

SETTING THE WORLD ON FHIR®

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

UNIVERSITY OF WASHINGTON CLINICAL INFORMATICS RESEARCH GROUP (UW CIRG)

UW CIRG designs, develops, builds, and operates information systems that securely manage health information for projects in the Clinical, Public Health, and Global Health Informatics domains. The team consists of software developers, system programmers, experts in interaction design/usability and health data system operations. UW CIRG collaborates with colleagues at the University of Washington, in national and state governments, at other universities, and with healthcare and research organizations across the US and around the world.



CASE STUDY



Goal

To increase patient safety and mitigate the impact of prescription medications on the opioid epidemic

Opportunity

To develop a tool using HL7® SMART on FHIR® that combines state-level prescription drug monitoring program data and EHR data to help providers make safer decisions



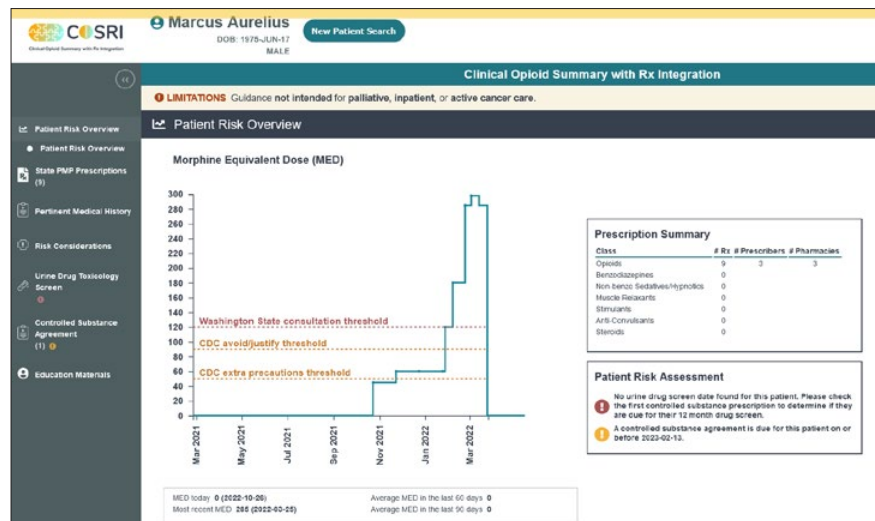
HL7 FHIR is integral to the provider-facing Clinical Opioid Summary with Rx Integration (COSRI) app. It uses SMART on FHIR to help reduce the harm done by opioids by making pain medication prescribing smarter.

— Lydia Drumright, PhD, MPH
University of Washington

Project

Across the United States prescription drug monitoring programs (PDMPs) were established as one of the many efforts to curtail the opioid epidemic. Increasing information exchange on controlled substance dispensation via state level databases was a key effort of the PDMPs, however use of these databases by prescribers has been reported to be suboptimal.

In collaboration with the Washington Department of Health and State Medicaid Agency, informatics researchers at UW CIRG developed a provider-facing SMART-on-FHIR application called Clinical Opioid Summary with Rx Integration, or COSRI, that facilitates clinician access to PDMP information and provides clinical decision support (CDS) based on CDC and state prescribing guidelines.



While Washington State prescribers already had access to the PDMP database, it was believed improved user experience and user-driven design would be critical in developing an application that would lead to increased and more effective use. Additionally, the tool needed to be accessible to a diverse range of providers, including those at large healthcare organizations that had state-of-the-art electronic health record (EHR) systems and those with fewer technological resources.

The COSRI prototype, which incorporated a milligrams of morphine equivalents (MME) calculator, was shared with 15 providers who prescribed opioids. Design features incorporated included a longitudinal summary MME graph highlighting CDC and state prescribing thresholds and counts of opioid prescriptions, prescribers and pharmacies. Additionally, to address the desire for a free-standing system raised by many providers, a free-standing “faux” EHR was created to serve as a SMART-on-FHIR host capable of launching the COSRI application in the absence of an EHR.

User experience focus groups were held with seven providers who identified additional modifications including the need to categorize each controlled substance by class, a searchable list of active patients from their clinic for speed in accessing information, rapid, easy, secure access, and the need to suppress fields that did not provide information from the EHR.

Sixty-minute qualitative interviews were also conducted to explore challenges in opioid prescribing and workflow, which revealed the need to record dates of urine drug screens and controlled substance agreements, additional alerts, patient safety concerns, and further summary needs.

In addition to testing with a library of validation patients and more than 7,000 prescriptions of all available opioid classes and formulations, the team developed a user guide, training schedule to be delivered on the day of implementation, and a responsive help desk email cascade for user support.

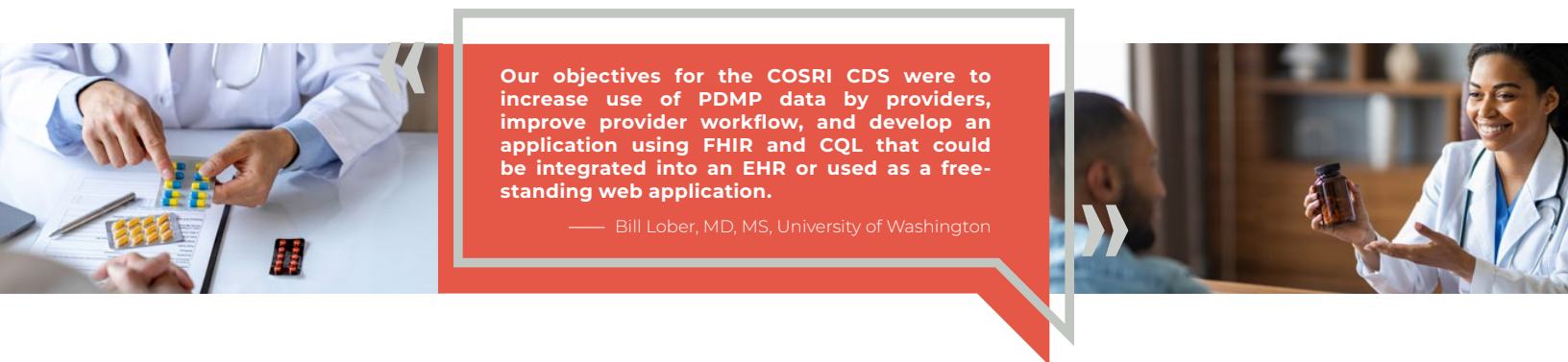


Progress

COSRI was initially implemented at two primary care clinics in September/October 2021. Follow up evaluation has revealed consistent themes across providers including increased ease of access to PDMP, meaningful reductions in time to access patient data using the PDMP, and significant increase in flexibility for viewing PDMP data within the workflow, with different providers incorporating use at different points to help streamline care.

In fact, the time for providers to access the PDMP data was significantly reduced from 257 seconds using original PDMP access, to just 26 seconds when using COSRI. [Click here](#) for a demo of the free-standing version of COSRI.

UW CIRG is currently working to integrate COSRI with a patient-facing app called PainTracker, a patient reported outcomes and measures (PRO) tool to capture key health information. [View](#) that demo here.



Our objectives for the COSRI CDS were to increase use of PDMP data by providers, improve provider workflow, and develop an application using FHIR and CQL that could be integrated into an EHR or used as a free-standing web application.

— Bill Lober, MD, MS, University of Washington



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