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Required Skills:

(List skills needed) – Java, Python, C#.NET, Web (HTML / JS / CSS)

Preferred Team Communications:

Skype

Data Sources:

EPIC or Cerner sandbox, FHIR ICD 10 value set, FHIR resources, mock data, US Medical Eligibility Criteria for Contraceptive Use online

Other Items:

Project preferred time zone is Eastern Time Zone

Team Info:

Needs a Developer, Analyst, Tester, DBA and Project Manager. Allows one team of 4-6 members.

A FHIR-ENABLED CONTRACEPTIVE CLINICAL DECISION SUPPORT TOOL FOR HEALTHCARE PROVIDERS

Technological advances including widespread electronic health record (EHR) adoption and the Fast Healthcare Interoperability Resources (FHIR) interoperability standard have created opportunities to integrate clinical decision support (CDS) tools into the provider workflow within EHR systems. This integration allows for increased accuracy and efficiency in clinical decision making. Health care providers have minimal time during an outpatient visit to manually review contraceptive use guidelines and provide accurate information to help a patient find a safe contraceptive method that suits their needs. Tasks that require manual search, review, and calculations can be automated via EHR data integration and clinical algorithms. Today, providers have access to a standalone contraceptive CDS mobile application to access evidence-based contraceptive guidelines; however, the lack of integration with EHR data poses limitations. The current system requires multiple provider tasks during a typical 15-minute outpatient visit. Providers have to review a woman's conditions in the EHR and with the patient, and assess contraceptive options in the guideline application for each of the patient's conditions. Then they have to synthesize contraceptive options for the patient, allowing them to balance multiple risks and benefits. When a patient chooses a method, the provider next needs to navigate to a different part of the application to find guidance for initiation of the method. The lack of efficiency and potential for human error is evident. An opportunity to advance this process is to develop a FHIR based CDS tool that can be integrated into the provider's EHR workflow. Synthesis of a patient's conditions from EHR data and auto generation of a menu of safe contraceptive options including information on safe initiation would modernize the process.

PROJECT OBJECTIVES

Using FHIR, design a CDS tool that supports the use of the CDC contraceptive guidelines in clinical decision-making that can be integrated into the healthcare provider EHR workflow. The clinical population of focus would be women seeking health services in a general primary care setting. Potential deliverables, dependent on the phase of the student project and student interest, could include:

- a) map contraception-related data elements to FHIR resources;
- b) via machine readable clinical algorithms (e.g., CQL), identify women of reproductive age that may have an unmet need for contraception to alert providers;
- d) via clinical algorithms, generate risk levels for each eligible contraceptive by patient;
- e) develop hyperlinks for contraceptives, conditions, etc. that direct the physician to topic-specific information in the contraceptive guidelines;
- f) develop a provider-friendly interface to synthesize patient-specific contraception-related EHR data.

Intellectual Property: None

SUCCESSFUL PROJECT

To Be Discussed with Sridevi Wilmore and Kate Curtis.
