
ABIGAIL VIALL BRIAN EDLIN

<https://www.linkedin.com/in/abigail-viall-2363a69/>

Required Skills:

(List skills needed) - Web Development, Stand Alone App Development, Responsive Web Design, Human Centered Design, Workflow/Process Optimization, Project Management, Communications

Preferred Team Communications:

WEBEX, Skype or Conference call

Data Sources:

Georgia Tech synthetic data will be sufficient for the project.

Other Items:

Project has time zone flexibility. Mentors and students will determine a good time for virtual meeting

HEPATITIS C SCREENING IN BABY BOOMERS--TIME TO BRING THE FHIR?

In the United States, as many as 3.5 million persons are living with HCV infection, which is a major cause of chronic liver disease and liver cancer. In contrast to the declining rate of deaths from other cancers, deaths from liver cancer are rising, with much of the increase attributed to viral hepatitis. In fact, the annual number of HCV-related deaths now exceeds the number of deaths from the 60 other nationally notifiable diseases combined.

Unfortunately, fewer than half of persons living with hepatitis C know they are infected. Missed testing opportunities translate into missed opportunities to access treatment and curative therapies. Persons who achieve virologic cure of their HCV infection have dramatically lower risks of liver cancer and other life-threatening conditions and experience higher quality of life (e.g., less fatigue and fewer mental health issues) than those who remain infected.

As one means for improving awareness among those who are infected, both CDC and the US Preventive Services Task Force (USPSTF) recommend one time screening for all persons born between 1945 and 1965 (aka "Baby Boomers"). Although "Baby Boomers" comprise an estimated 27% of the population, they account for approximately three fourths of all HCV infections in the United States; 73% of HCV-associated mortality; and are at greatest risk for hepatocellular carcinoma and other HCV-related liver disease.

Screening rates in the Boomer population remain insufficient to meet national goals for eliminating HCV as a public health problem in the United States by 2030. Localized pilot projects have shown that effective delivery of clinical decision support (CDS) can improve provider HCV screening rates (see for example published results from Kaiser Mid-Atlanta, the Department of Veterans Affairs, Mt. Sinai Healthcare System, the Indian Health Service, and Michigan Medicine). However, to date, successful pilots have relied on de novo decision support solutions built by interested providers, health systems, and/or data platforms. While laudable, such a grassroots approach may limit scalability, accessibility (particularly to providers not aligned with large, well-financed health systems), and decision support fidelity to the underlying clinical guidelines. In this project, we hope to explore whether FHIR could offer a sort of 'partial short cut' to both greater scale (at a

Intellectual Property: Project involves a government agency so the resulting project is made available to the public. Students do not own IP. Students will be recognized as contributors

reasonable cost) and greater consistency (in terms of decision support representation and application of recommended practices) for HCV screening-related CDS.

PROJECT OBJECTIVES

Assess the feasibility of using Fast Healthcare Interoperability Resources (FHIR) to deliver clinical decision support that promotes evidence-based screening and management for HCV within the Baby Boomer cohort (persons born between 1945 and 1965). More specifically, in this first stage of the project, CDC staff will work with GA Tech students to:

1. Map clinical concepts and algorithms to FHIR resources to determine if the necessary data elements are available in FHIR right now; and
 2. Use synthetic data to evaluate whether a FHIR API could work as a delivery mechanism for HCV screening related CDS.
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SUCCESSFUL PROJECT

This project is envisioned as the first stage of what we hope will be a longer-term effort aimed at building a HCV screening CDS application that could be integrated into EHRs using SMART on FHIR specifications. Accordingly, success at the end of this stage is defined as follows:

1. Clear understanding of FHIR's capabilities to support delivery of HCV screening related CDS.
 2. In the case of encouraging findings (i.e., indicating that FHIR could support delivery of clinical decision support around HCV screening), the project would enter a second stage that focuses on building SMART APP for delivery through FHIR (ideally one that would be tested in collaboration with, and included in the application platforms of, key vendors like Cerner and Epic).
 3. In the case of discouraging findings (i.e., indicating that FHIR could NOT support delivery of clinical decision support around HCV screening), this project could still prove incredibly valuable by identifying necessary improvements in the FHIR standard (at least, if this standard is to provide a robust vehicle for delivering clinical decision support related to priority prevention services).
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