

ICHOM-on-FHIR

Clarisse Look, Jason Kon, Koray Atalag, Greg Robinson



INTRODUCTION

There is increasing recognition that big data analytics is a valuable tool for continuous quality improvement in healthcare. It facilitates the measurement and comparison of outcome indicators across organisations, supporting mutual learning and application of best practices.

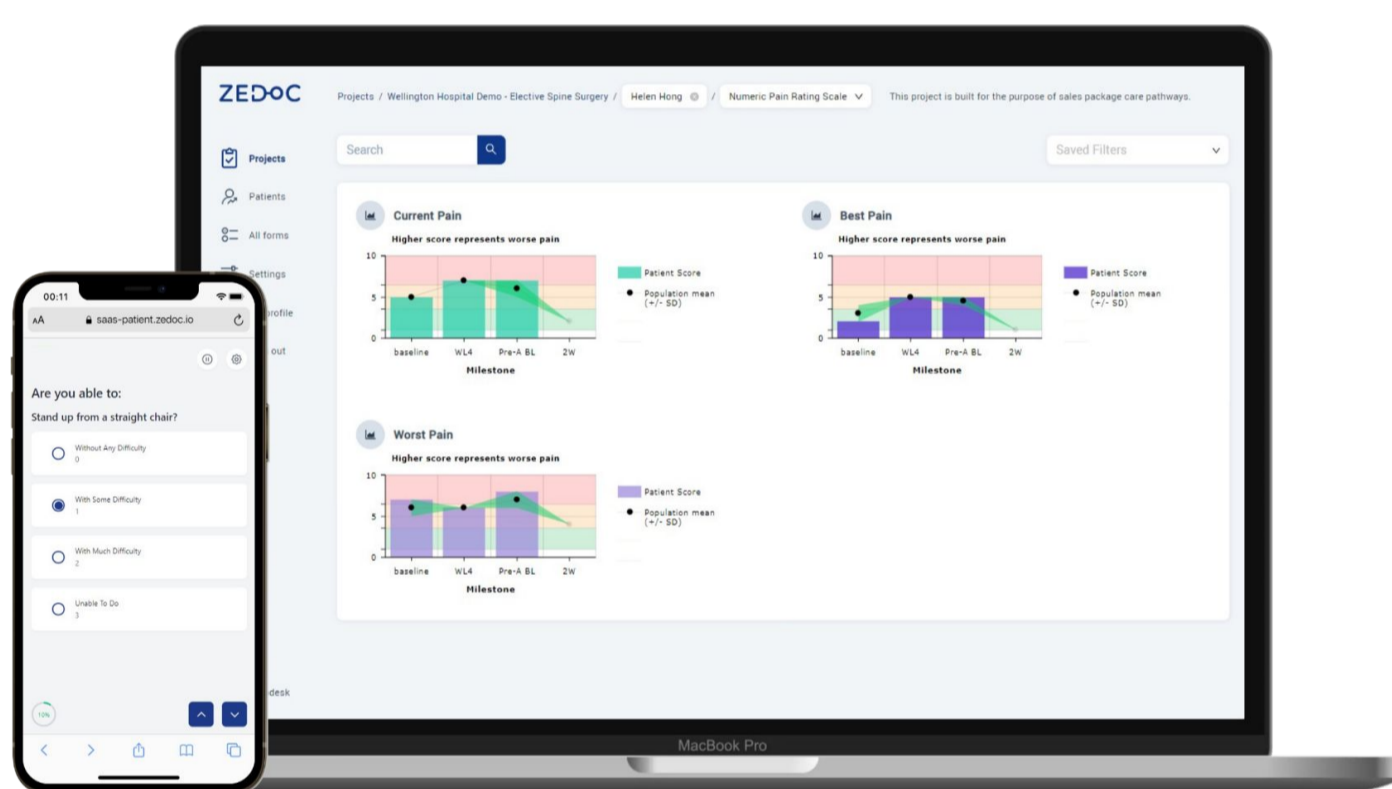
As a global leader in value-based healthcare, ICHOM is uniquely positioned to promote such analytics activities on an international level. Recently, the ICHOM Learning Collaborative was set up, bringing together industry experts in data and technology to further this work. The goal of these collaboratives is to produce a joint offering which provides aggregated insights and analytics that can be used to move the needle forward in value-based care.

In order to support such aggregation of data, it is important that the ICHOM standard sets are represented by a standardised information model. HL7 Fast Healthcare Interoperability Resources (FHIR) is one of the world's leading standards for healthcare information exchange, facilitating semantic interoperability through the exchange of informational units known as resources. ICHOM recently represented its breast cancer standard set in HL7 FHIR, with future plans to extend this work to other standard sets. However, the implementation of ICHOM Patient Centred Outcome Measures with FHIR has not been explored within the context of a real-life use case.



ICHOM Breast Cancer standard set

METHODS



The Clinician's digital health platform

The Clinician is a digital health company which helps healthcare systems transition to value-based healthcare through the collection and analysis of patient generated health data, including patient-reported outcome measures (PROMs).

The company is a strong proponent of healthcare interoperability, and has implemented digital care pathways integrated with existing health information systems using international standards like HL7 v2 and FHIR.

In order to support global data aggregation and analysis efforts, The Clinician partnered with ICHOM in creating a proof of concept HL7 FHIR implementation of the breast cancer standard set. Simulating a clinical workflow, we created a realistic project that administers PROMs to breast cancer patients, focusing on one patient baseline data collection touchpoint, and one clinical baseline data collection touchpoint. FHIR resources were used to represent different entities in the selected clinical workflow.

RESULTS

In this proof of concept implementation, we demonstrated enrollment of a breast cancer patient using a Patient resource, which would occur when a patient registers with a breast cancer clinic. We also demonstrated the generation of FHIR QuestionnaireResponse resources after the completion of questionnaires by either the patient or the provider.

This exercise brought up several areas of feedback relating to information model representation, data flow, and the need for additional clinical concepts that may need to be represented in the FHIR implementation guide. For example, many of the defined Questionnaire resources in the ICHOM standard set are a composite of various questionnaires, but there can be a need to define each questionnaire separately to cater to user preferences, licensing and compliance with electronic migration of PROMs questionnaires. Using SDC Modular Questionnaires may be an option to separate questionnaire definition while allowing it to be presented as one unit to users.

CONCLUSIONS

Representing ICHOM standard sets in FHIR provides a common information model for the aggregation of outcomes data, supporting interoperability and analysis of high quality and comparable data to generate globally applicable insights. The current FHIR implementation of the ICHOM breast cancer standard set is promising and fulfills a broad set of clinical use cases.

However, further consideration needs to be given to several aspects of information modeling and data flows in order to enhance broader clinical applicability and consistent implementation by digital PROMs solutions. Future implementation studies can provide further insights into the facilitators and barriers of using FHIR in ICHOM Patient Centred Outcome Measures.



CONTACTS

The Clinician

Katherine Thomas (Partnerships):
katherine@theclinician.com



ICHOM

Greg Robinson (CTO):
g.robinson@ichom.org

