that is sent and received **means the same thing** on both ends

<table>
<thead>
<tr>
<th>What’s New?</th>
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<tr>
<td>Information Model</td>
<td>Resources (subsumes RIM backbone), CIM, Computable Conformance/IGs, Reasoning/Context</td>
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<tr>
<td>Terminology Model</td>
<td>SNOMED, LOINC, RxNORM, and services</td>
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<tr>
<td>Interaction Model</td>
<td>Questionnaires, Tasks, Activities, Goals, Conditions</td>
</tr>
<tr>
<td>Data Rest and Motion Models</td>
<td>Resources, Profiles, Extensions, … reason over data</td>
</tr>
</tbody>
</table>
What is an eCare Plan?

The IG specifies flows of information, succession from capture through validation, association with conditions, goals and orders.

From: http://build.fhir.org/ig/HL7/fhir-sdoh-clinicalcare/StructureDefinition-SDOHCC-ServiceRequest-Base-1.html
CKD

eGFR : 20

Problem: Hypertension & Diabetes

[informed by Technical Expert Panels] … every common as well as significant uncommon CKD data element, presented by well maintained-for-purpose value set that is required for high quality care and reliable communications, from, to, and on behalf of the patient.
Which issues are in-scope?

• Starting with Chronic Kidney Disease;
• An exhaustive catalog of profiles with fully defined clinical information modeling;
• Built out canonically, so that overlapping concepts, like red blood cell count, medications prescribed, etc are modelled once and used consistently;
• And elements that often are absent today, such as social determinants of health, care team members, and other operational elements are present by design
Why is this needed?

- Current state and trajectory are underwhelming relative to potential for HIT
What is the Vision for Multiple Chronic Conditions?

CHRONIC DISEASES IN AMERICA

6 IN 10
Adults in the US have a chronic disease

4 IN 10
Adults in the US have two or more

THE LEADING CAUSES OF DEATH AND DISABILITY
and Leading Drivers of the Nation’s $3.5 Trillion in Annual Health Care Costs

HEART DISEASE  CANCER  CHRONIC LUNG DISEASE  STROKE  ALZHEIMER’S DISEASE  DIABETES  CHRONIC KIDNEY DISEASE

What is the Vision for Multiple Chronic Conditions?
What is the larger vision within HL7 and society that we are harmonizing with?

- ACTS - AHRQ Care Transformation Support Initiative
- CPG-on-FHIR
- Clinical Reasoning Module extends to CDS, eCQMs, and rich, contextual data access through CQL
The eCare Plan IG

(1) Home
(2) MCC Use Cases
(3) Structure and Design Considerations
(4) Profiles or Resource Directly Reused in this Guide
(5) Artifacts Summary
MCC eCare Plan Implementation Guide

1. Query for and represent patient data into a consolidated representation

2. Encourage capture and communication of patients health concerns, goals, interventions and outcomes

3. Gather and aggregate patient data for beyond POC uses
(2) MCC Use Cases
This page clarifies the technically complicated concept of a Care Plan with detailed example (e.g. Patient Story 1 Assumptions.

Introduction

The MCC eCare Plan Implementation Guide provides a few detailed use cases to help clarify the technically complicated concept of a Care Plan. From a human cognitive perspective it is easy to conceptualize the concept of a patient problem or health concern and the need to identify goals, and the methods needed to achieve those goals, such as appropriate medications, procedures, activities and education, followed by the need to re-evaluate, and assess progress towards the goal. The provider understands the disease process associated with the condition. In addition, a care provider understands the health care system services and the services outside the health care system that are needed to treat a patient and achieve a greater level of wellness. However, this can be a time consuming process.

A dynamic Care Plan's lofty goal intends to replicate that as much as possible to provide machine assisted care coordination. This is a daunting task.

Use cases can provide an understanding of business needs of a Care Plan. The intention is to ensure a wide and solid understanding of the need for the technical solutions defined in the implementation guide with the use of actors and user personas. A use case is a sequence of actions that provide a measurable value to an actor. The use cases describe ways in which a real-world actor interacts with the systems.

The following pages provide the use case details.

Use Case Scope
2.1 Patient Story 1 Assumptions

Patient
- Covered and eligible for all medical/social services described in the use case
- Capable of reading/comprehending at least at a high school level
- Able to access the EHR/PHR, the electronic care plan application, a smart phone, and email
- Able to grant consent to share data with the care team

Care Team Roles
- Primary Care Physician (PCP) and specialists
- Care Coordinator (triage nurse, social work)
  - Reviews and reconciles care plan data
  - Reviews, manages, and monitors the care plan

Technical Compliance
- EHR is able to capture/document and store all data
- EHR is able to connect and integrate with other systems
- EHR can transmit or expose care coordination
- Care plan and EHR tie back to either a 170
d- Care plan has a revision history and supports
  - Patient/Care Team are able to subscribe
  - Subscribers can identify what revisions have been made

Data Sharing Practices
- Patient’s information is shared in compliance with regulations

Care Plan Features
- Provides necessary access and entry as allowed
- Can identify and accommodate instances of

2.2 Patient Story

Following an appointment with her nephrologist, Dr. Jones, Patricia visits her primary care physician, Dr. Carlson, to discuss how to better manage her multiple chronic conditions (MCCs), which include CKD, type 2 diabetes, congestive heart failure, chronic pain, and clinical depression.

In the examination room, Dr. Carlson takes and documents Patricia’s vital signs and discusses her health concerns. Patricia states her concerns:

- Worried and depressed regarding her progressive CKD and what to do if her kidneys fail.
- Concerned about addiction and interested in tapering off the opioids she is currently using to manage her lower back pain.
- Struggles to exercise due to pain.
- Struggles to manage her diet and find affordable healthy food choices under her financial strain.

To address Patricia’s concerns and food insecurity risk from financial strain, Dr. Carlson recommends they develop a comprehensive care plan that documents Patricia’s health concerns, identifies goals to address those concerns, and establishes the right interventions and treatments for both the health concerns and the social risk.

Dr. Carlson states the in-house care coordinator, Julie, will help update the care plan in the practice’s electronic health record system (EHR). The care plan will be made available electronically (based on Patricia’s consent) to allow Patricia and her care team (her daughter Rose, nurse educator, nephrologist, cardiologist, and pain specialist) to access, view, and update. Dr. Carlson invites Julie to the examination room. Julie begins by reviewing the care summary notes and other care plan data. She confirms with Patricia the following shared patient and provider goals:

1. Lower high BMI count by losing 10 lbs. in 1 year
2. Improve access to affordable food
3. Control pain with fewer narcotics

Julie confirms with Patricia the following interventions:

1. Increase exercise activities, starting with 10 minutes once or twice a week
(3) Structure and Design Considerations
Structure/Design Considerations

Elaborates specific high level goals, such as reducing duplicate or double documentation while supporting care coordination processes.
(4) Profiles or Resource Directly Reused in this Guide
Profiles

- Names and links of profiles used in this guide without further specification
(5) Artifacts Summary
Artifacts Summary

• This page provides a list of the FHIR artifacts defined as part of this implementation guide (an index to conditions, diagnoses, goals, key labs, medications, procedures, radiology reports, and examples.)

• The Multiple Chronic Condition (MCC) FHIR Care Plan Profile is the backbone or core profile of this implementation guide.

• Note: This profile constrains US Core Condition for chronic kidney disease conditions and supporting information.
5.3.5 Resource Profile: AlcoholAbuseDisorder - Detailed Descriptions

Definitions for the AlcoholAbuseDisorder resource profile.

1. Condition

Definition: The US Core Condition Profile is based upon the core FHIR Condition Resource and created to meet the 2015 Edition Core Problems' and 'Health Concerns' requirements.

16. Condition.code

Definition: Identification of the condition, problem or diagnosis.

Control: 1..1

Binding: The codes SHALL be taken from https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1222.24/expansion This set defines the codeable concept the component is used to identify terms representing alcohol abuse disorders.

Type: CodeableConcept

Must Support: true

Requirements: 0..1 to account for primarily narrative only resources.

Alternate Names: type

Invariants: Defined on this element ele-1: All FHIR elements must have a @value or children (: hasValue() or (children().count() > id.count()))

17. Condition.bodySite

Definition: The anatomical location where this condition manifests itself.

The logical id of the resource, as used in the URL for the resource. Once assigned, this value never changes.
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Resource Profile: Estimated Glomerular Filtration Rate
### 5.70.1 Resource Profile: EstimatedGlomerularFiltrationRate

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<td><strong>Title:</strong></td>
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<td><strong>Status:</strong></td>
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<td><strong>Definition:</strong></td>
<td>This profile constrains US Core Laboratory Result Observation to estimated glomerular filtration rate results.</td>
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<td><strong>Publisher:</strong></td>
<td>HL7 International - Patient Care WG</td>
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<td><strong>Source Resource:</strong></td>
<td><strong>XML / JSON / Turtle</strong></td>
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The official URL for this profile is:

http://hl7.org/fhir/us/mcc/StructureDefinition/EstimatedGlomerularFiltrationRate

The [US Core Laboratory Result Observation Profile](http://hl7.org/fhir/us/mcc/StructureDefinition/EstimatedGlomerularFiltrationRate) sets minimum expectations for the Observation resource to record, search, and fetch laboratory test results associated with a patient. It identifies which core elements, extensions, vocabularies and value sets **SHALL** be present in the resource when using this profile. In addition to the requirements set in the US Core Laboratory Result Observation Profile, observationCode is bound to an Estimated Glomerular Filtration Rate value set.

#### 5.70.1.1 Formal Views of Profile Content

Description of Profiles, Differentials, Snapshots and how the different presentations work.

**Text Summary**

This structure is derived from [USCoreLaboratoryResultObservationProfile](http://hl7.org/fhir/us/mcc/StructureDefinition/EstimatedGlomerularFiltrationRate)
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**Fixed Value:** laboratory

*Representation defined by the system*

*If this coding was chosen directly by the user*

*Plain text representation of the concept*

**Binding:**

https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.3.6929.3.1000/expansion2

*(required): This value set contains concepts that represent estimated glomerular filtration rate (eGFR) tests.*
Thanks, Credits and Recommended Experts