Welcome!

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CS342/MED253 Building for Digital Health
Lecture 3B: Health Records + Dr. Ricky Bloomfield

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Winter 2020
Does of Digital Health

For data class description and applicable standards supporting data elements, click to view the USCDI Version 1 (July 2020 errata) in PDF format below.

A USCDI “Data Class” is an aggregation of various Data Elements by a common theme or use case.

A USCDI “Data Element” is the most granular level at which a piece of data is exchanged.

For example, Date of Birth is a Data Element rather than its component Day, Month, or Year, because Date of Birth is the unit of exchange.
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United States Core Data for Interoperability (USCDI) **Level 1**

- Allergies & Intolerances
- Assessment and Plan of Treatment
- Care Team Member(s)
- Clinical Notes
- Health Concerns
- Immunizations
- Laboratory Results
- Medications
- Procedures
- Patient Demographics
- Vital Signs
- Goals
- Problems
- Provenance (author org + name)
- Smoking Status
- Unique Device Identifier for implants
United States Core Data for Interoperability (USCDI)  Level 2

- Allergies & Intolerances
- Assessment and Plan of Treatment
- Care Team Member(s)
- Clinical Notes
- Health Concerns
- Immunizations
- Laboratory Results
- Medications
- Diagnostic Imaging
- Encounter Information

- Procedures
- Patient Demographics
- Vital Signs
- Goals
- Problems
- Provenance (author org + name)
- Smoking Status
- Unique Device Identifier for implants
Announcements

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Don’t forget to record lecture

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Winter 2020
https://hackingmedicine.mit.edu/building-for-digital-health/
Assignment #2: ResearchKit + Firebase

Rev. 01.20.2021

Assignment details:

- **Due during Code Review session (week of Feb 2nd)**

- **Aim to finish assignment #2 by the end of this week!**

**Deliverables**

For this assignment, you will use the ResearchKit open-source framework to create surveys for your project. You will also use the Firebase iOS SDK to store survey results in a database. This is a group assignment — work together to divide tasks, and submit one app per group. You will be graded for completion of the following:

1. Your project has a set of pre-defined surveys or patient-reported outcomes for collection. Read through these thoroughly [here](#).
2. Write down the ResearchKit elements you will use to create your survey(s). Refer to the ORKCatalog. Include this list with your PR submission.
3. Create all required surveys using ResearchKit (75%)
4. Configure a Firebase instance for your team, and store survey results in a Firestore DB (15%)
5. Submit your code via a GitHub pull request, one per team [how-to](#). Include every team member's name on your PR submission.
Let’s take a look at Assignment 1!

Great job! You all will become SwiftUI experts in no time 🚀

Cool SwiftUI components we saw:
- ZStack!
- Maps
- Shadows
- ScrollViews
- Toggles
- And more....
Assignment #3: Midterm Presentation & App (alpha)

Deliverables

For this assignment, each team will work together to create one app for their project. This is what you and your team will build upon for the remainder of the course.

February 11th
Assignment #3
Midterm Presentations! February 11th

- You will be creating a study app per group. You will be modifying this for the rest of the quarter.
- Your app will have your work from assignments 1 and 2.
  - A finalized informed consent process.
  - A consistent color and design scheme (find a logo!).
  - Addition of an Active Task
- Try your application with at least two users. You will be including feedback on the midterm presentation slides.
- Your deliverable will be (1) the app, and (2) midterm presentation slides.
Overview for today

- Overview of HL7 FHIR

- Coffee Time (breakout in groups of 3 for socializing)

- Dr. Ricky Bloomfield Guest Lecture
Patients Key to unlock Health Data → Consumer Authorized Data Exchange

21st Century Cures Act Final Rule
Prevent information blocking / All EHR Data Elements exposed / HL7® FHIR®
What is HL7® FHIR®?

- **Fast Healthcare Interoperability Resources** is a standard describing data formats and elements and an application programming interface for exchanging electronic health records. The standard was created by the Health Level Seven International health-care standards organization. [https://hl7.org/FHIR/](https://hl7.org/FHIR/)

- Modern web-based suite of API technology, including a HTTP-based RESTful protocol, HTML and Cascading Style Sheets for user interface integration, a choice of JSON, XML or RDF for data representation, and Atom for results

- STANDARD = INTEROPERABILITY!!

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What is **HL7® FHIR®**?

- Data elements, or “resources,” each have a tag that acts as a unique identifier, just like the URL of a web page.

- A **FHIR resource** can be an individual packet of information that include metadata, text, or particular data elements, but can also be bundled into collections that create clinical documents.

- By creating an accessible and standard URL for these information bundles instead of just passing individual documents back and forth between systems, a number of different applications can point to the same version of the same data each and every time.
Powering...

future health innovation
precision health
consumer health
Coffee Time

- 10 min
- Opportunity to mingle / take a break
- Ice breaker question for the day:

“What health elements would you want to have available?“
- COVID vaccination status?
- Appointment schedules?
- Family history?
- Radiology images?

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guest lecture

Ricky Bloomfield
@rickybloomfield

Empowering patients through technology at Apple Health. Med-Peds physician & clinical informatician. Jazz saxophonist and swimmer. Most importantly: husband and dad

📍 Cupertino, CA
Attendance Check 👋🏼

- Use the following link to mark your attendance for today:
Thank you!

Don’t forget to stop recording