



Improving data quality for assessment data using SMART on FHIR: Aboriginal and Torres Strait Islander Health Check reference implementation

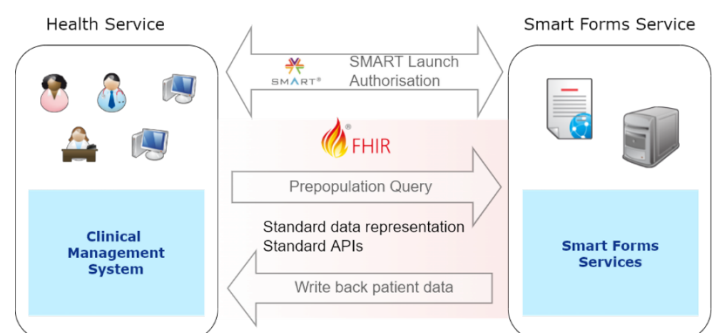
We were commissioned in 2018 by the Australian Government Department of Health to undertake a series of projects known as the Primary Care Data Quality Foundations Programme. This project builds on and extends earlier phases to improve consumer and clinician experience through implementation of standardised FHIR based “Smart Forms” in a reference implementation

Project goals and objectives

The objective of this project is to develop a FHIR Implementation Guide and reference implementation of the Aboriginal and Torres Strait Islander health check “Smart Form” to support increased consumer engagement in the process, care team collaboration, and embedded decision support and screening tools.

This reference implementation will be:

- Open source and production-ready applications
- Capable of integrating into a clinical system
- Incorporate all ages groups of Aboriginal and Torres Strait Islander Health Checks
- Use FHIR data specifications



Our solution

A web-based single-page generic forms application built implementing the HL7 FHIR Specification as a reference implementation.

From the HL7 FHIR Specification, we used

- Questionnaire
- QuestionnaireResponse
- Structured Data Capture Implementation Guide

The form is powered by APIs, open-source libraries and various external services

- The SMART on FHIR JavaScript library
- The SMART Health IT Clinical Management System client
- Ontoserver
- Fhirpath.js

This provides the following functionalities

- SMART Launch
- Form Pre-population
- Conditional Rendering
- Variables and Calculations
- Ontoserver expand for SNOMED CT
- Form Preview
- Saving/Retrieving capabilities
- Filtering Questionnaires/Responses
- Print Preview

Benefits

The Smart Forms application is able to:

- launch from within a primary care clinical management system using SMART App Launch
- retrieve a form definition from the Smart Forms Server and render the form for completion during a Health Check consultation
- support the pre-population of a form by retrieving patient data from the clinical management system and executing the pre-population query
- provide a completed (or partially completed) QuestionnaireResponse to a clinical management system
- retrieve completed (or partially completed) QuestionnaireResponse from a clinical management system for continuation and/or display

<https://build.fhir.org/ig/aeherc/smart-health-checks-fhir-ig/>

The screenshot displays the SMART Forms application interface. At the top, a blue navigation bar shows the user's name 'Mr. Benito Lucio', gender 'Male', date of birth 'August 18, 1936 (86 Years)', and doctor 'Dr. Sara Angulo'. Below the navigation bar, the main content area is titled 'Aboriginal and Torres Strait Islander Health Check (Assembled)'. On the left, there is a sidebar with 'OPERATIONS' and a list of form sections: 'About the health check' (selected), 'Consent', 'Patient Details', 'Current priorities', 'Medical history and current problems', 'Regular medications', 'Allergies/adverse reactions', 'Family history', 'Social and emotional wellbeing', 'Home and family', 'Work', 'Mood', 'Memory and thinking', 'Chronic disease associated with ageing', 'Healthy eating', 'Physical activity', and 'Substance use, including tobacco'. The main form area contains the 'About the health check' section with a 'NEXT TAB' button. Below this, there are two questions: 'Eligible for health check' with radio buttons for 'Yes', 'No', and 'not applicable', and 'Date of last health check' with a date input field showing 'dd/mm/yyyy' and a calendar icon. At the bottom right, there are two toggle switches: 'Hide Debug QRResponse' and 'EnableWhen checks'.