Phase 1 - Mapping The HCV Algorithm To FHIR Resources

According the the project proposal, the first goal of a successful project was to get a "Clear understanding of FHIR's capabilities to support delivery of HCV screening related CDS".

The HCV screening algorithm should suggest a screening if:

- The patient is a baby boomer
- The patient has never been diagnosed with HCV
- The patient has never had an HCV screening

We found that the algorithm criteria mapped to the following FHIR resources:

- Patient age: Patient Resource
- HCV Orders: ProcedureRequest and Observation (laboratory category) Resources
- Ever diagnosed with HCV: Condition Resource

Phase 2 - Determining An Appropriate Platform For The HCV Decision Support

If research into FHIR found that the HCV screening algorithm could be supported with existing FHIR resources, the second stage of a successful project would be focused on building a SMART App for delivery through FHIR.

After initial discussions with our CDC stakeholders we determined that a CDS Hooks service would be more appropriate than a SMART App. A CDS Hooks project was more inline with information we gathered during our initial meetings which included that the project should be a web service and it should minimally interrupt the provider workflow. CDS Hooks is a new specification designed specifically for clinical decision support web services.

Phase 3 - Implementing A CDS Hooks Service

Triggers

CDS Hooks provides a platform for decision support services to be triggered by EHRs at certain points in EHR workflows. Among the triggers currently offered we found that the following two were appropriate based on information we got from CDS and implemented both in our service.

- Patient View
- Order Review (upon a venipuncture order)

An additional trigger suggested by the CDC, but not currently part of the CDS Hooks standard was

- Upon a preventative services, wellness, or reminders section of the patient chart being opened

Placing Orders

Our CDC stakeholders expressed that the ideal HCV screening decision support would automatically add a pending order for an HCV screen and allow the provider to remove it if desired. However, the stakeholders also felt that some organizations may wish to not automatically add the order and instead just give the provider the option to add the order. We decided to implement both options and have a service environment setting to switch the behavior between the “opt in” and “opt out” workflows.

Standard Code Sets

To determine information about the patient, such as whether they have ever had HCV, we needed to know a standard code set (ICD, LOINC, SNOMED etc.) that represent HCV conditions. We received some of these standard code sets from the CDC but we made these codesets configurable by setting environment variables.

Card Wording

We got wording for our decision support cards from the CDC as well as links to the CDC and USPSTF for more information about HCV screening recommendations.