Getting Started with mCODE

mCODE - the minimal Common Oncology Data Elements - is an HL7 standard, FHIR Implementation Guide representing a core set of common data elements computable, clinically applicable and aimed to be available in every electronic health record for patients with a cancer diagnosis. Here’s how to get started:

- Participate in the CodeX/mCODE Community of Practice to get updates on mCODE and presentations by the community on their use of mCODE to improve cancer care and research.
- Learn more about the mCODE Standard - an HL7 standard - via the "Quick Links" on this page and through the links below. Note that this information relates to the first version of mCODE (Standard for Trial Use 1), whereas the latest version is the balloted version of STU 2.
  - mCODE Conceptual Model (STU 1) - high level diagram of mCODE data categories and elements.
  - mCODE Data Dictionary (STU 1) (Excel Download) - detailed list of mCODE elements with descriptions, cardinality, and terminology bindings.
  - mCODE FHIR Implementation Guide (STU 1) - Formal implementation guidance on how to develop mCODE FHIR data interfaces.
- Review the mCODE Playbook and architectures for extracting and sharing mCODE-based data from your EHR system.
- Become a Member of CodeX. Help drive Use Case Projects - ranging from collection of patient data for clinical trials based on EHR data, matching patients with trials, and registry reporting. Th is work engages the community, get them up to speed on leveraging mCODE, and demonstrates the potential to improve care and research via mCODE, supplemental data elements and new workflows.
- Contact us (CodeX@hl7.org) with any other questions!

mCODE History and Background

According to the National Cancer Institute, 38.5 percent of men and women will be diagnosed with cancer at some point during their lifetimes. In 2014, an estimated 14.7M people were living with cancer in the United States. While these numbers are staggering, the silver lining in the wide prevalence of cancer is the potential to learn from treatment of millions of patients. If we had research-quality data from all cancer patients, it would enable higher quality health outcomes. Today, we lack the data models, technologies, and methods to capture that data.

mCODE™ (the minimal Common Oncology Data Elements) is an HL7 FHIR Implementation Guide representing a core set of structured data elements for oncology electronic health records (EHRs). mCODE is a step towards capturing research-quality data from the treatment of all cancer patients. This would enable the treatment of every cancer patient to contribute to comparative effectiveness analysis (CEA) of cancer treatments by allowing for easier methods of data exchange between health systems. mCODE has been created and is being supported by the American Society of Clinical Oncology (ASCO®) in collaboration with the MITRE Corporation.

In late 2018, ASCO convened committee of twenty leading clinical experts in oncology, radiology, surgery, and public health developed two use cases that drove the initial clinical data requirements for mCODE:

- Use Case 1: Comparative Effectiveness Analysis and Cooperative Decision Making
- Use Case 2: Comparative Effectiveness Analysis with Next Generation Sequencing (NGS)

While mCODE ultimately is meant to be applicable across all types of cancer, the initial focus (and both use cases) has been on solid tumors.

After initial development, in early 2019, an open survey was conducted to validate and prioritize the data elements from these use cases. Further down-scoping was done based on whether the data would be stored or capture in an electronic health record (EHR), and if it would place undue documentation burden on clinicians.
Currently, there are two defined mCODE roles involving the exchange of mCODE data. However, this may change in the future. The first role is the “mCODE Data Sender”. This participant provides mCODE data in response to a data query or autonomously pushes mCODE data to an mCODE receiver. The data sender does not have to be the originator of the data it possesses. The second mCODE data exchange role is the “mCODE Data Receiver”. This participant accepts mCODE data from an mCODE Data Sender.

There are multiple actors recognized in the IG including:

- **Provider** - the oncologist, or their representatives, who works to treat cancer patients.
- **Patient** - the patient who is suspected to have, or is diagnosed with, cancer.
- **Application** - EHR systems or lab systems.