

SETTING THE WORLD ON FHIR®

Published by HL7® International, a not-for-profit organization, Fast Healthcare Interoperability Resources (FHIR®) is a standard for exchanging healthcare information electronically

A series of case studies illuminating how HIT professionals are using HL7®FHIR® to improve and advance modern healthcare

MEDSTAR HEALTH NATIONAL CENTER FOR HUMAN FACTORS IN HEALTHCARE

The MedStar Health National Center for Human Factors in Healthcare is the largest human factors program embedded within a healthcare system in the U.S. It brings together human factors scientists, systems safety engineers, health services researchers, clinicians, and other experts to create a safer and more efficient healthcare environment through four core services in research, usability, safety advisement, and education. MedStar Health, the parent organization, is the medical education and clinical partner of Georgetown University in Washington D.C.

ASYMMETRIK

Asymmetrik, a BlueHalo company, specializes in custom software development and data analytics. Since 2008, Asymmetrik has been using vetted open-source components to build tailored enterprise solutions to help government and healthcare organizations cut through bureaucracy and increase efficiency.



CASE STUDY



As researchers and innovators, we continuously look for ways to use technology to improve the well-being of patients and clinicians. This project shows the EHR can be used as a meaningful tool for patient education and shared decision-making, not just for entering data.

— Kristen Miller, DrPH, senior scientific director, MedStar Health National Center for Human Factors in Healthcare

Goal

To fully integrate the Million Hearts® risk calculator into clinicians' workflow for improved usability and impact

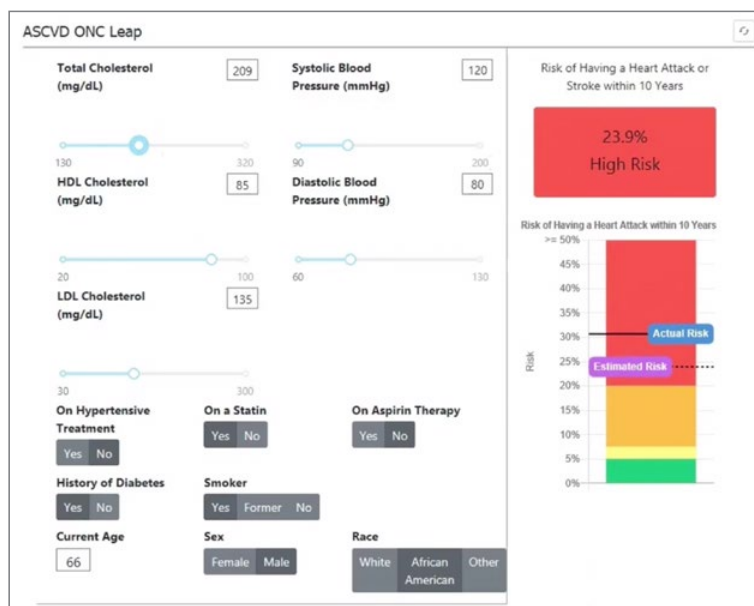
Opportunity

To use HL7® SMART on FHIR® resources in a tool that automatically calculates a patient's risk of having a heart attack or stroke and displays it using easy-to-read interactive graphics in their electronic health record.

Project

The original Million Hearts American College of Cardiology's Atherosclerotic Cardiovascular Disease (ASCVD) risk assessment tool was solicited by the Centers for Medicare & Medicaid Services (CMS) as an innovative tool to identify individuals at high risk for ASCVD events, and then to aid in the goal of primary prevention of ASCVD. There are many clinical tools that calculate and display an individual's updated ASCVD risk estimate; but these stand-alone tools require clinician activation, are hosted outside of the usual clinical workflow and do not support coordination of care across providers, leading to underutilization.

The research team at Asymmetrik partnered with MedStar Health to create a clinician-facing application, called Mobilizing A Million Hearts, that uses SMART on FHIR to integrate the ASCVD risk calculator into clinician workflow within the EHR, while accounting for user needs to inform clinical decision making.



The team began by conducting a preliminary workflow analysis with cardiologists and primary care physicians. They then conducted clinical observations of the same doctors and found that the original risk calculator was used only 6% of the time. Because usability is often a major obstacle to health IT adoption, usability testing was also integrated into the prototype development.

The research team used the findings to identify novel features and functions that users would like to see incorporated into the optimized ASCVD risk calculator. For example, the time and click burden to input individual data elements needed to calculate a risk score was demanding on the physicians who were already operating under time constraints during a patient visit. To combat this time burden, the new Mobilizing A Million Hearts app auto populates data elements like a patient's blood pressure, cholesterol, history of diabetes and other factors, from the EHR into the ASCVD risk calculator.

The app computes the patient's 10-year cardiovascular event risk in an easy to understand, colorful, graphic format. The tool also displays, interactively, how their heart risk could improve by making lifestyle changes like losing weight, quitting smoking or reducing cholesterol.



Progress

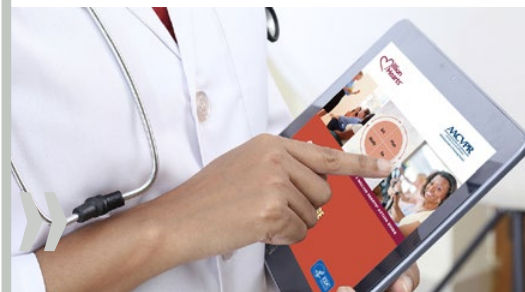
At the request of clinicians, access to the Mobilizing A Million Hearts tool was expanded beyond its original audience of primary care, family medicine, and cardiologists to include all medical residents, endocrinologists, and nurse practitioners. The provider-facing tool has been launched over 1 million times, while the patient-facing tool has been used more than 2,000 times. It has reached over 1,500 unique users and impacted more than 50,000 patients at MedStar Health.

MedStar Health's human factors experts are evaluating the effectiveness of the new application to improve care, processes, and outcomes. In the months ahead, the team hopes to develop educational materials that patients can take home. Following an optimization period, the application has the potential to be used by other healthcare platforms and providers nationwide to educate patients on their cardiac status and how making simple changes can reduce their risk of heart attack and stroke.



« The SMART on FHIR ASCVD risk calculator represents next level innovation in the healthcare interoperability space by providing a real world solution for transforming previously isolated risk calculators into open standards-based applications that can seamlessly run across health IT platforms and provider organizations.

— Erin Gibson, technical account manager,
Asymmetrik



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