Compass - A SMART on FHIR App Utilizing mCODE to Improve Care

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Abstract
Nearly 15 million individuals in the U.S. live with cancer. Most of these have records in an EHR, but incompatibilities in these systems limit the valuable information researchers could pull from these records. mCODE is a data standard being developed by the American Society of Clinical Oncology with MITRE, the Alliance for Clinical Trials in Oncology, the FDA, and other stakeholders. mCODE’s goal is to improve data interoperability in oncology care and research. Compass is a SMART on FHIR application that extracts mCODE data elements from electronic health records. These data are then compared against retrospective, deidentified data. The practitioner and patient can then review treatment options, survival rates, and side effects based on the comparative effectiveness data in the deidentified set. Compass is one of the first implementations of mCODE.

Proposal
Most of the nearly 15 million individuals living with cancer in the U.S. have a record in an EHR. However, many of the 1,500 EHR systems in use are incompatible. This limits the valuable information cancer researchers can pull from these records.

Development of the mCODE (minimal common oncology data elements) data standard is led by the American Society of Clinical Oncology (ASCO), MITRE, the Alliance for Clinical Trials in Oncology, and the FDA. This group is also working with other stakeholders. mCODE’s goal is to improve data and records interoperability in oncology care and research. mCODE is currently undergoing a STU ballot with HL7 for release 1 of its FHIR (fast healthcare interoperability resources) implementation guide. mCODE is currently being piloted at several cancer centers to assess its value in two use cases – one focused on improving research (ICAREdata) and one on improving care (Compass).

Compass is a SMART (substitutable medical applications and reusable technologies) on FHIR application that extracts mCODE data elements from electronic health records to deliver reports to providers and patients - empowering better diagnosis, improved care planning, and shared decision making at the point of care. Compass facilitates this by comparing that patient’s data to aggregated data from thousands of previous cancer patients who are similar to the current patient.

At the time of this submission, Compass is in the final stages of implementation at Intermountain Healthcare in Utah, utilizing a source of retrospective, de-identified data provided by ASCO CancerLinQ. The use of FHIR APIs and mCODE reduces the burden of implementation, data exchange, and comparison of data for the current patient versus previous patients. The practitioner and patient can review together the treatment options, survival rates, and side effects of each option in real time, based on a cohort of prior patients with similar demographics, genotypes, and disease characteristics.

For more information, please see the following resources:
- MITRE Compass Press Release (link)
- The mCODE Initiative (link)
- mCODE’s STU Ballot (link)

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