RedCAP & FHIR

FHIR into and out of RedCAP

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FHIR at CSIRO

- Commonwealth Scientific & Industrial Research Organisation
  - Australian E-Health Research Centre
- FHIR Terminology
  - Ontoserver, Shrimp, Snapper
  - National Clinical Terminology Service
- Analytics with FHIR and Terminologies
- SMART-on-FHIR
  - Genomics test ordering
  - Medical Image Analysis
  - Case-Based Learning for Medical Students
- FHIR Profiles for Primary Care (HL7 AU)
REDCap

- Experimental/Research Data Capture
- Online designer for forms, text and structured data
- Manage research data
- Existing support for structured data capture: BioPortal
  - Whole ontology, no support for ValueSets
  - Little control over content
  - Only international edition of SNOMED CT, no refsets
  - Can’t mix code systems*
REDCap & FHIR Terminology

- External module, approved for public module registry*
- Configure REDCap to point to a FHIR Terminology server
- Link form element to
  - FHIR ValueSet
  - FHIR CodeSystem
  - SNOMED CT refset (implicit ValueSet)
  - SNOMED CT hierarchy (implicit isa ValueSet)
  - LOINC answer list
- When using the form, select a code using typeahead
- Currently in use in 5 studies, 4 active
  - Mostly using medications at the moment
  - More trials coming, including for genomics using HPO/SNOMED
REDCap & FHIR Terminology

Field Type: Text Box (Short Text, Number, Date/Time, ...)

Field Label

Variable Name (utilized in logic, calcs, and exports)

ONLY letters, numbers, and underscores

Enable auto naming of variable based upon its Field Label?

How to use [Smart Variables] [Piping]

Validation? (optional) ---- None ----

-- choose search criteria --
ValueSet Name
By CodeSystem
SnomedCT Refset
SnomedCT isa implicit valueset
LOINC implicit answer set

* Prompt if field is blank

Identifier? [ ] No [ ] Yes

Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment Right / Vertical (RV)

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Save Cancel
FHIRECap

- Map data from REDCap data store to FHIR resources
- Trying to coerce/encourage downstream tools to use FHIR
  - More ready to connect to clinical systems
  - Helps us build out representations of phenotypes in FHIR
- Specific declarative mapping language for transformations
  - Grammar generated from FHIR spec (easy to migrate to R4)
- Propagate changes after modifications of REDCap data, metadata, rules, mappings
FHIRCcap

• Use in genomics
  • Australian Genomics Health Alliance
  • 8 projects (in the same REDCap project)*
    – Necessitated an extra operator to discriminate!
  • VariantAtlas the only downstream consumer of FHIR

• Paper accepted to AMIA 2019 Informatics Summit
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