Overview
This document outlines a high-level approach to enhancing OpenEMR's FHIR publishing capabilities.

High Level Objectives

- Support a configurable, automated publication mechanism capable of transmitting FHIR R4 **Patient and Encounter** resources to a single, external FHIR Server.
- Maintain the existing manual publication process as a "utility" used for "one off" transactions and testing.
- Update FHIR connector settings to include additional settings for "FHIR Authentication" and "FHIR Auto Publish". Complete FHIR settings include:
    - FHIR Client Service
        - FHIR R4
        - SMART on FHIR
    - FHIR Authentication
        - None
        - HTTP Basic Auth
        - OAuth2 Client Credentials
    - FHIR Server Base URL
    - FHIR Auto Publish

Patient Field Mappings
OpenEMR maps its internal data structures from MySQL/MariaDB RDBMS to FHIR R4 resources prior to transmission. The table below denotes the data which is conveyed to an external FHIR server from OpenEMR

*** = denotes a "complex" type/resource**
? = conveying race and ethnicity may be out of scope as the ValueSet/code values may not be "standard" from one FHIR implementation to another

Open EMR Field	Open EMR Field Description	FHIR Target
OpenEMR Domain Name/System e.g .http://myopenemr-installation.com		Patient.meta.source
id	Database primary key	N/A
pid	Internal Patient Identifier	Patient.identifiers[0]
pubpid	Public Patient Identifier	N/A
title	Title	Patient.name.prefix
fname	First Name	Patient.name.given[0]
mname	Middle Name	Patient.name.given[1]
lname	Last Name	Patient.name.family
ss	Social Security Number	Patient.name.identifier *
street	Street Address	Patient.address.line[0]

postal_code	Postal/Zip Code	Patient.address.postalCode
city	City	Patient.address.city
state	State	Patient.address.state
country_code	Country	Patient.address.country
phone_contact	Phone Number	Patient.telecom[0] *****
email	Email	Patient.telecome[1] *****
DOB	Birth Date	Patient.birthDate
sex	Gender	Patient.gender
race	Race	supported by ValueSet **?**
ethnicity	Ethnicity	supported by ValueSet **?**

Encounter Field Mappings
<in progress>

Development Iterations/Organizing Work

- OpenEMR FHIR R4 resource validation
    - Validate that OpenEMR's FHIR API maps available patient and encounter data into valid FHIR R4 patient and encounter resources.
- Configuration updates
    - Add new FHIR configurations to Administration -> Global Settings -> Connectors.
    - Validate that the new settings are saved.
    - The configuration settings will be integrated into the publishing process in separate iterations.
- Validate manual publishing process for patient and encounter resources
- Integrate "FHIR Auto Publish" within patient save process
- Integrate "FHIR Authentication" within publishing (auto and manual) process
- Confirm that the FHIR publication, manual and automated, works with the HAPI and IBM FHIR Servers both authenticated and unauthenticated.