DESIGN

Team Technical Presentation

Deliverable 2

David Hills - Dev / QA
William Lyman - Dev / Server
Carol Rice - Dev / Architecture
Kevin Brandt - PM / QA
Dr. Nemati / Dr. Engels / Madhu - Mentors

DEVELOPMENT

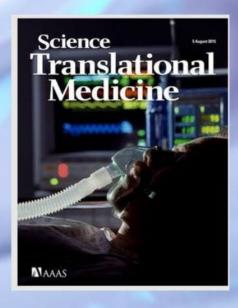
TIMELINE

INTRO

Important Healthcare Terms for this Project:



- Sepsis A condition when the body's response to an infection causes injury to itself.
- TREWScore A machine learning discovered score that has a high accuracy of predicitin the onset of sepsis for early treatment.



05 August 2015 Vol 7, Issue 299

http://stm.sciencemag.org/content/7/299/299ra122

Overview



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TIMELINE



FUNCTION

Overview and Data Flow



ER Patient(s)



Data



FHIR Server



Sepsis
Prediction
Data Sliding
Time
Window





Sepsis
Prediction
Patient
Selection
and Control
System
(SMART on
FHIR)



Prediction
Alerts and
Information



SMART on FHIR Compatible EHR System / App

FUNCTION

Overview and Data Flow



ER Patient(s)



Data



FHIR Server





De-identified ER Patient(s) Test Data



ER Patient(s Sepsis

Prediction Data Sliding

> Time Window





Sepsis
Prediction
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(SMART on
FHIR)



Sepsis
Prediction
Alerts and
Information



SMART on FHIR Compatible EHR System / App

SCREENS

Draft Screen Prototypes



Patient Selection and Time Window Setting





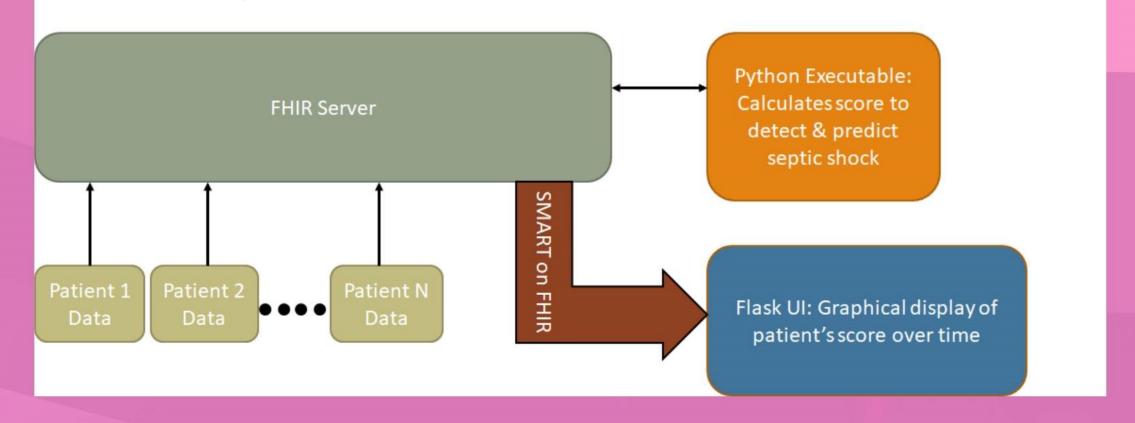
Patient Alert



Architecture

SMART on FHIR

SMART on FHIR: Prediction & Detection of Septic Shock



Tools and Platform



- Platform (test): Debian Linux on Google Cloud
- FHIR Server (test): HAPI FHIR (Java)
- Prediction System Language: Python and client-py for connectivity
- Prediction Library: Python from Dr. Nemati
- IDE: Pycharm by Jetbrains
- Presentation tool: Prezi + Debut Recording
- Screen prototype tool: Pencil Software
- UI for SMART on FHIR: Flask and C3.js
- Architecture diagram: Powerpoint

TIMELINE

Major Milestones and Gantt

10/8 - Team Topic Presentation -COMPLETE

In Itial Visuals Design - WL, DH, CR

Team Technical Presentation (Due 10/22/2017)

*Milestone 1 - Server Running / Basic Connections

Create Data Load of CSV to FHIR Server - DH

10/22 - Team Tech Presentation / High Level Design

10

15

11/05 Calculation Component / Screens Designed / FHIR Interface Designed

10/9/2017

Selected Date:

11/12 Team Progress Report

10/22/2017

12/03 Team
Project Complete and
Presentation Complete

Sepsis Prediction System

Actual Start % Complete Actual (beyond plan) % Complete (beyond plan) Select a period to highlight at right. A legend describing the charting follows. Day Highlight ACTUAL ACTUAL PERCENT ACTIVITY PLAN START **DURATION** START DURATION COMPLETE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 10/09/2017 10/23/2017 10/30/2017 11/06/2017 10/16/2017 100% Phase 1 - Initial Research and Architecture (10/9 - 10/22) - ALL 100% General Organization and Kickoff (start 10/9) - ALL 100% Pycharm Project Template - CR 100% FHIRServer Set up - WL & DH 100% Mentor Kickoff Meeting 70% Visualization Toolkit Research / Test - W L, DH, CR 80% Python FHIR Connection Research / Test - DH, WL, CR Docker Container Initial Investigation - CR, WL Initial Design TREWscore Data Objects - CR, DH, WL 10 Initial Design Calc & Control System - DH, WL, CR 10

100%

100%



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