**FHIR Services External Module**

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**Data Dictionary for FHIR Test Research Project**

Data Dictionary

Sample eConsent FHIR Bundle

Sample REDCap Project FHIR Bundle

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**What is FHIR?**

The Health Level 7 (HL7) standard Fast Healthcare Interoperability Resources® (FHIR®) R4 specification allows for the exchange of healthcare data either from an electronic medical record (EMR) or another web-based data collection platform. As healthcare data is becoming increasingly digitized there is a need for standardization among different systems. FHIR development began in 2012 and is based on standards widely used by industries outside of healthcare. One of these is the representational state transfer (REST) application programming interface (API) or RESTful API.1

An API is the way that you communicate between two systems and is useful because you do not have to know to specifics of “caching” the data, the API does that for you. REST determines what that API looks like and follows a set of rules that allows you to send and receive data. You must set up the root-endpoint URL, for more information please see the [Sending data to a FHIR server](#FHIRServer) section. This URL is called a request while the data that is sent back to you is called a response, the data will be in JavaScript Object Notation (JSON) format.2

The HL7 organization utilizes a collaborative approach to develop and upgrade FHIR standards. For a more in-depth overview please see the [introduction to FHIR](https://www.hl7.org/fhir/overview.html) on the HL7 FHIR web page. Provided is an example of the issues with standardization of data that FHIR attempts to solve: Two different EHRs or web-based data collection platforms capture a patient’s name. One system captures the name as “John Doe” while another system captures the name as “Doe, John.” The slight difference in “John Doe” vs “Doe, John” can cause issues when trying to combine the data into a single entry. This is where FHIR can help to solve some of the issues surrounding the standardization of ingesting metadata.1

**FHIR Resources**

FHIR is comprised of multiple resources that are designed to represent a variety of elements needed to accurately collect data. To view the complete list of all available resources please click [here](https://www.hl7.org/fhir/overview.html). Each resource type (i.e. patient) is grouped under a larger category (i.e. individuals resources) and assigned a maturity level through a review process that follows HL7 standards. It is important to remember that regardless of the maturity level the amount of testing is varied with some resources having received little to no “real-world” use cases. To learn more about maturity levels for resources please see [2.7.0.2 Maturity Levels](https://www.hl7.org/fhir/versions.html#std-process).1

Maturity Level

Resource Category

Resource Type

Table

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Each resource, though different in the types of data that they represent, is comprised of the same set of characteristics:

1. A common way to define and represent them, building them from [data types](https://www.hl7.org/fhir/datatypes.html) that define common reusable patterns of elements
2. A common set of [metadata](https://www.hl7.org/fhir/resource.html#metadata)
3. A [human readable](https://www.hl7.org/fhir/narrative.html) part1

**FHIR Elements**

There are base elements, also known as ancestors, that are derived from the DomainResource. These include id, language, text, and extensions which are part of all resources. For each resource there are going to be required elements that must be mapped to generate a FHIR bundle in JSON format. The other elements vary per resource as they are used to capture metadata that is specific to the type of information being collected (i.e. consent, patient, research study, etc.).3 Please see the [Resource Content](#ResourceContent) section for more information regarding the FHIR elements.

**Resource Content**

1. ***Cardinality-*** FHIR utilizes UML cardinality to represent the Resource and Type specifications. Cardinality is the lower and upper bounds on how many times this element may appear in the resource. Please see [here](http://hl7.org/fhir/2020Feb/uml.html) for more information on the use of UML in FHIR.4

Types of cardinality- 0..\*, 0..1, 1..\*, 1..1

1. 0..\*= Not required because the first number or minimum cardinality is “0”. A potentially infinite number of options are possible because the maximum cardinality is “\*”.
2. 0..1= Not required because the first number or minimum cardinality is “0”. If an answer choice is available only one may be selected because the maximum cardinality is “1”.
3. 1..\*= Required because the first number or minimum cardinality is “1”. A potentially infinite number of options are possible because the maximum cardinality is “\*”.
4. 1..1= Required because the first number or minimum cardinality is “1”. Only one answer choice may be selected because the maximum cardinality is “1”.
   1. How to know if a FHIR element is required:

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Required. Please note that a minimum cardinality of 1 is rare in FHIR and are necessary to the understanding of the resource or element.

Not required.

Not required.

1. ***Flags-*** Flags are used as notifications to let the user know if there is any specific information that may affect how the element functions. Please see <https://www.hl7.org/fhir/formats.html#table> for a full list of the flags that are used in FHIR specifications.5

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This element defines or is affected by constraints.

Modifying element.

Part of the summary set.

Standards status of Normative.

1. ***Description & Constraints-*** This provides a description of the element and any constraints that might apply. If the element requires a code or code system then information is provided regarding which codes can be used. Please see <https://www.hl7.org/fhir/formats.html#table> for more information.6
   1. There are three types of constraints: required, extensible, preferred, and example.
      1. Required- The codes that are used must be from the specified value set. This is because the element has values that need to be strictly controlled to standardize the data. Please see <https://www.hl7.org/fhir/terminologies.html#required> for more information.
      2. Extensible- This is for elements where the value set is required, if possible use what is provided however there are more options available to best fit the needs. Please see <https://www.hl7.org/fhir/terminologies.html#required> for more information.
      3. Preferred- The codes that are used can be from the specified value set, but this is not required. Recommended to standardize the data. Please see <https://www.hl7.org/fhir/terminologies.html#preferred> for more information.
      4. Example- The codes are not expected or even encouraged to draw from the specified value set. The user can determine their own code system, it is important to note that a code system is required. Please see <https://www.hl7.org/fhir/terminologies.html#example> for more information.

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Code system required but not necessarily the one provided by FHIR.

Recommended answer choices for interoperability but not required.

Codes must be from the specified value set. Some can be extended.

**FHIR Services External Module v2.0**

REDCap (Research Electronic Database Capture) is a web-based platform designed for data collection for clinical and non-clinical research and is currently in use by over 5,000 organizations worldwide. REDCap has an extensive open-source repository of external modules, created and shared by the larger REDCap community (REDCap Repo). This includes the FHIR services module previously created for exporting of metadata related to the FHIR Questionnaire Resource. The expansion of this work previously done with the FHIR Questionnaire Resource now allows for the export of any metadata via a FHIR bundle in JSON format. ***Please note that the researcher is responsible for knowing what can be shared via FHIR and should follow all state and federal patient privacy laws.***

**Enabling the External Module**

*This process is unique to Vanderbilt/VUMC if you are outside the Vanderbilt system, please refer to your institution’s processes and guidelines. Please note that depending on your user rights as well as how your institution has chosen to set up their instance of REDCap the screenshots may have some additional information that you cannot access.*

*If you are outside of the Vanderbilt/VUMC system, and are a REDCap administrator, you can download the FHIR Services Module through the REDCap Repo. Documentation can be found through the Repo-linked GitHub repository.*

1. Log into REDCap using your VUMC ID and password

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1. Go to the REDCap project that you want to enable the external module.

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If you have already created a project.

If you have not created a project.

1. Select the “Contact REDCap administrator” button under the “Help & Information” on the left-hand side of the screen. This will open Outlook and you will be able to send an administrator an email letting them know that you would like to enable the “FHIR Services” external module. An administrator will let you know once they have enabled the project on your project. Alternatively, you can send an email to [redcap@vumc.org](mailto:redcap@vumc.org) outside of the REDCap system just include your project PID.

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Clicking on “Contact REDCap administrator” will open Outlook and send an email to the REDCap team with the project PID in the email subject line.

Alternatively, you can send an email to [redcap@vumc.org](mailto:redcap@vumc.org) from Outlook or other email server and just include the project PID in the email to make it easier for the REDCap team to enable the external module.

1. Once you receive confirmation that the module has been enabled you will be able to find it under “Applications” and “External Modules” on the left-hand side of the screen. The FHIR services will show up as a currently enabled module and you will be able to set up the configuration.

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This is where you will set up you will specify your remote FHIR server settings, eConsent settings, as well as specify if you want to map any unmarked fields to the Questionnaire resource. You will set up the individual FHIR mappings directly from the REDCap fields. Please see the [Mapping the REDCap Fields to FHIR section](#MapFieldstoFHIR) for more information.

**eConsent**

Electronic consent (eConsent) framework within REDCap allows for researchers to obtain a participant consent electronically via a survey. This framework is Part 11 compliant and follows all other rules and restrictions for patient privacy. There are several steps that are required to set up the eConsent framework as well as map it to FHIR resources and elements. **Your local Institutional Review Board (IRB) should be consulted if you wish to enable the eConsent framework in REDCap.**

1. You will need to make sure that your REDCap project has the survey functionality enabled. On the left-hand side of the screen select the “Project Setup” under the “Project Home and Design”. This will take you to the project setup main page where you can look under “Main project settings” and click on the “Enable” for “Use surveys in this project?”

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1. Once you click “Enable” this will allow you to use surveys in the REDCap project. The “Use surveys in this project?” will turn green and you can come back and disable this setting in the future if you need to.

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1. Go to the designer where you have your data collection instruments. Look for the “Enable” button to be able to use the instrument as a survey. Once you click on “Enable” this will open the survey settings.

A screenshot of a computer

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1. The survey settings are customizable, scroll down to the bottom of the page for the “eConsent framework” the eConsent will be automatically disabled. Select the “Auto-Archive + e-Consent Framework” option and fill out the eConsent Framework options. Once that has been done click on “Save Changes”.

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Click to enable the eConsent Framework.

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Click to learn more about eConsent.

1. Step #4 is important because the eConsent bundle in JSON format utilized the patient and consent FHIR resources. For the bundle to have the patient information necessary the eConsent framework must be filled out. The next step is to map the consent information to FHIR and this is done through the FHIR services external module. Go to “External Modules” on the left-hand side of the screen under “Applications” and click on “Configure”.

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1. This will open the external module and you can configure the settings for the eConsent. The form will be whatever survey instrument that you are using for your eConsent. The scope and category are required FHIR elements for the consent resource. These are pulled directly from the FHIR server and follow HL7 guidelines.
   1. For scope the possible choices are: advanced care directive, research, privacy consent, and treatment.
   2. For category the possible choices are: advance directive, do not resuscitate, emergency only, health care directive, notice of privacy practices, POLST, research information access, de-identified information access, re-identifiable information access, V3-acctcodes, and LOINC (patient consent, privacy policy acknowledgement document, privacy policy organization document, release of information consent).
      1. You have the option to have more than one category. To create more than once category click on the “+” on the right-hand side of the screen to display an additional drop-down option. This is for research consents that are both a patient consent as well as release of information.

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This is where you will fill out the necessary eConsent information.

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This will be your eConsent survey instrument.

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Required FHIR element. For most eConsents in REDCap the scope will be “Research”.

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Creates additional drop-down options.

Required FHIR element. Can have more than option if needed for eConsents.

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Click on “save” once the eConsent settings have been completed.

**Validation of Data**

There are several places where the FHIR services external module will validate the data. This happens while the mapping is occurring and after the fields have been mapped. Please note that the validation refers to the transformation of the data and not necessarily the generate resource validation unless there are answer choices which need to adhere to FHIR specifications.

1. Validation of data with errors
   1. To validate the FHIR mappings go to the “Record Status Dashboard” on the left-hand side under “Data Collection”.

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* 1. Click on the record number of the participant that you want to validate your FHIR mappings. At the top of the screen click on the “Choose action for this record” to display a drop-down menu and select “Validate FHIR Bundle”.

Table

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* 1. If there are any errors present then you will see an error message. For this example, there are missing Observation codes which need to be added. An easy way to find where your FHIR mapping validation error is originating from is to look in the codebook. Just “ctrl + F” for observation to locate the exact observation that is missing the necessary LOINC code.

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1. Validation of data without errors
   1. Follow steps a through b above to get to the FHIR validation check.
   2. If there are no errors in the FHIR mapping that need your attention then you will be re-directed to the JSON readout for your FHIR bundle.

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**FHIR bundle**

1. To view the main FHIR bundle go to the “Record Status Dashboard” on the left-hand side under “Data Collection”.

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1. Click on the record number of the participant that you want to download the FHIR bundle information. At the top of the screen click on the “Choose action for this record” to display a drop-down menu and select “Open FHIR Bundle”.

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1. To view the full FHIR bundle please see the Sample REDCap project FHIR bundle section of this document.

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Sample JSON FHIR bundle.

1. To view the eConsent FHIR bundle go to the “Record Status Dashboard” on the left-hand side under “Data Collection”. Once the patient has completed the eConsent survey there will be a green check mark.

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1. Open the completed survey and at the top of the page will be a “View eConsent FHIR Bundle”. This will show the eConsent FHIR bundle in JSON format, there will be two sections the Consent FHIR resource as well as the Patient FHIR resource. This information is pulled from the REDCap database to view how to set this up please refer to the eConsent section of this document.

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1. To view the full eConsent FHIR bundle please see the Sample eConsent FHIR bundle section of this document.

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Sample consent FHIR bundle.

**Sending Data to a FHIR Server**

1. Go to the FHIR Services external module and click on “configure.”

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1. Copy and paste the FHIR Server URL and then click “save.”

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1. Go to “Record Status Dashboard” and select the record that you want to export.

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1. Click on “Choose action for record” and choose the “Send FHIR Bundle to remote FHIR server” option.

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1. Once you select “Send FHIR Bundle to remote FHIR server” then the system will let you know if the data transfer was successful. If the transfer was successful then click on “OK” to close out FHIR server system.

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1. If you want to see the FHIR server uploads, then you can click on “Received FHIR Resources.”

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1. You can download the PDF of the metadata upload.

Graphical user interface

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1. If there are any errors present then the FHIR bundle will not send. You will see an alert similar to the one below. You will need to fix any errors present in the FHIR mapping before the data can be sent to an external server. This is to prevent any invalid data that does not conform to FHIR specifications from being shared.

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**Mapping the REDCap Fields to FHIR**

Unlike other external modules the mapping of REDCap metadate to FHIR resources and elements happens at the field level in the REDCap project. Follow the instructions below to map the REDCap fields to FHIR resources and elements. Please see the [Required Mapping](#RequiredMapping) section for an overview of fields that might require a certain coding to comply with FHIR specifications. Note that this is just an overview, you will need to consult the individual FHIR resources and elements located [here](https://www.hl7.org/fhir/resourcelist.html).

**Single Mappings**

This is for resources and elements that will require only one mapping. (i.e. first name being mapped to FHIR resource: “patient” and FHIR element: “name/given”). Please note that this does not mean that you cannot use the additional elements if needed.

1. Go to the Online Designer where you have created your instruments and open the instrument that you want to start mapping the REDCap fields to FHIR.

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1. Click on the pencil icon to open the REDCap field settings.

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1. One the right side of the screen will be the “FHIR Mapping” section. You will indicate which FHIR resource you want to map your REDCap field. (i.e. for the “First Name” the FHIR resource will be “Patient”)

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1. Fill out the FHIR resource and this will prompt an additional drop-down option for the FHIR element. (i.e. for “First Name” the element will be “name/given”)

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1. Once you fill out the FHIR Resource and Element you will notice that an automatic Action Tag is populated on the bottom left-hand side of the screen. This will let you know which fields are mapped to FHIR and will show the specific mapping on the data dictionary. When you are done with the mapping the click the “save” button.

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When you fill out the FHIR mapping information on the right side of the screen. The information will automatically be stored in the Action Tags and will be available in the codebook.

**Complex Mappings**

This is for resources and elements that will require more than one FHIR element, (i.e. vital sign being mapped to FHIR resource: “observation” and FHIR elements: “status, code, effectiveDateTime, unit, etc.”).

1. You will get to the mapping the same way that you would for a single mapping. Please see the [single mapping](#SingleMap) section for additional details for how to access the FHIR mapping. *For this example we will be using an observation “Height” which has a status, category, LOINC code, date/time, unit, and optional note.*

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Choose the resource and element.

1. Once you specify that the FHIR Resource is “Observation” and the FHIR Element is “valueQuantity/value” you will see that the additional required elements such as “status” and “code” populate.
   1. For the element “status” the answer choice “final” is the default however, this can be changed at the discretion of the researcher.
   2. For the element “code” the system for the Loinc code is the default. If the researcher wishes to use a different coding system (i.e. Snomed) then the researcher will need to specify the coding system per FHIR specifications.

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We are using LOINC code, but you could choose any code system.

1. To map the other fields and values needed you will need to add “Additional Elements.” Please note that there are two options “Add field” which is where you have a REDCap field for that particular mapping (i.e. date/time, unit, etc.) and “Add value” which is where you will need to add in a value (i.e. LOINC code, category, etc.

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“Add field” for a REDCap field and “Add value” for everything else.

1. Click on “Add value” under “Additional Elements” and select the Element which is “category” in this case and the Value which is “vital signs” in this case.

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1. Click on “Add field” under “Additional Elements” and select the Element which is “effectiveDateTime” in this case and the Value which is “vital\_date” in this case. This will depend on your REDCap database and the drop down will allow you to sort through your potential REDCap fields to map.

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1. Click on “Add field” under “Additional Elements” and select the Element which is “valueQuantity/unit” in this case the Value which is “cm” in this case. This will depend on your REDCap database (in this REDCap project the units are captured as a unique field) and the drop down will allow you to sort through your potential REDCap fields to map. In this instance you could also use “Add value” depending on your needs.

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1. Click on “Add value” under “Additional Elements” and select the Element which is “note/text” in this case and the Value which is “baseline visit” in this case. This is not required and is simply a way for you to keep track of multiple “height” values by tagging them with the visit information.

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1. Please note that one the required information has been entered under “Additional Elements” for whichever FHIR resource you are mapping you can view your actions tags or click on “save” and your REDCap field will be mapped to FHIR.

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**Multiple Instances of Mappings**

This can apply to a single or complex mapping example. In many projects an observation such as vital signs or laboratory values can appear more than once. Multiple instances of Mappings allows you to use the same FHIR Resource and Element more than one time as needed to accurately capture your data.

***Please note that all resources have the potential for multiple instances mappings if needed. To get the Multiple Mappings to work and not throw an error you will have to have an additional element. Please refer to the FHIR resource that you are mapping to determine if there are any required fields. To view the complete list of all available resources please click*** [***here***](https://www.hl7.org/fhir/resourcelist.html)***.***

1. To map a single mapping that appears more than once please refer to the [Single Mappings section](#SingleMap) of this document.
   1. The only difference is that you will have to map an additional element (i.e. a note to avoid an error message with validating the data.
2. To map a complex mapping that appears more than once please refer to the [Complex Mappings section](#ComplexMap) of this document.
   1. Please note that since complex mapping requires the use of additional elements nothing more is needed. It has been found to be helpful to add notes to your mappings (i.e. tagging a vital sign as a baseline measurement) to assist later on with data ingestion.

**Answer choices**

If you are working with a FHIR element that has pre-determined answer choices, that are required, there is an option built into REDCap that allows users to pull in the answer choices. For this “Gender” will be the example that will be used. Once you fill out the FHIR Resource and Element you will notice another option will appear “View the recommended choices for this element” once you click on that hyperlink it will open another window with the recommended answer choices which are pulled directly from the FHIR server. This is not a necessary step however if you see this it would be helpful to look at the recommended choices to avoid potential error messages when you go to open the FHIR bundle and export your data. If you choose to use the suggested answer choices click on “Select all (for easy copying)” and this will

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**FHIR Resources and Elements Required Mapping**

Please refer below for certain mapping information that will need to be considered when building the REDCap project. This is meant to serve as a quick reference when setting up your REDCap project or when mapping to FHIR. You will need to consult the FHIR specifications for each resource that you are trying to map in REDCap.

* Birth Sex- in FHIR birth sex is differentiated from gender:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Patient | male | Male |
|  | female | Female |
|  | unknown | Unknown |

* Gender- the minimum that you will need to include:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Patient | male | Male |
|  | female | Female |
|  | other | Other |
|  | unknown | Unknown |

For a full list please see [this list](https://www.hl7.org/fhir/codesystem-gender-identity.html)

* Race- the minimum that you will need to include:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Patient | 1002-5 | American Indian or Alaska Native |
|  | 2028-9 | Asian |
|  | 2054-5 | Black or African American |
|  | 2076-8 | Native Hawaiian or Other Pacific Islander |
|  | 2106-3 | White |

For a full list please see [this list](https://www.hl7.org/fhir/v3/Race/cs.html)

* Ethnicity- the minimum that you will need to include:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Patient | 2135-2 | Hispanic or Latino |
|  | 2186-5 | Not Hispanic or Latino |

For a full list please see [this list](https://www.hl7.org/fhir/v3/Ethnicity/cs.html)

* Marital Status- you will not have to use all codes if they do not apply to your project:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Patient | A | Annulled |
|  | D | Divorced |
|  | I | Interlocutory |
|  | L | Legally Separated |
|  | M | Married |
|  | P | Polygamous |
|  | S | Never Married |
|  | T | Domestic Partner |
|  | U | Unmarried |
|  | W | Widowed |
|  | UNK | Unknown |

* Research Subject Status- you will not have to use all codes if they do not apply to your project:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Research Subject | candidate | Candidate |
|  | eligible | Eligible |
|  | follow-up | Follow-up  The display can be edited if the coding is compatible with FHIR specifications. |
|  | ineligible | Ineligible |
|  | not-registered | Not Registered |
|  | off-study | Off-study |
|  | on-study | On-study |
|  | on-study-intervention | On-study-intervention |
|  | on-study-observation | On-study-observation |
|  | pending-on-study | Pending-on-study |
|  | potential-candidate | Potential Candidate |
|  | screening | Screening |
|  | withdrawn | Withdrawn |

* Observation Status- these are built into the additional options in REDCap:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Observation | registered | Registered |
|  | preliminary | Preliminary |
| This is the default in the FHIR mapping for REDCap. | final | Final |
|  | amended | Amended |
|  | corrected | Corrected |
|  | cancelled | Cancelled |
|  | entered-in-error | Entered in Error |
|  | unknown | Unknown |

* Fasting Status- you will not have to use all codes if they do not apply to your project:

|  |  |  |
| --- | --- | --- |
| **Resource** | **Code** | **Display** |
| Specimen | F | Fasting |
|  | FNA | Fasting Not Asked |
|  | NF | Not Fasting |
|  | NG | Not Given |

**Useful Resources and References**

**1 FHIR overview:** <https://www.hl7.org/fhir/overview.html>

**2Restful API:** <https://restfulapi.net/rest-architectural-constraints/>

**3FHIR base resource**: <https://www.hl7.org/fhir/resource.html>

**4Cardinality:** <http://hl7.org/fhir/2020Feb/uml.html>

**5Flags:** <https://www.hl7.org/fhir/formats.html#table>

**6Descriptions and Constraints:** <https://www.hl7.org/fhir/terminologies.html#required>

**HL7:** <http://www.hl7.org/index.cfm>

**FHIR resources reference list:** <https://www.hl7.org/fhir/overview.html>

**Data Dictionary for FHIR Test Research Project**

As part of the FHIR mapper testing a fake REDCap research project was created and the fields were mapped to FHIR resources and elements. ***Please note that all data is fake and no PHI is included in this section.***

**Data dictionary**

Please see below for a link to the data dictionary. You can view the data dictionary or upload it to a REDCap project.

**Sample eConsent FHIR bundle**

Please see below for a sample eConsent FHIR bundle in JSON format.

Text

Description automatically generated

**Sample REDCap project FHIR bundle**

Please see below for a sample REDCap project FHIR bundle in JSON format.

{

"resourceType": "Bundle",

"type": "collection",

"entry": [

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Consent/123248-3.date-enrolled.prestudy-arm-2",

"resource": {

"resourceType": "Consent",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Consent/123248-3.date-enrolled.prestudy-arm-2"

}

],

"verification": [

{

"verificationDate": "2020-12-09T00:00:00-06:00",

"verified": true

}

],

"scope": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/consentscope",

"code": "research"

}

]

},

"category": [

{

"coding": [

{

"system": "http://loinc.org",

"code": "64292-6"

}

]

},

{

"coding": [

{

"system": "http://loinc.org",

"code": "59284-0"

}

]

}

],

"status": "active",

"policyRule": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/consentpolicycodes",

"code": "cric"

}

]

},

"patient": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Consent/123248-3.staff-consent.prestudy-arm-2",

"resource": {

"resourceType": "Consent",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Consent/123248-3.staff-consent.prestudy-arm-2"

}

],

"performer": [

{

"display": "MKB"

}

],

"status": "draft",

"scope": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/consentscope",

"code": "research"

}

]

},

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",

"code": "ICOL"

}

]

}

],

"policyRule": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/consentpolicycodes",

"code": "cric"

}

]

},

"provision": {

"securityLabel": [

{

"display": "1"

}

]

},

"dateTime": "2021-12-07T00:00:00-06:00",

"language": "English",

"patient": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Patient/123248-3",

"resource": {

"resourceType": "Patient",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Patient/123248-3"

}

],

"name": [

{

"given": [

"Harry",

"James"

],

"family": "Potter"

}

],

"birthDate": "1981-07-31",

"address": [

{

"type": "physical",

"line": [

"123 Hogwarts Way"

],

"city": "Spring Hill",

"state": "TN",

"postalCode": "37174"

}

],

"telecom": [

{

"value": "6218675309",

"system": "phone",

"use": "mobile"

},

{

"value": "6218675309",

"system": "phone",

"use": "home"

},

{

"value": "6218675309",

"system": "phone"

},

{

"value": "thechosenone@gmail.com",

"system": "email",

"use": "home"

}

],

"contact": [

{

"name": {

"given": [

"Ginny"

],

"family": "Potter"

},

"telecom": [

{

"value": "6218675309",

"system": "phone"

}

]

}

],

"gender": "male",

"maritalStatus": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/v3-MaritalStatus",

"code": "M"

}

]

},

"deceasedBoolean": false

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Condition/123248-3.given-birth.prestudy-arm-2",

"resource": {

"resourceType": "Condition",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Condition/123248-3.given-birth.prestudy-arm-2"

}

],

"evidence": [

{

"detail": [

{

"display": "yes-given-birth"

}

]

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/ResearchStudy/123248-3.ie.prestudy-arm-2",

"resource": {

"resourceType": "ResearchStudy",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "ResearchStudy/123248-3.ie.prestudy-arm-2"

}

],

"enrollment": [

{

"display": "Yes-18"

}

],

"status": "active",

"note": [

{

"text": "non-compliance"

}

]

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/ResearchSubject/123248-3.date-visit-b.prestudy-arm-2",

"resource": {

"resourceType": "ResearchSubject",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "ResearchSubject/123248-3.date-visit-b.prestudy-arm-2"

}

],

"period": {

"start": "2020-12-30T00:00:00-06:00",

"end": "2021-01-15T00:00:00-06:00"

},

"status": "candidate",

"assignedArm": "experimental",

"individual": {

"reference": "Patient/123248-3"

},

"study": {

"reference": "ResearchStudy/123248-3.ie.prestudy-arm-2"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/MedicationAdministration/123248-3.dosage.prestudy-arm-2",

"resource": {

"resourceType": "MedicationAdministration",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "MedicationAdministration/123248-3.dosage.prestudy-arm-2"

}

],

"dosage": {

"dose": {

"value": 50,

"unit": "mg"

}

},

"status": "unknown",

"effectiveDateTime": "2001-01-01T00:00:00-06:00",

"medicationReference": {

"display": "A111678"

},

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.height.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.height.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 180,

"unit": "cm"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "8302-2"

}

]

},

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.weight.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.weight.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 56,

"unit": "1"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "29463-7"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.bmi.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.bmi.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 17.3

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "39156-5"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.o2-sat.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.o2-sat.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 98,

"unit": "1"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "2708-6"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.heart-rate.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.heart-rate.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 60,

"unit": "beatspermin"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "10251-7"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.sysbp.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.sysbp.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 120,

"unit": "1"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "8480-6"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.diabp.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.diabp.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 80,

"unit": "1"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "8462-4"

}

]

},

"effectiveDateTime": "2020-12-30T00:00:00-06:00",

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "baseline visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.height-2.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.height-2.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 250,

"unit": "1"

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "8302-2"

}

]

},

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "month 1 visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Observation/123248-3.bmi-2.prestudy-arm-2",

"resource": {

"resourceType": "Observation",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Observation/123248-3.bmi-2.prestudy-arm-2"

}

],

"valueQuantity": {

"value": 17.3

},

"status": "final",

"code": {

"coding": [

{

"system": "http://loinc.org",

"code": "39156-5"

}

]

},

"category": [

{

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/observation-category",

"code": "vital-signs"

}

]

}

],

"note": [

{

"text": "month 1 visit"

}

],

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Specimen/123248-3.specimen.prestudy-arm-2",

"resource": {

"resourceType": "Specimen",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Specimen/123248-3.specimen.prestudy-arm-2"

}

],

"type": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/v2-0487",

"code": "BPU"

}

]

},

"collection": {

"collectedDateTime": "2021-04-16T00:00:00-05:00",

"quantity": {

"value": 2

}

},

"note": [

{

"text": "testing display of notes"

}

],

"processing": [

{

"timeDateTime": "2021-04-19T16:34:10-05:00"

}

],

"receivedTime": "2021-04-19T00:00:00-05:00",

"subject": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Task/123248-3.pill-diary-1.prestudy-arm-2",

"resource": {

"resourceType": "Task",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Task/123248-3.pill-diary-1.prestudy-arm-2"

}

],

"description": "yes-pill-diary",

"status": "draft",

"intent": "unknown"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Immunization/123248-3.dose1-code.prestudy-arm-2",

"resource": {

"resourceType": "Immunization",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Immunization/123248-3.dose1-code.prestudy-arm-2"

}

],

"vaccineCode": {

"coding": [

{

"system": "http://hl7.org/fhir/sid/cvx",

"code": "16"

}

]

},

"status": "completed",

"occurrenceString": "2021-03-26",

"location": {

"type": "VUMC"

},

"site": {

"coding": [

{

"system": "http://terminology.hl7.org/CodeSystem/v3-ActSite",

"code": "LA"

}

]

},

"performer": [

{

"actor": {

"display": "banasimk"

}

}

],

"manufacturer": {

"display": "moderna"

},

"lotNumber": "1",

"expirationDate": "2021-03-26",

"doseQuantity": {

"value": 1

},

"reaction": [

{

"reported": true,

"date": "2021-03-26T00:00:00-05:00",

"detail": {

"display": "Filled up with blueberry juice and their head just fell off of their shoulders. He can now join the headless hunt."

}

}

],

"patient": {

"reference": "Patient/123248-3"

}

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.baseline-data-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.baseline-data-test.prestudy-arm-2"

}

],

"item": [

{

"item": [

{

"linkId": "study\_id",

"text": "Study ID",

"type": "string"

},

{

"linkId": "drug\_name",

"text": "Drug name",

"type": "string"

},

{

"linkId": "dose\_mg",

"text": "Unit",

"type": "string"

},

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign"

}

}

],

"linkId": "vital\_sign",

"text": "Were vital signs captured?",

"type": "choice"

},

{

"linkId": "vital\_date",

"text": "Date vital signs captured",

"type": "date"

},

{

"answerOption": [

{

"valueCoding": {

"code": "cm",

"display": "cm",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.cm"

}

}

],

"linkId": "cm",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "kg",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.kg"

}

}

],

"linkId": "kg",

"type": "choice"

},

{

"answerOption": [

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"valueCoding": {

"code": "1",

"display": "%",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.percent"

}

}

],

"linkId": "percent",

"type": "choice"

},

{

"answerOption": [

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"valueCoding": {

"code": "beatspermin",

"display": "beats/min",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.beat-min"

}

}

],

"linkId": "beat\_min",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "mmhg",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.bp-unit"

}

}

],

"linkId": "bp\_unit",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "g/dL",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.unit"

}

}

],

"linkId": "unit",

"type": "choice"

}

],

"linkId": "vital\_sign\_\_\_section\_header",

"text": "Vital Signs",

"type": "group"

}

],

"linkId": "123248.baseline-data-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.baseline-data-test.prestudy-arm-2",

"status": "draft",

"title": "Baseline Data- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.baseline-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.completion-data-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.completion-data-test.prestudy-arm-2"

}

],

"item": [

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"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.complete-study"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.complete-study"

}

}

],

"linkId": "complete\_study",

"text": "Has the patient completed the study?",

"type": "choice"

},

{

"linkId": "withdraw\_date",

"text": "Date patient withdrew from study",

"type": "date"

}

],

"linkId": "complete\_study\_\_\_section\_header",

"text": "Study Completion Information",

"type": "group"

}

],

"linkId": "123248.completion-data-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.completion-data-test.prestudy-arm-2",

"status": "draft",

"title": "Completion Data- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.completion-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.covid19-vaccination.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.covid19-vaccination.prestudy-arm-2"

}

],

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{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.dose1-reactionhosp"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.dose1-reactionhosp"

}

}

],

"linkId": "dose1\_reactionhosp",

"text": "Did the reaction require hospitalization?",

"type": "choice"

}

],

"linkId": "123248.covid19-vaccination.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.covid19-vaccination.prestudy-arm-2",

"status": "draft",

"title": "COVID-19 Vaccination",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.covid19-vaccination.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.demographics-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.demographics-test.prestudy-arm-2"

}

],

"item": [

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.consent-epic"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.consent-epic"

}

}

],

"linkId": "consent\_epic",

"text": "Consent note documented in EPIC?",

"type": "choice"

},

{

"linkId": "initials",

"text": "Initials",

"type": "string"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Hispanic or Latino",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.ethnicity-test"

}

},

{

"valueCoding": {

"code": "2",

"display": "Not Hispanic or Latino",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.ethnicity-test"

}

}

],

"linkId": "ethnicity\_test",

"text": "Ethnicity",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "American Indian or Alaska Native",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

},

{

"valueCoding": {

"code": "2",

"display": "Asian",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

},

{

"valueCoding": {

"code": "3",

"display": "Black or African American",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

},

{

"valueCoding": {

"code": "4",

"display": "Native Hawaiian or Other Pacific Islander",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

},

{

"valueCoding": {

"code": "5",

"display": "White",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

}

],

"linkId": "race\_test",

"text": "Race",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Male",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.sex-test"

}

},

{

"valueCoding": {

"code": "2",

"display": "Female",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.sex-test"

}

}

],

"linkId": "sex\_test",

"text": "Sex at birth",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "2239004",

"display": "2239004",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.preg-loinc"

}

}

],

"linkId": "preg\_loinc",

"text": "History of pregnancy loinc code",

"type": "choice"

},

{

"linkId": "num\_children",

"text": "How many times has the patient given birth?",

"type": "string"

}

],

"linkId": "123248.demographics-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.demographics-test.prestudy-arm-2",

"status": "draft",

"title": "Demographics- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.demographics-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.econsent.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.econsent.prestudy-arm-2"

}

],

"item": [

{

"item": [

{

"linkId": "date\_1",

"text": "Date researcher signs",

"type": "string"

},

{

"linkId": "date",

"text": "Date patient signs",

"type": "string"

}

],

"linkId": "123248.econsent.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.econsent.prestudy-arm-2",

"status": "draft",

"title": "eConsent",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.econsent.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-1-data-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

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"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.month-1-data-test.prestudy-arm-2"

}

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{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.miss-dose-1"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.miss-dose-1"

}

}

],

"linkId": "miss\_dose\_1",

"text": "Any missed doses reported?",

"type": "choice"

},

{

"linkId": "miss\_reason\_1",

"text": "Reason for missed doses",

"type": "string"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.med-bottle"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.med-bottle"

}

}

],

"linkId": "med\_bottle",

"text": "Did the patient bring old medication bottles?",

"type": "choice"

},

{

"linkId": "pills\_left",

"text": "Number of pills left over",

"type": "string"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.return-meds"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.return-meds"

}

}

],

"linkId": "return\_meds",

"text": "Medication returned to pharmacy?",

"type": "choice"

},

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.hospit-1"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.hospit-1"

}

}

],

"linkId": "hospit\_1",

"text": "Was the patient hospitalized since last visit?",

"type": "choice"

},

{

"linkId": "cause\_hosp\_1",

"text": "What was the cause of hospitalization?",

"type": "text"

},

{

"linkId": "admission\_date\_1",

"text": "Date of hospital admission",

"type": "date"

},

{

"linkId": "discharge\_date\_1",

"text": "Date of hospital discharge",

"type": "date"

}

],

"linkId": "hospit\_1\_\_\_section\_header",

"text": "Hospitalization Data",

"type": "group"

},

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-2"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-2"

}

}

],

"linkId": "vital\_sign\_2",

"text": "Were vital signs captured?",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "cm",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.cm-2"

}

}

],

"linkId": "cm\_2",

"type": "choice"

}

],

"linkId": "vital\_sign\_2\_\_\_section\_header",

"text": "Vital Signs",

"type": "group"

}

],

"linkId": "123248.month-1-data-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.month-1-data-test.prestudy-arm-2",

"status": "draft",

"title": "Month 1 Data- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-1-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-2-data-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.month-2-data-test.prestudy-arm-2"

}

],

"item": [

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-22"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-22"

}

}

],

"linkId": "vital\_sign\_22",

"text": "Were vital signs captured?",

"type": "choice"

}

],

"linkId": "123248.month-2-data-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.month-2-data-test.prestudy-arm-2",

"status": "draft",

"title": "Month 2 Data- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-2-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-3-data-test.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.month-3-data-test.prestudy-arm-2"

}

],

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{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.death-123"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.death-123"

}

}

],

"linkId": "death\_123",

"text": "Has the patient died since last visit?",

"type": "choice"

},

{

"linkId": "date\_death\_123",

"text": "Date of death",

"type": "date"

}

],

"linkId": "death\_123\_\_\_section\_header",

"text": "Mortality Data",

"type": "group"

}

],

"linkId": "123248.month-3-data-test.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.month-3-data-test.prestudy-arm-2",

"status": "draft",

"title": "Month 3 Data- test",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-3-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.specimen-collection.prestudy-arm-2",

"resource": {

"resourceType": "Questionnaire",

"identifier": [

{

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "Questionnaire/123248.specimen-collection.prestudy-arm-2"

}

],

"item": [

{

"item": [

{

"answerOption": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.blood"

}

},

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.blood"

}

}

],

"linkId": "blood",

"text": "Was blood collected?",

"type": "choice"

},

{

"answerOption": [

{

"valueCoding": {

"code": "UR",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.urine"

}

}

],

"linkId": "urine",

"text": "Was urine collected?",

"type": "choice"

},

{

"linkId": "urine\_date",

"text": "Date urine collected",

"type": "date"

},

{

"linkId": "urine\_volume",

"text": "Volume of urine",

"type": "string"

}

],

"linkId": "123248.specimen-collection.prestudy-arm-2",

"repeats": false,

"type": "group"

}

],

"name": "123248.specimen-collection.prestudy-arm-2",

"status": "draft",

"title": "Specimen Collection",

"url": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.specimen-collection.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.baseline-data-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.baseline-data-test.prestudy-arm-2"

},

"item": [

{

"item": [

{

"answer": [

{

"valueString": "003"

}

],

"linkId": "study\_id",

"text": "Study ID"

},

{

"answer": [

{

"valueString": "A111678"

}

],

"linkId": "drug\_name",

"text": "Drug name"

},

{

"answer": [

{

"valueString": "mg"

}

],

"linkId": "dose\_mg",

"text": "Unit"

},

{

"item": [

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign"

}

}

],

"linkId": "vital\_sign",

"text": "Were vital signs captured?"

},

{

"answer": [

{

"valueDate": "2020-12-30"

}

],

"linkId": "vital\_date",

"text": "Date vital signs captured"

},

{

"answer": [

{

"valueCoding": {

"code": "cm",

"display": "cm",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.cm"

}

}

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"linkId": "cm"

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{

"answer": [

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"valueCoding": {

"code": "1",

"display": "kg",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.kg"

}

}

],

"linkId": "kg"

},

{

"answer": [

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"valueCoding": {

"code": "1",

"display": "%",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.percent"

}

}

],

"linkId": "percent"

},

{

"answer": [

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"valueCoding": {

"code": "beatspermin",

"display": "beats/min",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.beat-min"

}

}

],

"linkId": "beat\_min"

},

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "mmhg",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.bp-unit"

}

}

],

"linkId": "bp\_unit"

},

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "g/dL",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.unit"

}

}

],

"linkId": "unit"

}

],

"linkId": "vital\_sign\_\_\_section\_header",

"text": "Vital Signs"

}

],

"linkId": "123248.baseline-data-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.baseline-data-test.prestudy-arm-2&canonical"

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{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.completion-data-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.completion-data-test.prestudy-arm-2"

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"item": [

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"answer": [

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"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.complete-study"

}

}

],

"linkId": "complete\_study",

"text": "Has the patient completed the study?"

},

{

"answer": [

{

"valueDate": "2021-01-22"

}

],

"linkId": "withdraw\_date",

"text": "Date patient withdrew from study"

}

],

"linkId": "complete\_study\_\_\_section\_header",

"text": "Study Completion Information"

}

],

"linkId": "123248.completion-data-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.completion-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.covid19-vaccination.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.covid19-vaccination.prestudy-arm-2"

},

"item": [

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"item": [

{

"answer": [

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.dose1-reactionhosp"

}

}

],

"linkId": "dose1\_reactionhosp",

"text": "Did the reaction require hospitalization?"

}

],

"linkId": "123248.covid19-vaccination.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.covid19-vaccination.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.demographics-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.demographics-test.prestudy-arm-2"

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"item": [

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"item": [

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"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.consent-epic"

}

}

],

"linkId": "consent\_epic",

"text": "Consent note documented in EPIC?"

},

{

"answer": [

{

"valueString": "HJP"

}

],

"linkId": "initials",

"text": "Initials"

},

{

"answer": [

{

"valueCoding": {

"code": "2",

"display": "Not Hispanic or Latino",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.ethnicity-test"

}

}

],

"linkId": "ethnicity\_test",

"text": "Ethnicity"

},

{

"answer": [

{

"valueCoding": {

"code": "5",

"display": "White",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.race-test"

}

}

],

"linkId": "race\_test",

"text": "Race"

},

{

"answer": [

{

"valueCoding": {

"code": "2",

"display": "Female",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.sex-test"

}

}

],

"linkId": "sex\_test",

"text": "Sex at birth"

},

{

"answer": [

{

"valueCoding": {

"code": "2239004",

"display": "2239004",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.preg-loinc"

}

}

],

"linkId": "preg\_loinc",

"text": "History of pregnancy loinc code"

},

{

"answer": [

{

"valueString": "3"

}

],

"linkId": "num\_children",

"text": "How many times has the patient given birth?"

}

],

"linkId": "123248.demographics-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.demographics-test.prestudy-arm-2&canonical"

}

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{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.econsent.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.econsent.prestudy-arm-2"

},

"item": [

{

"item": [

{

"answer": [

{

"valueString": "2021-03-16"

}

],

"linkId": "date\_1",

"text": "Date researcher signs"

},

{

"answer": [

{

"valueString": "2021-03-16"

}

],

"linkId": "date",

"text": "Date patient signs"

}

],

"linkId": "123248.econsent.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.econsent.prestudy-arm-2&canonical"

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"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.month-1-data-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.month-1-data-test.prestudy-arm-2"

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"item": [

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.miss-dose-1"

}

}

],

"linkId": "miss\_dose\_1",

"text": "Any missed doses reported?"

},

{

"answer": [

{

"valueString": "Fell asleep"

}

],

"linkId": "miss\_reason\_1",

"text": "Reason for missed doses"

},

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.med-bottle"

}

}

],

"linkId": "med\_bottle",

"text": "Did the patient bring old medication bottles?"

},

{

"answer": [

{

"valueString": "2"

}

],

"linkId": "pills\_left",

"text": "Number of pills left over"

},

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.return-meds"

}

}

],

"linkId": "return\_meds",

"text": "Medication returned to pharmacy?"

},

{

"item": [

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.hospit-1"

}

}

],

"linkId": "hospit\_1",

"text": "Was the patient hospitalized since last visit?"

},

{

"answer": [

{

"valueString": "Patient had a neutropenic fever"

}

],

"linkId": "cause\_hosp\_1",

"text": "What was the cause of hospitalization?"

},

{

"answer": [

{

"valueDate": "2021-01-11"

}

],

"linkId": "admission\_date\_1",

"text": "Date of hospital admission"

},

{

"answer": [

{

"valueDate": "2021-01-14"

}

],

"linkId": "discharge\_date\_1",

"text": "Date of hospital discharge"

}

],

"linkId": "hospit\_1\_\_\_section\_header",

"text": "Hospitalization Data"

},

{

"item": [

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-2"

}

}

],

"linkId": "vital\_sign\_2",

"text": "Were vital signs captured?"

},

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "cm",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.cm-2"

}

}

],

"linkId": "cm\_2"

}

],

"linkId": "vital\_sign\_2\_\_\_section\_header",

"text": "Vital Signs"

}

],

"linkId": "123248.month-1-data-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-1-data-test.prestudy-arm-2&canonical"

}

},

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"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.month-2-data-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.month-2-data-test.prestudy-arm-2"

},

"item": [

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"item": [

{

"answer": [

{

"valueCoding": {

"code": "0",

"display": "No",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.vital-sign-22"

}

}

],

"linkId": "vital\_sign\_22",

"text": "Were vital signs captured?"

}

],

"linkId": "123248.month-2-data-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-2-data-test.prestudy-arm-2&canonical"

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},

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"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.month-3-data-test.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

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"value": "QuestionnaireResponse/123248-3.month-3-data-test.prestudy-arm-2"

},

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"item": [

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"item": [

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"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.death-123"

}

}

],

"linkId": "death\_123",

"text": "Has the patient died since last visit?"

},

{

"answer": [

{

"valueDate": "2021-01-15"

}

],

"linkId": "date\_death\_123",

"text": "Date of death"

}

],

"linkId": "death\_123\_\_\_section\_header",

"text": "Mortality Data"

}

],

"linkId": "123248.month-3-data-test.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.month-3-data-test.prestudy-arm-2&canonical"

}

},

{

"fullUrl": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/QuestionnaireResponse/123248-3.specimen-collection.prestudy-arm-2",

"resource": {

"resourceType": "QuestionnaireResponse",

"identifier": {

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/",

"value": "QuestionnaireResponse/123248-3.specimen-collection.prestudy-arm-2"

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"item": [

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"item": [

{

"answer": [

{

"valueCoding": {

"code": "1",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.blood"

}

}

],

"linkId": "blood",

"text": "Was blood collected?"

},

{

"answer": [

{

"valueCoding": {

"code": "UR",

"display": "Yes",

"system": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/CodeSystem/123248.urine"

}

}

],

"linkId": "urine",

"text": "Was urine collected?"

},

{

"answer": [

{

"valueDate": "2021-04-16"

}

],

"linkId": "urine\_date",

"text": "Date urine collected"

},

{

"answer": [

{

"valueString": "4"

}

],

"linkId": "urine\_volume",

"text": "Volume of urine"

}

],

"linkId": "123248.specimen-collection.prestudy-arm-2"

}

],

"status": "completed",

"questionnaire": "https://redcap.vanderbilt.edu/api/?type=module&prefix=fhir\_services&page=service&NOAUTH&fhir-url=/Questionnaire/123248.specimen-collection.prestudy-arm-2&canonical"

}

}

]

}