

CDC Population Health Informatics Framework: Social Services FHIR Referral

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Team FHIR Pit

Team Deliverable 4: Final Project Presentation

CS 6440 – Introduction to Health Informatics (Fall 2016)

December 5th, 2016

The Team



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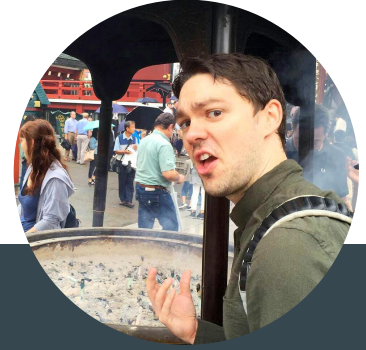


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Project Overview: Problem and Objective

Industry Problem:

There is currently no standardized mechanisms available for performing electronic, non-clinical program referrals

Project Objective:

Create a system using pre-existing FHIR resources to display eligible programs for patients, and allow for electronic, non-clinical referrals

Project Overview: Research

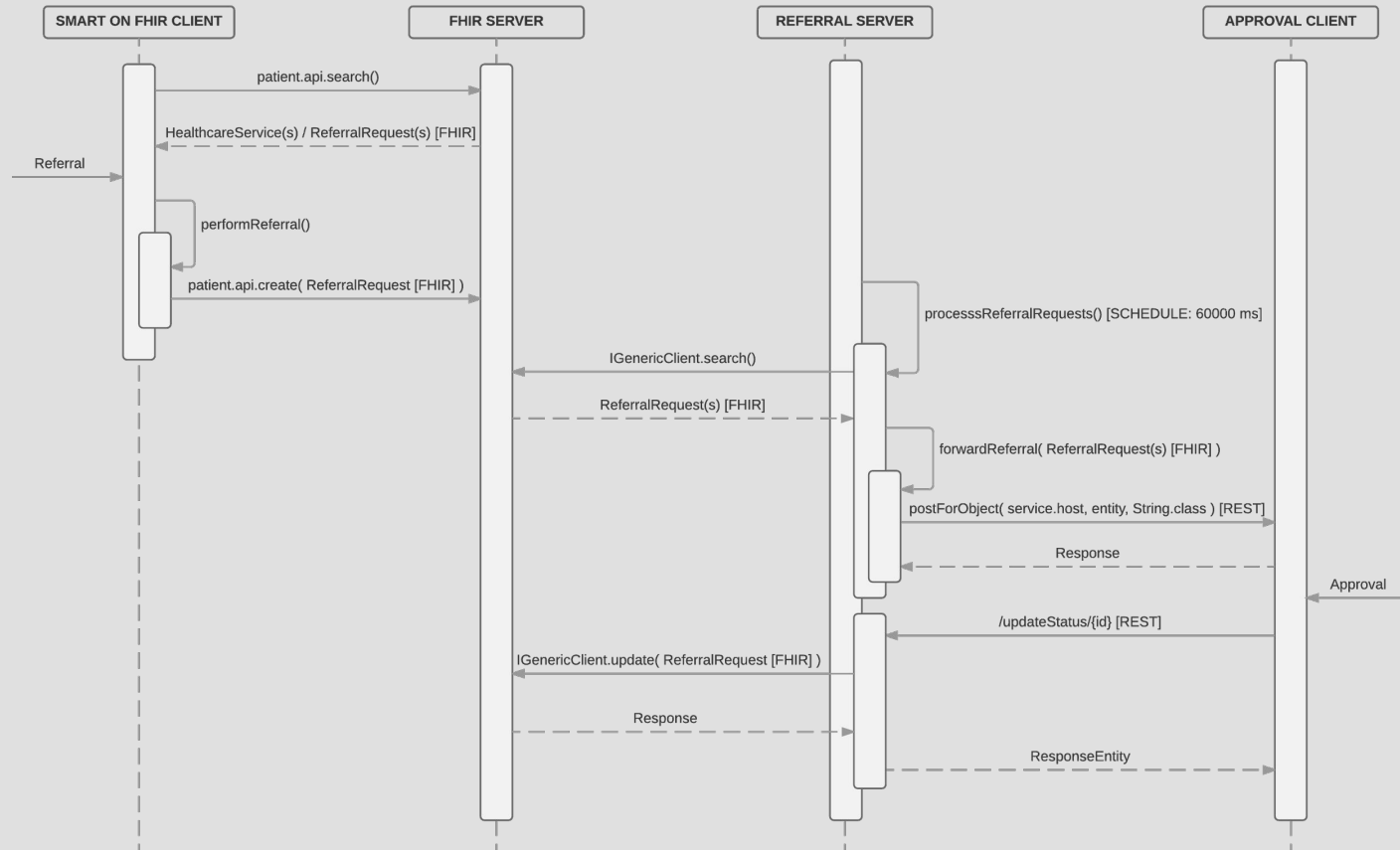
- Project requirements, usage scenarios, and design considerations were developed via interviews with John Loonsk, M.D. (CGI Federal)
- FHIR resource standards were researched based on the documentation provided by HL7 International (<https://www.hl7.org/>)
- Sandbox provisions and SMART on FHIR API references were provided by the Healthcare Services Platform Consortium (HSPC) (<http://hspconsortium.org>)
- Non-clinical program and transaction data points were generalized via interviews with John Loonsk, M.D. (CGI Federal), and through survey of a number of real world social service programs available in North America

Application Demo

Social Service Program Referral

SMART on FHIR

Referral Process: UML Sequence Diagram



Non-clinical Program Representation (FHIR)

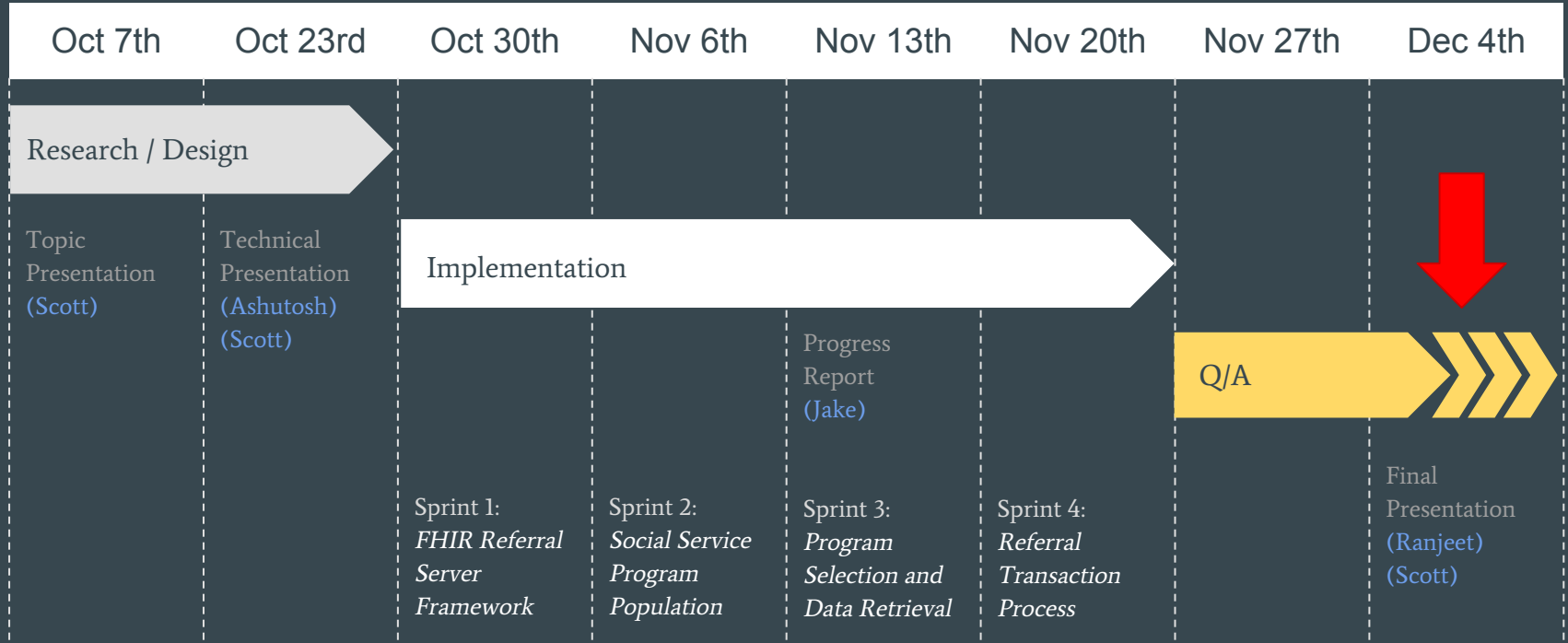
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providedBy	Reference(Organization) [0..1]		
serviceCategory	CodeableConcept [0..1]		
serviceType	BackboneElement [0..*]		
	type	CodeableConcept [1..1]	
	specialty	CodeableConcept [0..*]	
location	Reference(Location) [1..1]		
serviceName	string [0..1]		Program Description
comment	string [0..1]		
extraDetails	string [0..1]		
photo	Attachment [0..1]		
telecom	ContactPoint [0..*]		
coverageArea	Reference(Location) [0..*]		Coverage Area
serviceProvisionCode	CodeableConcept [0..*]		
eligibility	CodeableConcept [0..1]		
eligibilityNote	string [0..1]		
programName	string [0..*]		Program Name
characteristic	CodeableConcept [0..*]		
referralMethod	CodeableConcept [0..*]	elec	
publicKey	string [0..1]		
appointmentRequired	boolean [0..1]	true	
availableTime	BackboneElement [0..*]		
	daysOfWeek	code [0..*]	
	allDay	boolean [0..1]	
	availableStartTime	time [0..1]	
	availableEndTime	time [0..1]	
notAvailable	BackboneElement [0..*]		
	description	string [1..1]	
	during	Period [0..1]	
availabilityExceptions	string [0..1]		

Location	DomainResource		
identifier	Identifier [0..*]		
status	code [0..1]		active
name	string [0..1]		Location name
description	string [0..1]		
mode	code [0..1]		
type	CodeableConcept [0..1]		
telecom	ContactPoint [0..*]		
address	Address [0..1]		Address
physicalType	CodeableConcept [0..1]		
position	BackboneElement [0..1]		
	longitude	decimal [1..1]	
	latitude	decimal [1..1]	
	altitude	decimal [0..1]	
managingOrganization	Reference(Organization) [0..1]		
part of	Reference(Location) [0..1]		

Address	Element	
use	Identifier [0..1]	
type	code [0..1]	
text	code [0..1]	
line	string [0..*]	
city	string [0..1]	
district	string [0..1]	County*
state	string [0..1]	State*
postalCode	string [0..1]	
country	string [0..1]	Country*
period	Period [0..1]	

Project Plan - Gantt Chart

CDC Population Health Informatics Framework: Social Services FHIR Referral (Team FHIR Pit)



Project Successes

- Implemented a complete solution using pre-existing DSTU2 FHIR resources, ensuring interoperability
- Utilized new and innovative technologies such as SMART on FHIR and the HSPC Sandbox
- Developed the workflow to be generic enough to be used with a multitude of different types of programs
- Implemented the components in a modularized fashion, allowing for the referral functionality to be easily embedded in other SMART on FHIR applications with minimal configuration

Potential Future Enhancements

- Allow for the cancellation of referral requests
- Add enhanced eligibility filters based on patient records
- Implement varied transport methods for the referrals to social service programs
- Allow for customized filtering of patient details sent as part of the referral request
- Develop a complete approval platform that can be offered to non-clinical programs to promote the transition to electronic referrals

Team FHIR Pit

Final Project Presentation

December 5th, 2016