

Health Care Survey Reporting Use Case - DRAFT

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Description

The purpose of the Health Care Survey use case is to identify the hospital (emergency department and inpatient care) and ambulatory care data that will be extracted from EHRs and/or clinical data repositories via FHIR APIs and sent to a system hosted at the federal level. This use case will help define how EHR data can be used in automated data collection, thereby reducing burden for the healthcare provider and EHR with the goal of increasing the submission of timely, quality health care data to the National Center for Health Statistics (NCHS).

Problem Statement

The current ambulatory (manual medical record abstraction) and hospital (claims) data collection method is burdensome for providers, lacks clinical richness, and is inefficient for NCHS.

Goals of the Use Case

- Increase the response rate of sampled hospitals and ambulatory health care providers to the National Hospital Care Survey (NHCS) and the National Ambulatory Medical Care Survey (NAMCS)
- Increase the volume, quality, completeness, and timeliness of data submitted to the NHCS and NAMCS
- Reduce the burden associated with survey participation for hospitals, ambulatory health care providers, and EHR vendors
- Reduce NCHS's costs associated with recruiting hospital and ambulatory health care providers, and the processing of NHCS and NAMCS data
- Develop a complete use case that can be supported by the MedMorph Reference Architecture for the reporting of health care survey data from health care providers and systems to NCHS

Scope of the Use Case

In-Scope

- Collect standardized data based on eligibility criteria from NAMCS[1] and NHCS[2] in the hospital and ambulatory care settings
- Define under what circumstances an EHR system must create and transmit a report to the NCHS data store
- Identify the data elements to be retrieved from the EHR to produce the report
- Collect partial provider-level and all available patient-level data for NAMCS
- Collect partial hospital/facility-level and all available patient-level data for NHCS

Out-of-Scope

- Validation of the EHR data
- Data captured outside the EHR and communicated directly to registries
- Changes to existing provider workflow or existing data entry
- Policies of the clinical care setting to collect consent for data sharing
- Adult day services centers, residential care communities, nursing homes, home health agencies, and hospice

Use Case Actors

Electronic Health Record (EHR)^[3] System: A system used in care delivery for patients which captures and stores data about patients and makes the information available instantly and securely to authorized users. While an EHR does contain the medical and treatment histories of patients, an EHR system is built to go beyond standard clinical data collected in a provider's provision of care location and can be inclusive of a broader view of a patient's care. EHRs are a vital part of health IT and can:

- Contain a patient's medical history, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, and laboratory and test results
- Allow access to evidence-based tools that providers can use to make decisions about a patient's care
- Automate and streamline provider workflow

A FHIR Enabled EHR exposes FHIR APIs for other systems to interact with the EHR and exchange data. FHIR APIs provide well defined mechanisms to read and write data. The FHIR APIs are protected by an Authorization Server which authenticates and authorizes users or systems prior to accessing the data. The EHR in this use case is a FHIR Enabled EHR.

Backend Services App: A system that resides within the clinical care setting and performs the reporting functions to public health and/or research registries. The system uses the information supplied by the NCHS to determine when reporting needs to be done, what data needs to be reported, how the data needs to be reported, and to whom the data should be reported. The term "Backend Service" is used to refer to the fact that the system does not require user intervention to perform reporting. The term "App" is used to indicate that it is similar to a SMART on FHIR App which can be distributed to clinical care via the EHR specified processes. The EHR specified processes are followed to enable the Backend Services App to use the EHR's FHIR APIs to access data. The hospital or ambulatory organization is the one who is responsible for choosing and maintaining the Backend Services App.

National Center for Health Statistics (NCHS) Data Store: A FHIR server or service that receives and stores the health care survey data.

Health Care Survey Process Abstract Model

Figure 1 below is the high-level model that illustrates the actors, activity, and systems involved in Health Care Survey workflow.

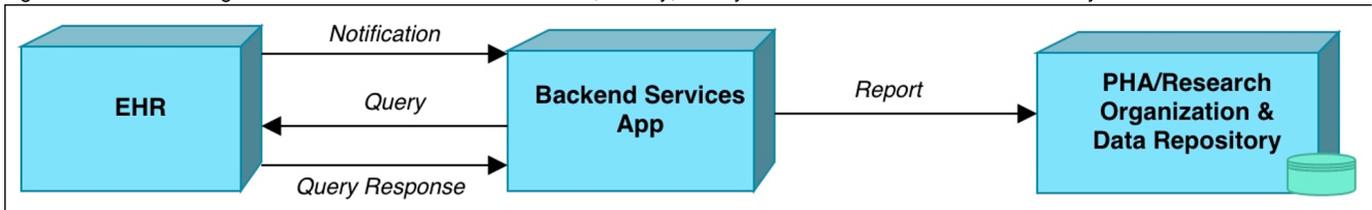


Figure 1: Health Care Survey Abstract Model

The FHIR Enabled EHR sends subscription notifications to the Backend Services App when there has been activity in topics to which the app subscribes. The Backend Services App then queries the EHR for survey data and the EHR returns the appropriate FHIR resources. The Backend Service App receives and validates the resources. The resources are compiled into a FHIR bundle and sent to the Public Health Authority (PHA).

Use Case User Stories and Diagrams

Preconditions

Preconditions describe the state of the system, from a technical perspective, that must be true before an operation, process, activity, or task can be executed. Preconditions are what needs to be in place before executing the use case flow.

The preconditions for the healthcare survey reporting use case include:

- Use Case Trigger: A patient encounter has happened, and the provider has signed off on the encounter
- The EHR, provider, and receiving systems expose HL7 FHIR APIs
- Pertinent data elements are captured discretely in the EHR
- Public Health uses allowed by HIPAA and other statutory authorities have been defined and implemented
- Provisioning workflows have been established. The provisioning workflow includes activities that publish the various metadata artifacts required to make EHR data available to public health and/or research. These activities include publishing value sets, trigger codes, reporting timing parameters, survey instruments, structures for reporting, etc. These artifacts are used subsequently in data collection and reporting workflows
- NCHS is authorized to collect hospital and other healthcare entities data under the authority of section 306 of the Public Health Service Act (42 United States Code 242k)
- Participant has volunteered to participate in a National Health Care Survey (including data agreements if applicable)
- Physician:
 - was sampled by NCHS and voluntarily recruited
 - has a partner who was sampled last year, underwent system testing and validation, and moved onto production submission of data
 - has already completed the provider level data collection for the survey year (however, this will not preclude confirmative and supplementary data collection of provider-level data from the FHIR Provider resource, as well as potentially other FHIR resources that can provide provider-level data during the patient-level data collection)

User Stories

User Story 1 – Ambulatory Setting

Background: The National Ambulatory Medical Care Survey (NAMCS) is based on a sample of patient visits to non-federally employed office-based physicians (primary care or specialist) who are primarily engaged in direct patient care and, starting in 2006, a separate sample of visits to community health centers. NAMCS collects an encounter-based set of demographic and clinical data generally available in a medical record for any type of visit.

Workflow: Upon completion of an encounter, the physician or licensed clinician, using the EHR, completes and closes the clinical encounter (“sign off”). This “sign off” triggers the backend services app to evaluate the completed encounter. The completed encounter evaluation includes validating that the provider associated with the encounter is a “sampled” NAMCS provider and the encounter occurred within a specified timeframe. If the encounter meets the criteria, and after a lag period to allow for lab results to post when applicable, the backend services app requests a set of FHIR resources representing patient-level and select provider-level data of the encounter from the EHR. Once obtained and validated, these resources are transmitted to NCHS where they are received, acknowledged, validated, and loaded into the National Health Care Surveys Data Store.

The table below illustrates each actor, role, activity, input, and output of each step of the Health Care Survey Ambulatory workflow.

Table 1: HCS Ambulatory Setting Workflow

Step	Actor	Role	Activity	Input(s)	Output(s)
1	EHR System	Notifier	Notify the Backend App that a trigger event has occurred	Trigger codes	Notification message (e.g., “completed encounter” event) for a topic
2	Backend Services App	Evaluator	Evaluate notification message against criteria	Notification message content	Continuation decision based on available information
3	Backend Services App	Data Extractor	Query the EHR System for provider information	Query decision	FHIR query
4	EHR System	Query Responder	Return provider data	FHIR query	FHIR Provider Resource
5	Backend Services App	Evaluator	Evaluate provider information, notification message	FHIR Provider Resource, Notification message	Submittal decision based on available information
6	Backend Services App	Data Extractor	Query the EHR System for survey data	Notification message, <i>timing</i> , and <i>other criteria</i>	FHIR query

7	EHR System	Query Responder	Return survey data	FHIR query	FHIR resources
8	Backend Services App	Data Receiver	Receive FHIR resources and validate FHIR bundle	FHIR resources	FHIR validated Bundle
9	Backend Services App	Data Sender	Send validated FHIR bundle to NCHS Data Store	FHIR validated Bundle	FHIR validated Bundle
10	NCHS Data Store	Data Receiver	Receive and validate FHIR bundle	FHIR bundle	Validated FHIR bundle

User Story 1 – Ambulatory Setting Activity Diagram

Figure 2 below illustrates the flow of events and information between the actors for the Health Care Survey Ambulatory workflow.

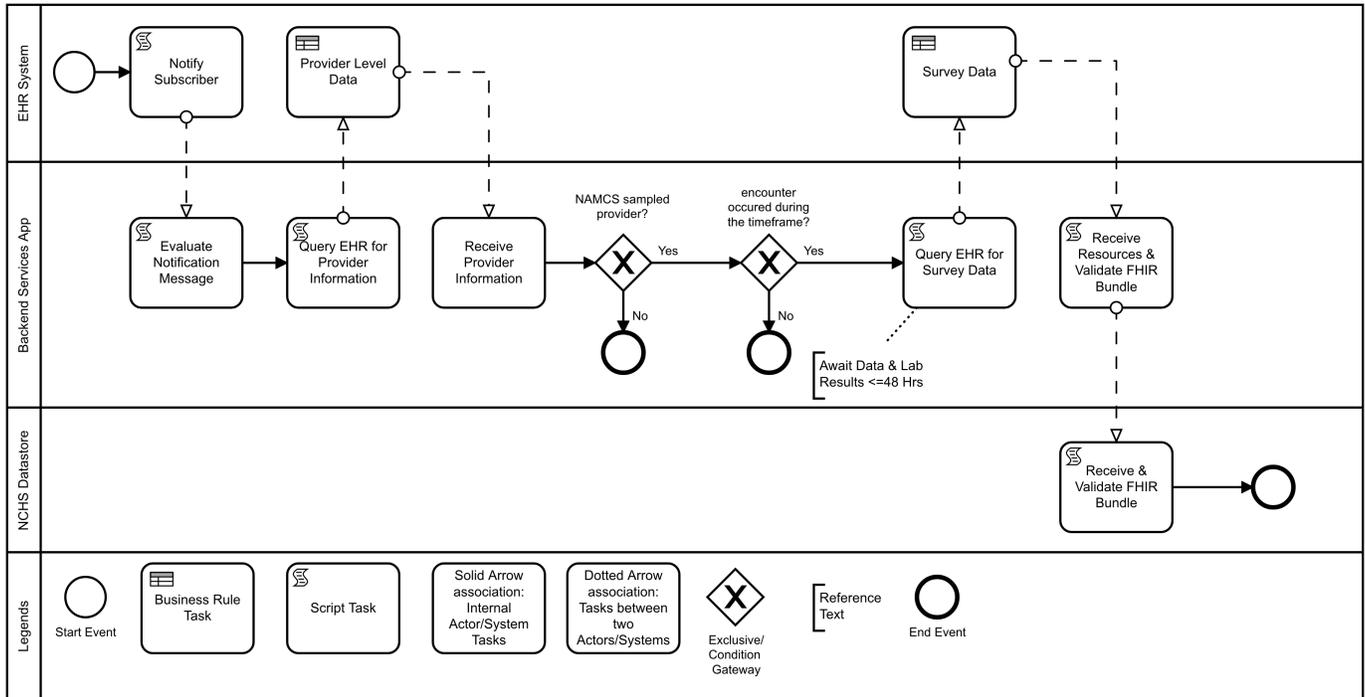


Figure 2: HCS Ambulatory User Story Activity Diagram

User Story 1 – Ambulatory Setting Sequence Diagram

Figure 3 below represents the interactions between actors in the sequential order that they occur in the Health Care Survey Ambulatory workflow.

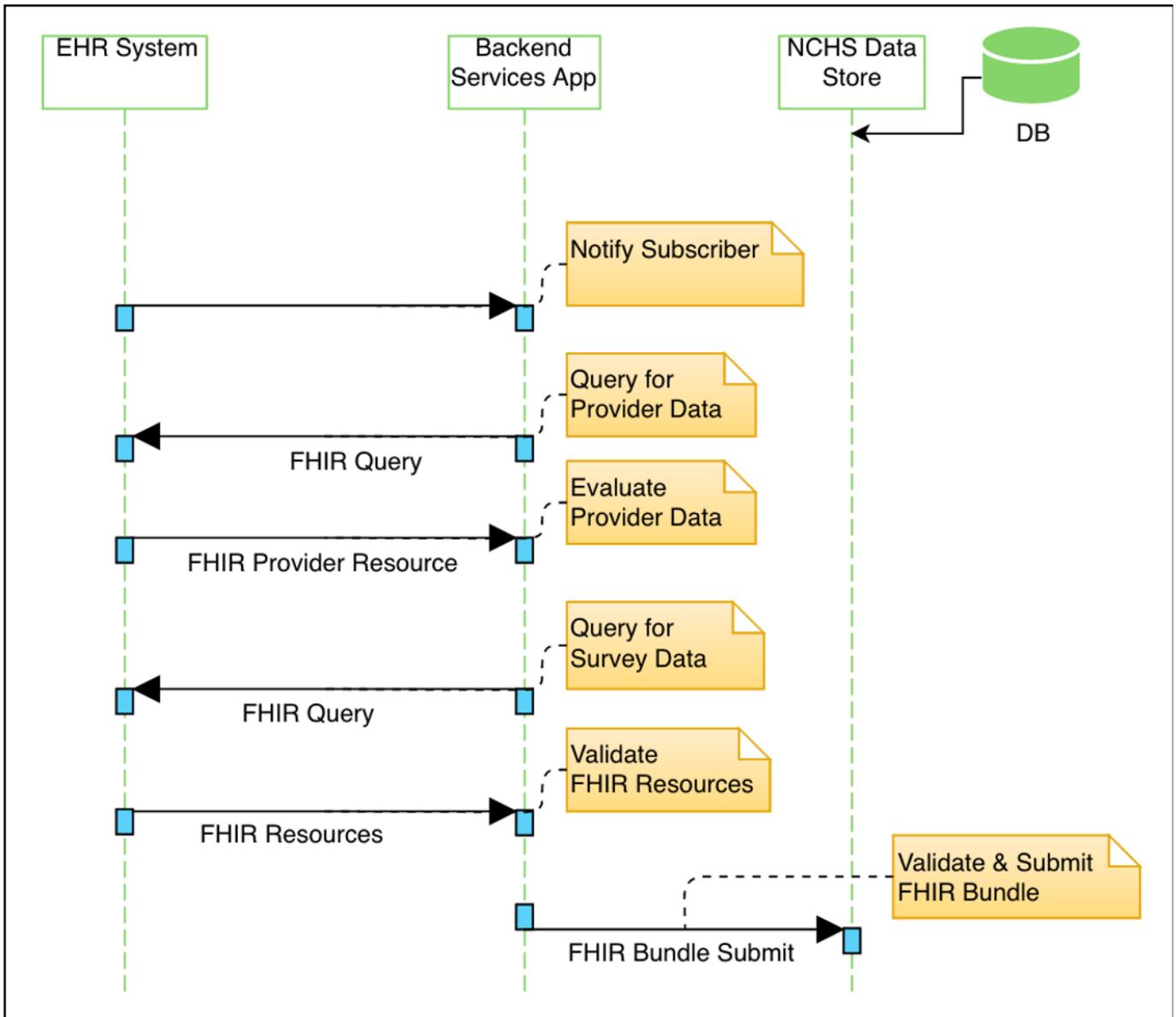


Figure 3: HCS Ambulatory User Story Sequence Diagram

User Story 2 – Inpatient and Emergency Department Setting

Background: The National Hospital Care Survey (NHCS) is an electronic data collection, gathering Uniform Bill (UB) 04 administrative claims data or electronic health record data from sampled hospitals. NHCS is designed to provide reliable and timely nationally representative healthcare utilization data for hospital-based settings. NHCS collects all inpatient discharges, and Emergency Department (ED) encounters from sampled hospitals for a survey period of one year. NHCS’ sample is drawn from all non-federal US hospitals with a bed size ≥ 6 .

Workflow: Upon completion of an inpatient or ED encounter, the physician or licensed clinician completes and closes the clinical encounter (“sign off”). This “sign off” triggers the backend services app to evaluate the completed encounter against the NHCS criteria. If the encounter meets the survey criteria, and after a lag period to allow for lab results to post when applicable, the backend services app requests a set of FHIR resources representing patient-level and select provider-level data of the encounter from the EHR. Once obtained and validated, these resources are transmitted to NCHS where they are received, acknowledged, validated, and loaded into the National Health Care Surveys Data Store.

The table below illustrates each actor, role, activity, input, and output of each step of the Health Care Survey Inpatient and Emergency Department workflow.

Table 2: HCS Inpatient and ED Setting Workflow

Step	Actor	Role	Activity	Input(s)	Output(s)
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1	EHR System	Notifier	Notify the Backend Services App that a trigger event has occurred been met	Data or workflow trigger	Notification message (e.g., "completed encounter" event as a topic)
2	Backend Services App	Evaluator	Evaluates notification message against criteria	Notification message content	Continuation decision based on available information
3	Backend Services App	Data Extractor	Query the EHR System for survey data	Notification message, <i>timing, and other criteria</i>	FHIR query
4	EHR System	Query Responder	Return survey data	FHIR query	FHIR resources
5	Backend Services App	Data Receiver	Receive FHIR resources and validate FHIR bundle	FHIR resources	FHIR validated bundle
6	Backend Services App	Data Sender	Send validated FHIR bundle to NCHS Data Store	FHIR validated bundle	FHIR validated bundle
7	NCHS Data Store	Data Receiver	Receive and validate FHIR bundle	FHIR bundle	Validated FHIR bundle

User Story 2 –Inpatient and Emergency Department Setting Activity Diagram

Figure 4 below illustrates the flow of events and information between the actors for the Health Care Survey Inpatient and Emergency Department workflow.

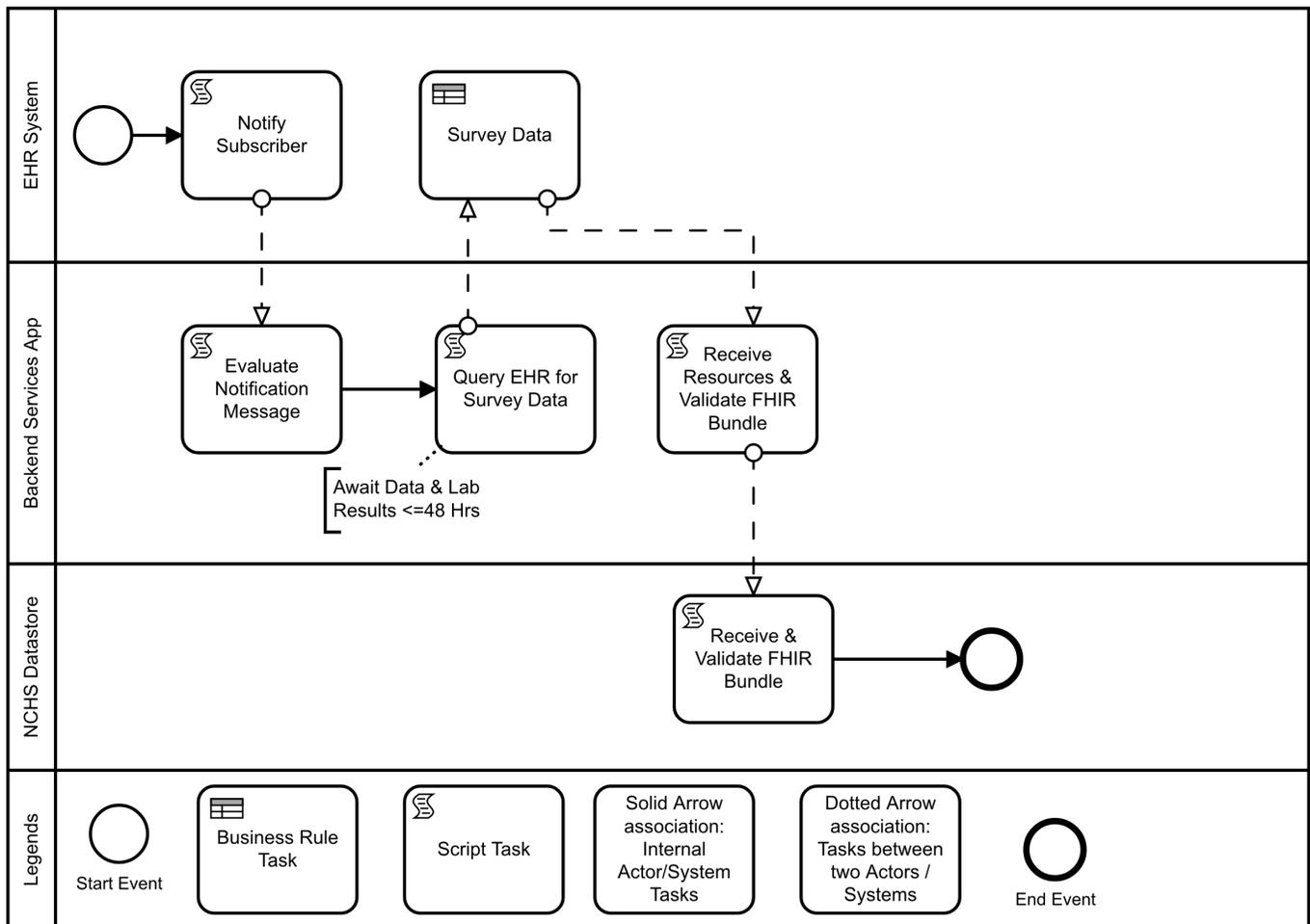


Figure 4: HCS Inpatient and ED User Story Activity Diagram

User Story 2 – Inpatient and Emergency Department Setting Sequence Diagram

Figure 5 below represents the interactions between actors in the sequential order that they occur in the Health Care Survey Inpatient and Emergency Department workflow.

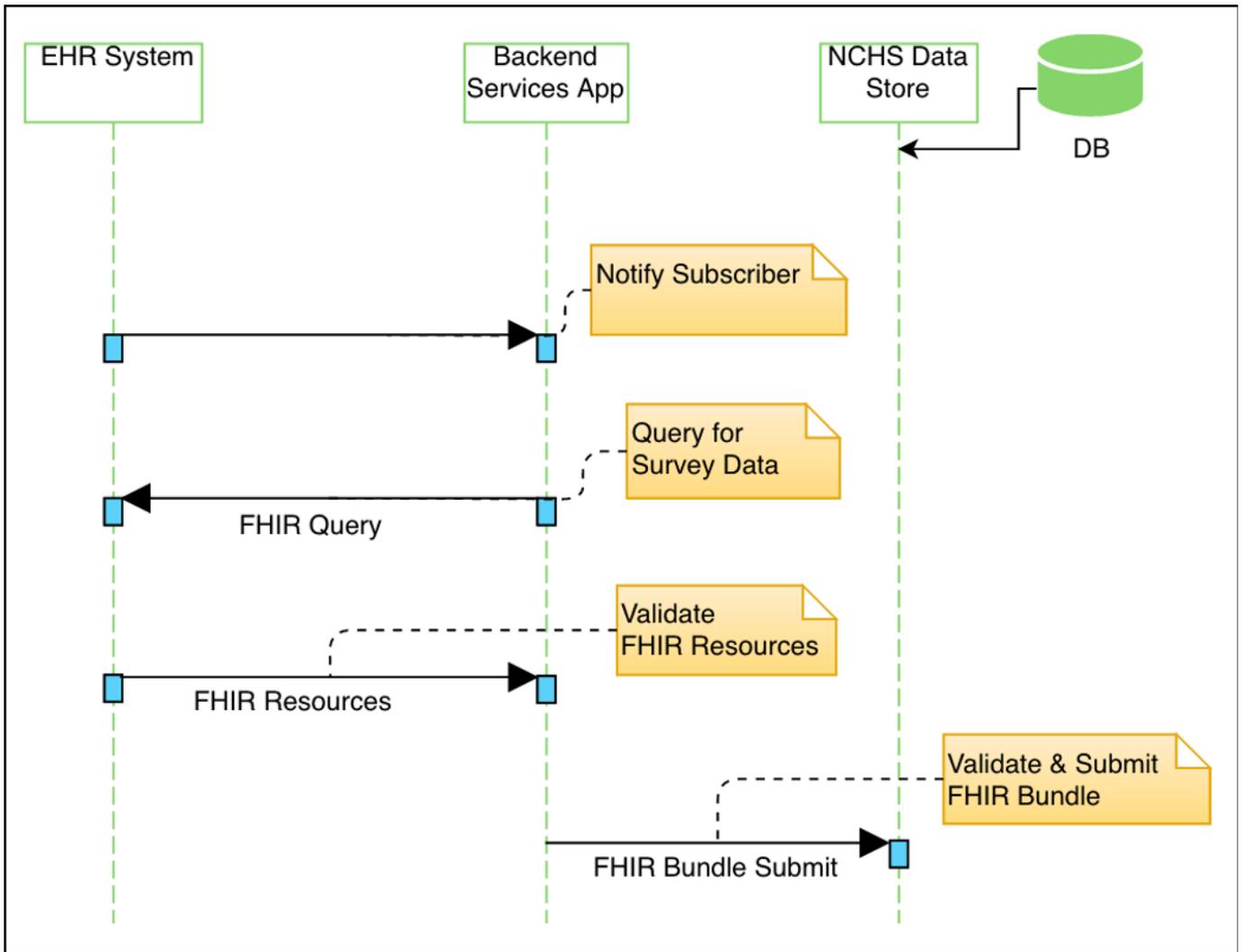


Figure 5: HCS Inpatient and ED User Story Sequence Diagram

Postconditions

- A completed survey resides in the National Center for Health Statistics Data Store.

Alternate Flow

- None

Data Requirements

The table below includes the data requirements for the Health Care Survey use case based on the abstract model and use case flows.

A link to the detailed data requirements spreadsheet will be provided.

Table 3. Health Care Survey Data Elements

Health Care Surveys Data Element	Definition (unless otherwise Noted, this is the FHIR Resource definition)	USCDI V1 Data Class	USCDI V1 Data Element	US Core Profile or FHIR Base Resource	FHIR Resource. element	Flag**	Setting			Value Set (when applicable)	Value Set Example(s)***
							ED	IP	OP		
Patient Information											

Patient given name (usually first and optional middle names)	Given name.	Patient Demographics	First Name	US Core Patient Profile	Patient.name.given	M	x	x	x	N/A	N/A
Patient surname (last name)	The part of a name that links to the genealogy. In some cultures (e.g. Eritrea) the family name of a son is the first name of his father.	Patient Demographics	Last Name	US Core Patient Profile	Patient.name.family	M	x	x	x	N/A	N/A
Patient previous name	NOTE: Patient's previous name. (optional)	Patient Demographics	Previous name	US Core Patient Profile	Patient.name	M	x	x	x	N/A	N/A
Patient name suffix	Part of the name that is acquired as a title due to academic, legal, employment or nobility status, etc. and that appears at the end of the name.	Patient Demographics	Suffix	US Core Patient Profile	Patient.name.suffix	0	x	x	x	N/A	N/A
Patient sex	Codes for assigning sex at birth as specified by the Office of the National Coordinator for Health IT (ONC)	Patient Demographics	Birth Sex	US Core Patient Profile	Patient.extension:us-core-birthsex	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-birthsex	Unknown
Patient gender identity	The gender the patient identifies with. The Patient's gender identity is used as guidance (e.g. for staff) about how to interact with the patient.			US Core Patient Profile	Patient.extension:genderIdentity	0	x	x	x	https://www.hl7.org/fhir/extension-patient-genderidentity.html	non-binary
Patient date of birth	The date of birth for the individual.	Patient Demographics	Date of Birth	US Core Patient Profile	Patient.birthDate	S	x	x	x	N/A	N/A
Patient race	Concepts classifying the person into a named category of humans sharing common history, traits, geographical origin or nationality. The race codes used to represent these concepts are based upon the CDC Race and Ethnicity Code Set Version 1.0 which includes over 900 concepts for representing race and ethnicity of which 921 reference race. The race concepts are grouped by and pre-mapped to the 5 OMB race categories: American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander; White.	Patient Demographics	Race	US Core Patient Profile	Patient.extension:us-core-race	S	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-omb-race-category.html ; https://www.hl7.org/fhir/us/core/ValueSet-detailed-race.html	

Patient ethnicity	Concepts classifying the person into a named category of humans sharing common history, traits, geographical origin or nationality. The ethnicity codes used to represent these concepts are based upon the CDC ethnicity and Ethnicity Code Set Version 1.0 which includes over 900 concepts for representing race and ethnicity of which 43 reference ethnicity. The ethnicity concepts are grouped by and pre-mapped to the 2 OMB ethnicity categories: - Hispanic or Latino - Not Hispanic or Latino.	Patient Demographics	Ethnicity	US Core Patient Profile	Patient.extension:us-core-ethnicity	S	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-omb-ethnicity-category.html ; https://www.hl7.org/fhir/us/core/ValueSet-detailed-ethnicity.html	
Patient preferred language	A language which may be used to communicate with the patient about his or her health.	Patient Demographics	Preferred Language	US Core Patient Profile	Patient.communication	S	x	x	x		
Patient Address (es) Line	Street address.	Patient Demographics	Address	US Core Patient Profile	Patient.address.line	S	x	x	x		
Patient Address (es) City	Address city.	Patient Demographics	Address	US Core Patient Profile	Patient.address.city	S	x	x	x		
Patient Address (es) State	Address state.	Patient Demographics	Address	US Core Patient Profile	Patient.address.state	S	x	x	x		
Patient Address (es) Postal Code	Address postal code.	Patient Demographics	Address	US Core Patient Profile	Patient.address.postalCode	S	x	x	x		
Patient Address (es) Period	Time period when address was/is in use.	Patient Demographics	Address	US Core Patient Profile	Patient.address.period	S	x	x	x		
Patient Phone Number	A contact detail (e.g. a telephone number or an email address) by which the individual may be contacted.	Patient Demographics	Phone Number	US Core Patient Profile	Patient.telecom.value	S	x	x	x		
Patient Contact Type	Telecommunications form for contact point - what communications system is required to make use of the contact.	Patient Demographics	Phone Number	US Core Patient Profile	Patient.telecom.system=phone	S	x	x	x		
Patient Phone Number type	Identifies the purpose for the contact point.	Patient Demographics	Phone Number type	US Core Patient Profile	Patient.telecom.use	S	x	x	x	http://hl7.org/fhir/ValueSet/contact-point-use	mobile
Patient Email address	A contact detail (e.g. a telephone number or an email address) by which the individual may be contacted.	Patient Demographics	Email Address	US Core Patient Profile	Patient.telecom.value	S	x	x	x		
Patient Contact Type	Telecommunications form for contact point - what communications system is required to make use of the contact.	Patient Demographics	Email Address	US Core Patient Profile	Patient.telecom.system=email	S	x	x	x		
Patient Email address type	Identifies the purpose for the contact point.	Patient Demographics	Email address type	US Core Patient Profile	Patient.telecom.use	S	x	x	x		

Patient Medicare number	The Medicare number for this patient.			US Core Patient Profile	Patient.identifier.value	M	x	x	x		
Patient Identifier Type	A coded type for the identifier that can be used to determine which identifier to use for a specific purpose.			US Core Patient Profile	Patient.identifier.type=SB	S					
Patient's medical record number	The medical record number for this patient.			US Core Patient Profile	Patient.identifier.value	M	x	x	x		
Patient identifier type	A coded type for the identifier that can be used to determine which identifier to use for a specific purpose.			US Core Patient Profile	Patient.identifier.type=MR	S	x	x			
Smoking status	This profile sets minimum expectations for the Observation resource to record, search, and fetch smoking status data associated with a patient.	Smoking Status	Smoking Status	US Core Smoking Status Observation Profile	Observation.valueCodeableConcept.code	S	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-observation-smokingstatus.html	
Allergy clinical status	The clinical status of the allergy or intolerance.	Allergies and Intolerances	Reaction	US Core Allergies Profile	AllergyIntolerance.clinicalStatus	S	x	x	x	http://hl7.org/fhir/R4/valueset-allergyintolerance-clinical.html	Active
Allergy verification	Assertion about certainty associated with the propensity, or potential risk, of a reaction to the identified substance (including pharmaceutical product).	Allergies and Intolerances	Reaction	US Core Allergies Profile	AllergyIntolerance.verificationStatus	S	x	x	x	-	
Allergy code	Code for an allergy or intolerance statement (either a positive or a negated/excluded statement). This may be a code for a substance or pharmaceutical product that is considered to be responsible for the adverse reaction risk (e.g., "Latex"), an allergy or intolerance condition (e.g., "Latex allergy"), or a negated/excluded code for a specific substance or class (e.g., "No latex allergy") or a general or categorical negated statement (e.g., "No known allergy", "No known drug allergies").	Allergies and Intolerances	Substance (Drug Class) Substance (Medication)	US Core Allergies Profile	AllergyIntolerance.code	M	x	x	x		
Allergy Reaction	Details about each adverse reaction event linked to exposure to the identified substance.	Allergies and Intolerances	Reaction	US Core Allergies Profile	AllergyIntolerance.reaction	0	x	x	x		
Patient Primary Care Provider	Patient's nominated care provider.			US Core Patient Profile	Patient.generalPractitioner	0			x		
Pregnancy Observation	Pregnant, not pregnant, possibly pregnant			eCR Profile: pregnancy-status	Observation.valueCodeableConcept	S	x	x	x	http://hl7.org/fhir/us/ecr/2018Sep/ValueSet-pregnancy-status.html	

Care Team Members

Member (s) involved in Care Team	Identifies all people and organizations who are expected to be involved in the care team.	Care Team Member (s)	Care Team Member (s)	US Core CareTeam Profile	CareTeam. participant	M	x	x	x		
Member Role	Indicates specific responsibility of an individual within the care team, such as "Primary care physician", "Trained social worker counselor", "Caregiver", etc.	Care Team Member (s)	Care Team Member (s)	US Core CareTeam Profile	CareTeam. participant.role	M	x	x	x	https://build.fhir.org/ig/HL7/US-Core-R4/ValueSet-us-core-careteam-provider-roles.html	Emergency Medical Service Providers
Member	The specific person or organization who is participating/expected to participate in the care team.	Care Team Member (s)	Care Team Member (s)	US Core CareTeam Profile	CareTeam. participant.member	M	x	x	x	Reference(US Core Patient Profile US Core Practitioner Profile US Core Organization Profile)	US Core Practitioner
Member Status	Indicates the current state of the care team.	Care Team Member (s)	Care Team Member (s)	US Core CareTeam Profile	CareTeam. status	S	x	x	x	http://hl7.org/fhir/ValueSet/care-team-status	Active
Encounter Information											
Encounter status	Current state of the encounter.			US Core Encounter Profile	Encounter. status	M	x	x	x	http://hl7.org/fhir/ValueSet/encounter-status	planned arrived triaged in-progress onleave finished cancelled +.
Classification of Pt, Encounter	Concepts representing classification of patient encounter such as ambulatory (outpatient), inpatient, emergency, home health or others due to local variations.			US Core Encounter Profile	Encounter. class	M	x	x	x	http://hl7.org/fhir/ValueSet/v3-ActEncounterCode	inpatient outpatient ambulatory emergency +.
Encounter type	Specific type of encounter (e.g. e-mail consultation, surgical day-care, skilled nursing, rehabilitation). NOTE: This is constrained to E&M codes.			US Core Encounter Profile	Encounter.type	M	X	x	X	http://www.ama-assn.org/go/cpt	99201: Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: A problem focused history; A problem focused examination; Straightforward medical decision making.
Encounter subject	The patient or group present at the encounter.			US Core Encounter Profile	Encounter. subject	M	x	x	x		
Encounter Identifier	Identifier(s) by which this encounter is known.			US Core Encounter Profile	Encounter. identifier.value	S	x	x	x		
Encounter period	The start and end times of the encounter.			US Core Encounter Profile	Encounter. period	S	x	x	x		
Encounter participant type	Role of participant in encounter.			US Core Encounter Profile	Encounter. participant.type	S	x	x	x	http://hl7.org/fhir/ValueSet/encounter-participant-type	consultant - An advisor participating in the service by performing evaluations and making recommendations.

Primary participant responsible for encounter	Encounter primary performer of service.			US Core Encounter Profile	Encounter. participant. type=PPRF	S	x	x	x	http://hl7.org/fhir/ValueSet/encounter-participant-type	
Participant overseeing the encounter	Participant overseeing the encounter			US Core Encounter Profile	Encounter. participant. type=ATND	S	x	x	x	http://hl7.org/fhir/ValueSet/encounter-participant-type	
Encounter participant individual	Persons involved in the encounter other than the patient. Reference (US Core Practitioner Profile)			US Core Encounter Profile	Encounter. participant. individual	S	x	x	x	Reference(US Core Practitioner Profile)	
Encounter primary performer NPI	NPI of encounter primary performer.			US Core Encounter Profile	Encounter. participant. individual. Practitioner. identifier.NPI	0	x	x	x		
Encounter primary performer name	Name of encounter primary performer.			US Core Encounter Profile	Encounter. participant. individual. Practitioner. NAME	0	x	x	x		
Encounter primary performer professional role	Professional role of encounter primary performer.			Encounter	Encounter. participant. individual. PractitionerRole.code	0	x	x	x		
Time period participant participated in the encounter	The period of time that the specified participant participated in the encounter. These can overlap or be sub-sets of the overall encounter's period.			US Core Encounter Profile	Encounter. participant. period	S	x	x	x		
Reason for the visit	Reason the encounter takes place, expressed as a code.			US Core Encounter Profile	Encounter. reasonCode	S	x	x	x	http://hl7.org/fhir/ValueSet/encounter-reason	
Diagnoses relevant to this encounter	The list of diagnosis relevant to this encounter.			Encounter	Encounter. diagnosis. condition	0	x	x	x	Reference (Condition Procedure)	
Encounter primary diagnosis	Reason the encounter takes place, as specified using information from another resource. For admissions, this is the admission diagnosis. The indication will typically be a Condition (with other resources referenced in the evidence.detail), or a Procedure. "For systems that need to know which was the primary diagnosis, these will be marked with the standard extension primaryDiagnosis (which is a sequence value rather than a flag, 1 = primary diagnosis)."			Encounter	Encounter. diagnosis. condition extension primaryDiagnosis	0	x	x	x		

Encounter principal diagnosis	NOTE: The principal diagnosis is the "condition established after study to be chiefly responsible for occasioning the admission of the patient ..." (Source: ICD-10-CM Official Guidelines for Coding and Reporting, FY2019, pp. 107). All institutional claims require a principal diagnosis whether they are inpatient or outpatient facilities.			Encounter	Encounter. diagnosis. rank=1 when diagnosis. use=billing	0	x	x	x		
Hospital encounter discharge disposition	Category or kind of location after discharge.			US Core Encounter Profile	Encounter. hospitalization. dischargeDisposition	S	x	x		http://hl7.org/fhir/ValueSet/encounter-discharge-disposition	
Encounter location address	The location where the encounter takes place.			US Core Encounter Profile	Encounter. location. location. address	M	x	x	x		
Expected source(s) of payment for this encounter	The type of coverage: social program, medical plan, accident coverage (workers compensation, auto), group health or payment by an individual or organization.			Encounter	Encounter. account. coverage.type	0	x	x	x	http://hl7.org/fhir/R4/valueset-coverage-type.html	
Encounter chief complaint	Role that this diagnosis has within the encounter (e.g. chief complaint).			Encounter	Encounter. diagnosis.use = CC	0	x	x	x	http://hl7.org/fhir/R4/valueset-diagnosis-role.html	CC
Clinical Notes											
Consultation Note identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Consultation Note status	The status of this document reference.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Consultation Note type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.type=11488-4	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	11488-4 http://loinc.org Consult note
Consultation Note category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Consultation Note date	When the document reference was created.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		

Consultation Note author	Who and/or what authored the document	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Consultation Note custodian	Organization which maintains the document	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Consultation Note content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.content.attachment.contentType	M	x	x	x		
Consultation Note content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Consultation Note content url	A location where the data can be accessed.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Consultation Note content format	Format/content rules for the document	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Consultation Note encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference(USCoreEncounterProfile)	
Consultation Note period	The time period over which the service that is described by the document was provided.	Clinical Notes	Consultation Note	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Discharge Summary Note identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Discharge Summary Note status	The status of this document reference.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Discharge Summary Note type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.type=18842-5	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	18842-5 http://loinc.org/DischargeSummary
Discharge Summary Note category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Discharge Summary Note date	When the document reference was created.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		

Discharge Summary Note author	Who and/or what authored the document	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Discharge Summary Note custodian	Organization which maintains the document	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Discharge Summary Note content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.content.attachment.contentType	M	x	x	x		
Discharge Summary Note content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Discharge Summary Note content url	A location where the data can be accessed.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Discharge Summary Note content format	Format/content rules for the document	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Discharge Summary Note encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference (USCoreEncounterProfile)	
Discharge Summary Note period	The time period over which the service that is described by the document was provided.	Clinical Notes	Discharge Summary Note	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
History & Physical identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
History & Physical status	The status of this document reference.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
History & Physical type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.type=34117-2	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	34117-2 http://loinc.org History and physical note

History & Physical category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
History & Physical date	When the document reference was created.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		
History & Physical author	Who and/or what authored the document	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
History & Physical custodian	Organization which maintains the document	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
History & Physical content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.attachment.contentType	M	x	x	x		
History & Physical content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.attachment.data	S	x	x	x		
History & Physical content url	A location where the data can be accessed.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.attachment.url	S	x	x	x		
History & Physical content format	Format/content rules for the document	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.attachment.format	S	x	x	x		
History & Physical encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference(USCoreEncounterProfile)	
History & Physical period	The time period over which the service that is described by the document was provided.	Clinical Notes	History & Physical	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Imaging Narrative identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Imaging Narrative status	The status of this document reference.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Imaging Narrative type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.type=LP29684-5	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	LP29684-5 http://loinc.org Radiology

Imaging Narrative category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Imaging Narrative date	When the document reference was created.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		
Imaging Narrative author	Who and/or what authored the document	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Imaging Narrative custodian	Organization which maintains the document	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Imaging Narrative content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.contentType	M	x	x	x		
Imaging Narrative content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Imaging Narrative content url	A location where the data can be accessed.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Imaging Narrative content format	Format/content rules for the document	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Imaging Narrative encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference(USCoreEncounterProfile)	
Imaging Narrative period	The time period over which the service that is described by the document was provided.	Clinical Notes	Imaging Narrative	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Imaging Narrative Diagnostic Report status	The status of the diagnostic report.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-diagnostic-report-status.html	registered partial preliminary final +
Imaging Narrative Diagnostic Report category	A code that classifies the clinical discipline, department or diagnostic service that created the report (e.g. cardiology, biochemistry, hematology, MRI). This is used for searching, sorting and display purposes.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.category	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-category.html	LP29684-5 Radiology LP29708-2 Cardiology LP7839-6 Pathology

Imaging Narrative Diagnostic Report code	The test, panel, report, or note that was ordered.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.code	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-report-and-note-codes.html	
Imaging Narrative Diagnostic Report encounter	The healthcare event (e.g. a patient and healthcare provider interaction) which this DiagnosticReport is about.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.encounter	S	x	x	x	Reference(US Core Encounter Profile)	
Imaging Narrative Diagnostic Report effective	This is the Datetime or Period when the report or note was written.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.effective[x]	M	x	x	x		
Imaging Narrative Diagnostic Report issued	The date and time that this version of the report was made available to providers, typically after the report was reviewed and verified.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.issued	S	x	x	x		
Imaging Narrative Diagnostic Report performer	The diagnostic service that is responsible for issuing the report.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.performer	S	x	x	x		
Imaging Narrative Diagnostic Report presented form	Rich text representation of the entire result as issued by the diagnostic service. Multiple formats are allowed but they SHALL be semantically equivalent.	Clinical Notes	Imaging Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.presentedForm	S	x	x	x		
Laboratory Report Narrative identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Laboratory Report Narrative status	The status of this document reference.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Laboratory Report Narrative type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.type=11502-2	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	11502-2 http://loinc.org Laboratory Report
Laboratory Report Narrative category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Laboratory Report Narrative date	When the document reference was created.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		

Laboratory Report Narrative author	Who and/or what authored the document	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Laboratory Report Narrative custodian	Organization which maintains the document	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Laboratory Report Narrative content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.contentType	M	x	x	x		
Laboratory Report Narrative content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Laboratory Report Narrative content url	A location where the data can be accessed.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Laboratory Report Narrative content format	Format/content rules for the document	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Laboratory Report Narrative encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference (USCoreEncounterProfile)	
Laboratory Report Narrative period	The time period over which the service that is described by the document was provided.	Clinical Notes	Laboratory Report Narrative	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Laboratory Report Narrative Diagnostic Report status	The status of the diagnostic report.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-diagnostic-report-status.html	registered partial preliminary final +
Laboratory Report Narrative Diagnostic Report category	A code that classifies the clinical discipline, department or diagnostic service that created the report (e.g. cardiology, biochemistry, hematology, MRI). This is used for searching, sorting and display purposes.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.category	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-category.html	LP29684-5 Radiology LP29708-2 Cardiology LP7839-6 Pathology
Laboratory Report Narrative Diagnostic Report code	The test, panel, report, or note that was ordered.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.code	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-and-note-codes.html	

Laboratory Report Narrative Diagnostic Report encounter	The healthcare event (e.g. a patient and healthcare provider interaction) which this DiagnosticReport is about.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.encounter	S	x	x	x	Reference(US Core Encounter Profile)	
Laboratory Report Narrative Diagnostic Report effective	This is the Datetime or Period when the report or note was written.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.effective[x]	M	x	x	x		
Laboratory Report Narrative Diagnostic Report issued	The date and time that this version of the report was made available to providers, typically after the report was reviewed and verified.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.issued	S	x	x	x		
Laboratory Report Narrative Diagnostic Report performer	The diagnostic service that is responsible for issuing the report.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.performer	S	x	x	x		
Laboratory Report Narrative Diagnostic Report presented form	Rich text representation of the entire result as issued by the diagnostic service. Multiple formats are allowed but they SHALL be semantically equivalent.	Clinical Notes	Laboratory Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.presentedForm	S	x	x	x		
Pathology Report Narrative identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Pathology Report Narrative status	The status of this document reference.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Pathology Report Narrative type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.type=LP7839-6	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	LP7839-6 http://loinc.org Pathology
Pathology Report Narrative category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Pathology Report Narrative date	When the document reference was created.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		

Pathology Report Narrative author	Who and/or what authored the document	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Pathology Report Narrative custodian	Organization which maintains the document	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Pathology Report Narrative content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.contentType	M	x	x	x		
Pathology Report Narrative content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Pathology Report Narrative content url	A location where the data can be accessed.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Pathology Report Narrative content format	Format/content rules for the document	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Pathology Report Narrative encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference(USCoreEncounterProfile)	
Pathology Report Narrative period	The time period over which the service that is described by the document was provided.	Clinical Notes	Pathology Report Narrative	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Pathology Report Narrative status	The status of the diagnostic report.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-diagnostic-report-status.html	registered partial preliminary final +
Pathology Report Narrative category	A code that classifies the clinical discipline, department or diagnostic service that created the report (e.g. cardiology, biochemistry, hematology, MRI). This is used for searching, sorting and display purposes.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.category	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-category.html	LP29684-5 Radiology LP29708-2 Cardiology LP7839-6 Pathology
Pathology Report Narrative code	The test, panel, report, or note that was ordered.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.code	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-report-and-note-codes.html	
Pathology Report Narrative encounter	The healthcare event (e.g. a patient and healthcare provider interaction) which this DiagnosticReport is about.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.encounter	S	x	x	x	Reference(US Core Encounter Profile)	

Pathology Report Narrative effective	This is the Datetime or Period when the report or note was written.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.effective[x]	M	x	x	x		
Pathology Report Narrative issued	The date and time that this version of the report was made available to providers, typically after the report was reviewed and verified.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.issued	S	x	x	x		
Pathology Report Narrative performer	The diagnostic service that is responsible for issuing the report.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.performer	S	x	x	x		
Pathology Report Narrative presented form	Rich text representation of the entire result as issued by the diagnostic service. Multiple formats are allowed but they SHALL be semantically equivalent.	Clinical Notes	Pathology Report Narrative	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.presentedForm	S	x	x	x		
Procedure Note identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Procedure Note status	The status of this document reference.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Procedure Note type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.type=28570-0	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	28570-0 http://loinc.org Procedure note
Procedure Note category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Procedure Note date	When the document reference was created.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		
Procedure Note author	Who and/or what authored the document	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Procedure Note custodian	Organization which maintains the document	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Procedure Note content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.attachment.contentType	M	x	x	x		

Procedure Note content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.content.attachment.data	S	x	x	x		
Procedure Note content url	A location where the data can be accessed.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.content.attachment.url	S	x	x	x		
Procedure Note content format	Format/content rules for the document	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Procedure Note encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference (USCoreEncounterProfile)	
Procedure Note period	The time period over which the service that is described by the document was provided.	Clinical Notes	Procedure Note	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Procedure Note Diagnostic Report status	The status of the diagnostic report.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-diagnostic-report-status.html	registered partial preliminary final +
Procedure Note Diagnostic Report category	A code that classifies the clinical discipline, department or diagnostic service that created the report (e.g. cardiology, biochemistry, hematology, MRI). This is used for searching, sorting and display purposes.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.category	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-category.html	LP29684-5 Radiology LP29708-2 Cardiology LP7839-6 Pathology
Procedure Note Diagnostic Report code	The test, panel, report, or note that was ordered.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.code	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-diagnosticreport-report-and-note-codes.html	
Procedure Note Diagnostic Report encounter	The healthcare event (e.g. a patient and healthcare provider interaction) which this DiagnosticReport is about.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.encounter	S	x	x	x	Reference(US Core Encounter Profile)	
Procedure Note Diagnostic Report effective [x]	This is the Datetime or Period when the report or note was written.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.effective[x]	M	x	x	x		
Procedure Note Diagnostic Report issued	The date and time that this version of the report was made available to providers, typically after the report was reviewed and verified.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.issued	S	x	x	x		
Procedure Note Diagnostic Report performer	The diagnostic service that is responsible for issuing the report.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.performer	S	x	x	x		

Procedure Note Diagnostic Report presented form	Rich text representation of the entire result as issued by the diagnostic service. Multiple formats are allowed but they SHALL be semantically equivalent.	Clinical Notes	Procedure Note	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.presentedForm	S	x	x	x		
Progress Note identifier	Other identifiers associated with the document, including version independent identifiers.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.identifier	S	x	x	x		
Progress Note status	The status of this document reference.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.status	M	x	x	x	http://hl7.org/fhir/R4/valueset-document-reference-status.html	current superseded entered-in-error
Progress Note type	Specifies the particular kind of document referenced (e.g. History and Physical, Discharge Summary, Progress Note). This usually equates to the purpose of making the document referenced.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.type=11506-3	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-type.html	11506-3 http://loinc.org Progress note
Progress Note category	A categorization for the type of document referenced - helps for indexing and searching. This may be implied by or derived from the code specified in the DocumentReference.type.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.category=clinical-note	M	x	x	x	https://www.hl7.org/fhir/us/core/ValueSet-us-core-documentreference-category.html	clinical-note
Progress Note date	When the document reference was created.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.date	S	x	x	x		
Progress Note author	Who and/or what authored the document	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.author	S	x	x	x	Reference(US Core Practitioner Profile US Core Organization Profile US Core Patient Profile)	
Progress Note custodian	Organization which maintains the document	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.custodian	S	x	x	x	Reference(US Core Organization Profile)	
Progress Note content type	Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.attachment.contentType	M	x	x	x		
Progress Note content data	The actual data of the attachment - a sequence of bytes, base64 encoded.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.attachment.data	S	x	x	x		
Progress Note content url	A location where the data can be accessed.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.attachment.url	S	x	x	x		
Progress Note content format	Format/content rules for the document	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.content.format	S	x	x	x		
Progress Note encounter	Describes the clinical encounter or type of care that the document content is associated with.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.context.encounter	S	x	x	x	Reference(USCoreEncounterProfile)	

Progress Note period	The time period over which the service that is described by the document was provided.	Clinical Notes	Progress Note	US Core DocumentReference Profile	DocumentReference.context.period	S	x	x	x		
Problems/ Health Concerns											
Patient Problem/Health Concern category	A category assigned to the condition.	Problems / Health Concerns	Problems/Health Concerns	US Core Condition Profile	Condition.category	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-condition-category.html	Problem List Item; encounter diagnosis; health concern
Patient Problem/Health verification	The verification status to support the clinical status of the condition.	Problems / Health Concerns	Problems/Health Concerns	US Core Condition Profile	Condition.verificationStatus	S	x	x	x	http://hl7.org/fhir/ValueSet/condition-verification-status	
Patient Problem/Health Concern code	Identification of the condition, problem or diagnosis.	Problems / Health Concerns	Problems/Health Concerns	US Core Condition Profile	Condition.code	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-condition-code	
Patient Problem/Health Concern status	The clinical status of the condition.. (e.g. active, inactive, etc..)	Problems / Health Concerns	Problems/Health Concerns	US Core Condition Profile	Condition.clinicalStatus	S	x	x	x	http://hl7.org/fhir/ValueSet/condition-clinical	
Patient Problem/Health Concern Onset	Estimated or actual date or date-time the condition began, in the opinion of the clinician.	Problems / Health Concerns	Problems/Health Concerns	Condition	condition.onset[x]	0	x	x	x		
Patient Problem/Health Concern Abatement	The date or estimated date that the condition resolved or went into remission. This is called "abatement" because of the many overloaded connotations associated with "remission" or "resolution" - Conditions are never really resolved, but they can abate.	Problems / Health Concerns	Problems/Health Concerns	Condition	condition.abatement[x]	0	x	x	x		
Patient Problem/Health Concern recorded date	The recordedDate represents when this particular Condition record was created in the system, which is often a system-generated date.	Problems / Health Concerns	Problems/Health Concerns	Condition	condition.recordedDate	0	x	x	x	-	
Lab Tests Ordered & Resulted											
Type of observation = Laboratory	A code that classifies the general type of observation being made. "The codes SHOULD be taken from ObservationCategoryCodes", but it must have a fixed value of laboratory.	Laboratory	Tests	US Core Laboratory Result Observation Profile	Observation.category: Laboratory	M	x	x	x		
Status of Lab Test Result	The status of the result value.	Laboratory	Tests	US Core Laboratory Result Observation Profile	Observation.status	M	x	x	x	http://hl7.org/fhir/ValueSet/observation-status	
Lab Test code (LOINC if available)	The test that was performed. A LOINC SHALL be used if the concept is present in LOINC.	Laboratory	Tests	US Core Laboratory Result Observation Profile	Observation.code	M	x	x	x	http://hl7.org/fhir/ValueSet/observation-codes	
Specimen collection or 'Ask at Order Entry' date	For lab tests this is the specimen collection date. For Ask at Order Entry Questions (AOE)'s this is the date the question was asked.	Laboratory	Tests	US Core Laboratory Result Observation Profile	Observation.effective[x]	S	x	x	x		

Lab Result Value	The Laboratory result value. If a coded value, the valueCodeableConcept.code SHOULD be selected from SNOMED CT. If a numeric value, valueQuantity.code SHALL be selected from UCUM. A FHIR UCUM Codes value set that defines all UCUM codes is in the FHIR specification.	Laboratory	Values /Results	US Core Laboratory Result Observation Profile	Observation.value	S	x	x	x		
Lab Result Date /Time	A date, date-time or partial date of a laboratory result generated.	Laboratory	Values /Results	US Core Laboratory Result Observation Profile	Observation.valueDateTime	S	x	c	c		
Lab reason missing	Provides a reason why the expected value in the element Observation.value[x] is missing.	Laboratory	Values /Results	US Core Laboratory Result Observation Profile	Observation.dataAbsentReason	S	x	x	x	http://hl7.org/fhir/ValueSet/data-absent-reason	
Diagnostic report status	The status of the diagnostic report.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Laboratory Results Reporting	DiagnosticReport.status	M	x	x	x	http://hl7.org/fhir/ValueSet/diagnostic-report-status	amended
Diagnostic report category	A code that classifies the clinical discipline, department or diagnostic service that created the report (e.g. cardiology, biochemistry, hematology, MRI). This is used for searching, sorting and display purposes.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Laboratory Results Reporting	DiagnosticReport.category	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-diagnosticreport-category	pathology
Diagnostic report code	The test, panel, report, or note that was ordered.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Laboratory Results Reporting	DiagnosticReport.code	M	x	x	x		
Diagnostic report date /time written	This is the Datetime or Period when the report or note was written.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Laboratory Results Reporting	DiagnosticReport.effective[x]	M	x	x	x		
Date /time report available to providers	The date and time that this version of the report was made available to providers, typically after the report was reviewed and verified. (Example - Pathology report including a pathologist's diagnosis.)	Laboratory	Values /Results	US Core DiagnosticReport Profile for Laboratory Results Reporting	DiagnosticReport.issued	M	x	x	x		
Diagnostic report performer	The diagnostic service that is responsible for issuing the report.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.performer	S	x	x	x		
Diagnostic report result	Observations that are part of this diagnostic report.	Laboratory	Values /Results	US Core DiagnosticReport Profile for Report and Note exchange	DiagnosticReport.result	S	x	x	x		

Procedures

Procedure Status	A code specifying the state of the procedure. Generally, this will be the in-progress or completed state.	Procedures	Procedures	US Core Procedure Profile	Procedure.status	M	x	x	x		
Procedure Code	The specific procedure that is performed. Use text if the exact nature of the procedure cannot be coded (e.g. "Laparoscopic Appendectomy").	Procedures	Procedures	US Core Procedure Profile	Procedure.code	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-procedure-code	
Procedure Performed Date /time	Estimated or actual date, date-time, period, or age when the procedure was performed. Allows a period to support complex procedures that span more than one date, and also allows for the length of the procedure to be captured.	Procedures	Procedures	US Core Procedure Profile	Procedure.performed[x]	M	x	x	x		
Medications, Immunizations											
Medication code	A code (or set of codes) that specify this medication, or a textual description if no code is available. Usage note: This could be a standard medication code such as a code from RxNorm, SNOMED CT, IDMP etc. It could also be a national or local formulary code, optionally with translations to other code systems.	Medications	Medications	US Core Medication Profile	Medication.code	M	x	x	x		
Medication requested	Identifies the medication being requested. This is a link to a resource that represents the medication which may be the details of the medication or simply an attribute carrying a code that identifies the medication from a known list of medications.	Medications	Medications	US Core Medication Profile	MedicationRequest.medication[x]	M					
Medication request status	A code specifying the current state of the order. Generally, this will be active or completed state.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.status	M	x	x	x	http://hl7.org/fhir/ValueSet/medicationrequest-status	
Medication request intent	Whether the request is a proposal, plan, or an original order.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.intent	M	x	x	x	http://hl7.org/fhir/ValueSet/medicationrequest-intent	
Medication Request Date /time Originally Written	The date (and perhaps time) when the prescription was initially written or authored on.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.authoredOn	M	x	x	x		
Medication Requester	The individual, organization, or device that initiated the request and has responsibility for its activation.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.requester	M	x	x	x		

Medication Request Reported	Indicates if this record was captured as a secondary 'reported' record rather than as an original primary source-of-truth record. It may also indicate the source of the report.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.reported[x]	S	x	x	x		
Medication Request Encounter	The Encounter during which this [x] was created or to which the creation of this record is tightly associated.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.encounter	S	x	x	x		
Medication dosage instructions	Indicates how the medication is to be used by the patient.	Medications	Medications	US Core Medication Request Profile	MedicationRequest.dosageInstruction.text	S	x	x	x		
Immunization Status	Indicates the current status of the immunization event.	Immunizations	Immunizations	US Core Immunization Profile	Immunization.status	M	x	x	x		
Vaccine Administered Code	Vaccine that was administered or was to be administered.	Immunizations	Immunizations	US Core Immunization Profile	Immunization.vaccineCode	M					
Vaccine Administered Date /time	Date vaccine administered or was to be administered.	Immunizations	Immunizations	US Core Immunization Profile	Immunization.occurrence[x]	M	x	x	x		
Reason immunization event not performed	Indicates the reason the immunization event was not performed.	Immunizations	Immunizations	US Core Immunization Profile	Immunization.statusReason	S					
Person immunized	An indication that the content of the record is based on information from the person who administered the vaccine. This reflects the context under which the data was originally recorded.	Immunizations	Immunizations	US Core Immunization Profile	Immunization.primarySource	M					
Medication administered	Identifies the medication that was administered. This is either a link to a resource representing the details of the medication or a simple attribute carrying a code that identifies the medication from a known list of medications.			MedicationAdministration	MedicationAdministration.medication[x]	M	x	x	x		
Medication administration status	Will generally be set to show that the administration has been completed. For some long running administrations such as infusions, it is possible for an administration to be started but not completed or it may be paused while some other process is underway.			MedicationAdministration	MedicationAdministration.status	M	x	x	x		
Medication administration status reason	A code indicating why the administration was not performed.			MedicationAdministration	MedicationAdministration.statusReason	0	x	x	x		

Medication administration context	The visit, admission, or other contact between patient and health care provider during which the medication administration was performed.			MedicationAdministration	MedicationAdministration.context	0	x	x	x		
Date/time medication administered	A specific date/time or interval of time during which the administration took place (or did not take place, when the 'notGiven' attribute is true). For many administrations, such as swallowing a tablet the use of dateTime is more appropriate.			MedicationAdministration	MedicationAdministration.effective[x]	M	x	x	x		
Medication administration performer	Indicates who or what performed the medication administration and how they were involved.			MedicationAdministration	MedicationAdministration.performer	0	x	x	x		
Medication administration dosage	Describes the medication dosage information details e.g. dose, rate, site, route, etc.			MedicationAdministration	MedicationAdministration.dosage	0	x	x	x		
Vital Signs											
Vital sign - Height LOINC code	Body height (LOINC code = 8302-2)	Vital Signs	Body height	Body height (FHIR Core Profile)	Observation.code.coding: BodyHeightCode.code	M	x	x	x	http://hl7.org/fhir/R4/valueset-observation-vitalsignresult.html	http://hl7.org/fhir/R4/observation-vitalsigns.html
Vital sign - Height value	The numeric value for the body height	Vital Signs	Body height	Body height (FHIR Core Profile)	Observation.valueQuantity.value	M	x	x	x		125
Vital sign - Height unit	The unit (string) for the body height value	Vital Signs	Body height	Body height (FHIR Core Profile)	Observation.valueQuantity.unit	M	x	x	x		cm
Vital sign - Height unit system	The system that defines the coded unit form for the body height value	Vital Signs	Body height	Body height (FHIR Core Profile)	Observation.valueQuantity.system	M	x	x	x	http://unitsofmeasure.org	
Vital sign - Height unit code	The coded unit from the common UCUM units for the body height value	Vital Signs	Body height	Body height (FHIR Core Profile)	Observation.valueQuantity.code	M	x	x	x	http://hl7.org/fhir/R4/valueset-ucum-bodylength.html	cm
Vital sign - Weight LOINC Code	Body weight (LOINC code = 29463-7)	Vital Signs	Body weight	Body weight (FHIR Core Profile)	Observation.code.coding: BodyWeightCode.code	M	x	x	x	http://loinc.org	29463-7
Vital sign - Weight value	The numeric value for the body weight	Vital Signs	Body weight	Body weight (FHIR Core Profile)	Observation.valueQuantity.value	M	x	x	x		70
Vital sign - Weight unit	The unit (string) for the body weight value	Vital Signs	Body weight	Body weight (FHIR Core Profile)	Observation.valueQuantity.unit	M	x	x	x		kg
Vital sign - Weight unit system	The system that defines the coded unit form for the body weight value	Vital Signs	Body weight	Body weight (FHIR Core Profile)	Observation.valueQuantity.system	M	x	x	x	http://unitsofmeasure.org	
Vital sign - Weight unit code	The coded unit from the common UCUM units for the body weight value	Vital Signs	Body weight	Body weight (FHIR Core Profile)	Observation.valueQuantity.code	M	x	x	x	http://hl7.org/fhir/R4/valueset-ucum-bodyweight.html	kg

Vital sign - Temperature	Body temperature (LOINC code = 8310-5)	Vital Signs	Body temperature	Body temperature (FHIR Core Profile)	Observation.code.coding: BodyTempCode.code	M	x	x	x	http://loinc.org	8310-5
Vital sign - Temperature value	The numeric value for the body temperature	Vital Signs	Body temperature	Body temperature (FHIR Core Profile)	Observation.valueQuantity.value	M	x	x	x		37
Vital sign - Temperature unit	The unit (string) for the body temperature value	Vital Signs	Body temperature	Body temperature (FHIR Core Profile)	Observation.valueQuantity.unit	M	x	x	x		C
Vital sign - Temperature unit system	The system that defines the coded unit form for the body temperature value	Vital Signs	Body temperature	Body temperature (FHIR Core Profile)	Observation.valueQuantity.system	M	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - Temperature unit code	The coded unit from the common UCUM units for the body temperature value	Vital Signs	Body temperature	Body temperature (FHIR Core Profile)	Observation.valueQuantity.code	M	x	x	x	http://hl7.org/fhir/R4/valueset-ucum-bodytemp.html	Cel
Blood pressure code	Blood pressure code (LOINC = 85354-9)	Vital Signs	Blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.code.coding: BPCode.code	M	x	x	x	http://loinc.org	85354-9
Vital sign - Blood Pressure - Systolic LOINC Code	Systolic blood pressure (LOINC code = 8480-6)	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.code.coding: SBPCode.code	M	x	x	x	http://loinc.org	8480-6
Vital sign - Blood Pressure - Systolic value	The numeric value for the systolic blood pressure	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.valueQuantity.value	M	x	x	x		100
Vital sign - Blood Pressure - Systolic unit	The unit (string) for the systolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.valueQuantity.unit	M	x	x	x		mm/hg
Vital sign - Blood Pressure - Systolic unit system	The system that defines the coded unit form for the systolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.valueQuantity.system	M	x	x	x	http://unitsofmeasure.org	
Vital sign - Blood Pressure - Systolic unit code	The coded unit from the common UCUM units for the systolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.valueQuantity.code	M	x	x	x	Fixed Value: mm[Hg]	mm[Hg]
Vital sign - Blood Pressure - Diastolic LOINC code	Diastolic blood pressure (LOINC code = 8462-4)	Vital Signs	Diastolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation.component: systolicBP.code.coding: DBPCode.code	M	x	x	x	http://loinc.org	8462-4

Vital sign - Blood Pressure - Diastolic value	The numeric value for the diastolic blood pressure	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation. component: diastolicBP. valueQuantity. value	M	x	x	x		60
Vital sign - Blood Pressure - Diastolic unit	The unit (string) for the diastolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation. component: diastolicBP. valueQuantity. unit	M	x	x	x		mm/hg
Vital sign - Blood Pressure - Diastolic unit system	The system that defines the coded unit form for the diastolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation. component: diastolicBP. valueQuantity. system	M	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - Blood Pressure - Diastolic unit code	The coded unit from the common UCUM units for the diastolic blood pressure value	Vital Signs	Systolic blood pressure	Blood pressure systolic and diastolic (FHIR Core Profile)	Observation. component: diastolicBP. valueQuantity. code	M	x	x	x	Fixed Value: mm[Hg]	mm[Hg]
Vital sign - Respiratory rate per minute LOINC Code	Respiratory Rate (LOINC code = 9279-1)	Vital Signs	Respiratory rate	Respiratory rate (FHIR Core Profile)	Observation. code.coding: RespRateCode.code	M	x	x	x	http://loinc.org	9279-1
Vital sign - Respiratory rate per minute value	The numeric value for the respiratory rate	Vital Signs	Respiratory rate	Respiratory rate (FHIR Core Profile)	Observation. valueQuantity. value	M	x	x	x		
Vital sign - Respiratory rate per minute unit	The unit (string) for the respiratory rate value	Vital Signs	Respiratory rate	Respiratory rate (FHIR Core Profile)	Observation. valueQuantity. unit	M	x	x	x		
Vital sign - Respiratory rate per minute unit system	The system that defines the coded unit form for the respiratory rate value	Vital Signs	Respiratory rate	Respiratory rate (FHIR Core Profile)	Observation. valueQuantity. system	M	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - Respiratory rate per minute unit code	The coded unit from the common UCUM units for the respiratory rate value	Vital Signs	Respiratory rate	Respiratory rate (FHIR Core Profile)	Observation. valueQuantity. code	M	x	x	x	Fixed Value: /min	/min
Vital sign - Heart rate LOINC code	Heart Rate (LOINC code = 8867-4)	Vital Signs	Heart rate	Heart rate (FHIR Core Profile)	Observation. code.coding: HeartRateCode.code	M	x	x	x	http://loinc.org	8867-4
Vital sign - Heart rate value	The numeric value for the heart rate	Vital Signs	Heart rate	Heart rate (FHIR Core Profile)	Observation. valueQuantity. value	M	x	x	x		60
Vital sign - Heart rate unit	The unit (string) for the heart rate value	Vital Signs	Heart rate	Heart rate (FHIR Core Profile)	Observation. valueQuantity. unit	M	x	x	x		60/min

Vital sign - Heart rate unit system	The system that defines the coded unit form for the heart rate value	Vital Signs	Heart rate	Heart rate (FHIR Core Profile)	Observation.valueQuantity.system	M	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - Heart rate unit code	The coded unit from the common UCUM units for the heart rate value	Vital Signs	Heart rate	Heart rate (FHIR Core Profile)	Observation.valueQuantity.code	M	x	x	x	Fixed Value: /min	/min
Vital sign - pulse oximetry LOINC code	Oxygen saturation in Arterial blood by Pulse oximetry (LOINC code 59408-5)	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.code.coding: PulseOx.code	M	x	x	x	http://loinc.org	59408-5
Vital sign - Inhaled oxygen flow rate LOINC code	Inhaled oxygen flow rate (LOINC code = 3151-8)	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: FlowRate.code.coding.code	S	x	x	x	http://loinc.org	3151-8
Vital sign - Inhaled oxygen flow rate value	The numeric value for the Inhaled oxygen flow rate	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: FlowRate.valueQuantity.value	S	x	x	x		6
Vital sign - Inhaled oxygen flow rate unit	The unit (string) for the Inhaled oxygen flow rate value	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: FlowRate.valueQuantity.unit	S	x	x	x		L/min
Vital sign - Inhaled oxygen flow rate unit system	The system that defines the coded unit form for the Inhaled oxygen flow rate value	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: FlowRate.valueQuantity.system	S	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - Inhaled oxygen flow rate unit code	The coded unit from the common UCUM units for the Inhaled oxygen flow rate value	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: FlowRate.valueQuantity.code	S	x	x	x	Fixed Value: L/min	L/min
Vital sign - inhaled oxygen concentration LOINC code	Inhaled oxygen concentration (LOINC code = 3150-0)	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: Concentration.code.coding.code	S	x	x	x	http://loinc.org	3150-0
Vital sign - inhaled oxygen concentration	The numeric value for the Inhaled oxygen concentration	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: Concentration.valueQuantity.value	S	x	x	x		95
Vital sign - inhaled oxygen concentration	The unit (string) for the Inhaled oxygen concentration value	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: Concentration.valueQuantity.unit	S	x	x	x		%
Vital sign - inhaled oxygen concentration	The system that defines the coded unit form for the Inhaled oxygen concentration value	Vital Signs	Pulse oximetry	US Core Pulse Oximetry Profile	Observation.component: Concentration.valueQuantity.system	S	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital sign - inhaled oxygen concentration	The coded unit from the common UCUM units for the Inhaled oxygen concentration value	Vital Signs	Inhaled oxygen concentration	US Core Pulse Oximetry Profile	Observation.component: Concentration.valueQuantity.code	S	x	x	x	Fixed Value: %	%

Vital Sign - pediatric body mass index (BMI) per age and gender LOINC Code	pediatric body mass index (BMI) per age and gender observations associated with a patient. (LOINC code = 59576-9)	Vital Signs	BMI percentile per age and sex for youth 2-20	US Core Pediatric BMI for Age Observation Profile	Observation. code.coding. code	M	x	x	x	http://loinc.org	59576-9
Vital Sign - pediatric body mass index (BMI) per age and gender value	The numeric value for the pediatric body mass index (BMI) per age and gender	Vital Signs	BMI percentile per age and sex for youth 2-20	US Core Pediatric BMI for Age Observation Profile	Observation. valueQuantity. value	S	x	x	x		65
Vital Sign - pediatric body mass index (BMI) per age and gender unit	The unit (string) for the pediatric body mass index (BMI) per age and gender value	Vital Signs	BMI percentile per age and sex for youth 2-20	US Core Pediatric BMI for Age Observation Profile	Observation. valueQuantity. unit	S	x	x	x		%
Vital Sign - pediatric body mass index (BMI) per age and gender unit system	The system that defines the coded unit form for the pediatric body mass index (BMI) per age and gender value	Vital Signs	BMI percentile per age and sex for youth 2-20	US Core Pediatric BMI for Age Observation Profile	Observation. valueQuantity. system	S	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital Sign - pediatric body mass index (BMI) per age and gender unit code	The coded unit from the common UCUM units for the pediatric body mass index (BMI) per age and gender value	Vital Signs	BMI percentile per age and sex for youth 2-20	US Core Pediatric BMI for Age Observation Profile	Observation. valueQuantity. code	S	x	x	x	Fixed Value: %	%
Vital Sign - pediatric weight for height and age LOINC code	The pediatric weight for height and age observations associated with a patient. (LOINC code = 77606-2)	Vital Signs	Weights for age per length and sex	US Core Pediatric Weight for Height Observation Profile	Observation. code.coding. code	M	x	x	x	http://loinc.org	77606-2
Vital Sign - pediatric weight for height and age value	The numeric value for the pediatric weight for height and age	Vital Signs	Weights for age per length and sex	US Core Pediatric Weight for Height Observation Profile	Observation. valueQuantity. value	S	x	x	x		65
Vital Sign - pediatric weight for height and age unit	The unit (string) for the pediatric weight for height and age value	Vital Signs	Weights for age per length and sex	US Core Pediatric Weight for Height Observation Profile	Observation. valueQuantity. unit	S	x	x	x		%

Vital Sign - pediatric weight for height and age unit system	The system that defines the coded unit form for the pediatric weight for height and age value	Vital Signs	Weights for age per length and sex	US Core Pediatric Weight for Height Observation Profile	Observation.valueQuantity.system	S	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital Sign - pediatric weight for height and age unit code	The coded unit from the common UCUM units for the pediatric weight for height and age value	Vital Signs	Weights for age per length and sex	US Core Pediatric Weight for Height Observation Profile	Observation.valueQuantity.code	S	x	x	x	Fixed Value: %	%
Vital Sign - Occipital-frontal circumference for children < 3 years old LOINC code	Occipital-frontal circumference for children < 3 years old. (LOINC code = 8289-1)	Vital Signs	Occipital-frontal circumference for children < 3 years old	Head circumference (FHIR Core Profile)	Observation.code.coding.code	M	x	x	x	http://loinc.org	8289-1
Vital Sign - Occipital-frontal circumference for children < 3 years old value	The numeric value for the occipital-frontal circumference	Vital Signs	Occipital-frontal circumference for children < 3 years old	Head circumference (FHIR Core Profile)	Observation.valueQuantity.value	S	x	x	x		82
Vital Sign - Occipital-frontal circumference for children < 3 years old unit	The unit (string) for the occipital-frontal circumference value	Vital Signs	Occipital-frontal circumference for children < 3 years old	Head circumference (FHIR Core Profile)	Observation.valueQuantity.unit	S	x	x	x		%
Vital Sign - Occipital-frontal circumference for children < 3 years old unit system	The system that defines the coded unit form for the occipital-frontal circumference value	Vital Signs	Occipital-frontal circumference for children < 3 years old	Head circumference (FHIR Core Profile)	Observation.valueQuantity.system	S	x	x	x	Fixed Value: http://unitsofmeasure.org	http://unitsofmeasure.org
Vital Sign - Occipital-frontal circumference for children < 3 years old unit code	The coded unit from the common UCUM units for the occipital-frontal circumference value	Vital Signs	Occipital-frontal circumference for children < 3 years old	Head circumference (FHIR Core Profile)	Observation.valueQuantity.code	S	x	x	x	Fixed Value: %	%
Unique Device Identifier(s) for a patient's implantable device(s)											
Unique device identifier	Unique device identifier (UDI) assigned to device label or package. Note that the Device may include multiple udiCarriers as it either may include just the udiCarrier for the jurisdiction it is sold, or for multiple jurisdictions it could have been sold.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device.udiCarrier	S	x	x	x		

Device identifier	The device identifier (DI) is a mandatory, fixed portion of a UDI that identifies the labeler and the specific version or model of a device.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. udiCarrier. deviceIdentifier	S	x	x	x		
Device AIDC	The full UDI carrier of the Automatic Identification and Data Capture (AIDC) technology representation of the barcode string as printed on the packaging of the device - e.g., a barcode or RFID. Because of limitations on character sets in XML and the need to round-trip JSON data through XML, AIDC Formats SHALL be base64 encoded.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. udiCarrier. carrierAIDC	S	x	x	x		
Device HRF barcode	The full UDI carrier as the human readable form (HRF) representation of the barcode string as printed on the packaging of the device.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. udiCarrier. carrierHRF	S	x	x	x		
Device distinct identifier	The distinct identification string as required by regulation for a human cell, tissue, or cellular and tissue-based product.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. distinctIdentifier	S	x	x	x		
Device manufactured date/time	The date and time when the device was manufactured.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. manufactureDate	S	x	x	x		
Device expiration date	The date and time beyond which this device is no longer valid or should not be used (if applicable).	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. expirationDate	S	x	x	x		
Device lot number	Lot number assigned by the manufacturer.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. lotNumber	S	x	x	x		
Device serial number	The serial number assigned by the organization when the device was manufactured.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device. serialNumber	S	x	x	x		
Device type	The kind or type of device.	Unique Device Identifier (s) for a Patient's Implantable Device(s)	Unique Device Identifier (s) for a Patient's Implantable Device (s)	US Core Implantable Device Profile	Device type	M	x	x	x	http://hl7.org/fhir/ValueSet/device-kind	Prosthetic mitral valve

Assessment and Plan of Treatment

Care plan summary	A human-readable narrative that contains a summary of the resource and can be used to represent the content of the resource to a human. The narrative need not encode all the structured data, but is required to contain sufficient detail to make it "clinically safe" for a human to just read the narrative. Resource definitions may define what content should be represented in the narrative to ensure clinical safety.	Assessment and Plan of Treatment	Assessment and Plan of Treatment	US Core CarePlan Profile	CarePlan.text	M	x	x	x		
Care plan summary status	generated additional.	Assessment and Plan of Treatment	Assessment and Plan of Treatment	US Core CarePlan Profile	CarePlan.text.status	M	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-narrative-status	Additional
Care plan status	Indicates whether the plan is currently being acted upon, represents future intentions or is now a historical record.	Assessment and Plan of Treatment	Assessment and Plan of Treatment	US Core CarePlan Profile	CarePlan.status	M	x	x	x	http://hl7.org/fhir/ValueSet/request-status	Draft
Care plan intent	Indicates the level of authority/intentionality associated with the care plan and where the care plan fits into the workflow chain.	Assessment and Plan of Treatment	Assessment and Plan of Treatment	US Core CarePlan Profile	CarePlan.intent	M	x	x	x	http://hl7.org/fhir/ValueSet/care-plan-intent	Proposal
Care plan type	Type of plan.	Assessment and Plan of Treatment	Assessment and Plan of Treatment	US Core CarePlan Profile	CarePlan.category: AssessPlan	M	x	x	x	http://hl7.org/fhir/ValueSet/care-plan-category	Fixed Value: Assess Plan
Provenance											
Provenance resource	The Reference(s) that were generated or updated by the activity described in this resource. A provenance can point to more than one target if multiple resources were created/updated by the same activity. The Resource this Provenance record supports	Provenance		US Core Provenance Profile	Provenance.target	M	x	x	x		
Provenance timestamp	The instant of time at which the activity was recorded.	Provenance	Author Time Stamp	US Core Provenance Profile	Provenance.recorded	M	x	x	x		
Provenance agent type	The participation the agent had with respect to the activity.	Provenance		US Core Provenance Profile	Provenance.agent.type	S	x	x	x	http://hl7.org/fhir/us/core/ValueSet/us-core-provenance-participant-type	Author (A party that originates the resource and therefore has responsibility for the information given in the resource and ownership of this resource)
Provenance agent	The identity of the person or entity who is the agent.	Provenance	Author Organization	US Core Provenance Profile	Provenance.agent.who	M	x	x	x		Reference (USCorePractitionerProfile USCorePatientProfile USCoreOrganizationProfile)
Provenance on behalf of	The individual, device, or organization for whom the change was made.	Provenance		US Core Provenance Profile	Provenance.agent.onBehalfOf	S	x	x	x		

Provenance author	An actor taking a role in an activity for which it can be assigned some degree of responsibility for the activity taking place.	Provenance		US Core Provenance Profile	Provenance.agent: ProvenanceAuthor.type.code	S	x	x	x	Fixed Value: http://terminology.hl7.org/CodeSystem/provenance-participant-type	Fixed Value: author
Provenance transmitter	The entity that provided the copy to your system.	Provenance		US Core Provenance Profile	Provenance.agent: ProvenanceTransmitter.type.code	S	x	x	x	Fixed Value: http://hl7.org/fhir/us/core/CodeSystem/us-core-provenance-participant-type	Fixed Value: transmitter
Patient Goals											
Patient's goal status	The state of the goal throughout its lifecycle.	Goals	Patient's goals	US Core Goal Profile	Goal.lifecycleStatus	M	x	x	x	http://hl7.org/fhir/ValueSet/goal-status	Proposed
Patient's goal description	Human-readable and/or coded description of a specific desired objective of care, such as "control blood pressure" or "negotiate an obstacle course" or "dance with child at wedding".	Goals	Patient's goals	US Core Goal Profile	Goal.description	M	x	x	x		
Patient's goal target date	Indicates either the date or the duration after start by which the goal should be met.	Goals	Patient's goals	US Core Goal Profile	Goal.target.due[x]	S	x	x	x		

** M = Mandatory; S = Must Support; 0 = not M or S

*** Included examples should be treated as a reference for the convenience of the reader.

Policy Considerations

The policy considerations for the use case to be implemented in the real-world include:

- MedMorph will use existing frameworks for the exchange of data.
- When there is a third party, a data use or business use/associate agreement may be needed (e.g., APHL).
- Public Health Agencies may have state-specific restrictions on collecting protected classes of data (e.g., AIDS status, mental health status, SUD/ODU).
 - If the patient gives consent for sharing of AIDs, mental health, etc. data the burden would be on the sending system.
 - For research use cases, there must be consent before the data is sent.
- For jurisdictional restrictions on data that can not be collected, the MedMorph Reference Architecture will make provisions for defining actions (e.g., redaction, filtering, removal, validation) before submission. The actions could be triggered based on the content of specific data elements.
 - The MedMorph Reference Architecture will do an additional validation check on the data before the data leaves the healthcare organization. This is important in cases of a healthcare organization reporting to multiple jurisdictions.
- What if more data is sent than what is requested?
 - This should be handled by policy and processes around the data received.
 - The data generator should be clear on what data is being requested and the data provided should only be the data requested.
 - The Reference Architecture IG will ask for feedback during the ballot process on if the MedMorph Reference Architecture should define an acknowledgment mechanism for notifications when additional data is received.

Non-Technical Considerations

The policy considerations for the use case to be implemented in the real-world include:

- Onboarding of EHRs and or tracking systems
- The use and or restrictions of FHIR between trading entities
- Consent models for data exchange:
 - For public health purposes, existing authorities are sufficient and no consent is required.
 - For research use cases:
 - IRB approvals, intended purpose, and consent for the intended purpose is included
 - Other areas to investigate:

- <https://www.hl7.org/fhir/consent.html> (Look at ResearchSubject and ResearchStudy resources in FHIR and their relationship to Consent Resource)
- Patient Level data, LDS, Deidentified data sets, and relationships to consent.
- <https://www.healthit.gov/topic/leading-edge-acceleration-projects-leap-health-information-technology-health-it>
- The activity network query space has not been reconciled with FHIR RESTFUL queries. How do queries on eHealth exchange, CommonWell map into authorities?
- Data that is stored outside the EHR (e.g., PDMP data) may not be available
 - Hep C is asking about drug use
- Activities that are not associated with a clinical order or clinical visit (e.g., drive-up COVID test, STD test, adult immunization at the pharmacy)
- Data lag vs. real-time (especially for research use cases) - the difference in time for use cases.
 - The Reference Architecture defines trigger events and timing offsets in relationship to trigger events, and actions to be performed based on trigger events.
- Clinical trials (not observation) - data safety monitoring board - so there is a realtime use case for clinical trials (but maybe different for observational research) – [HL7 Vulcan Accelerator program](#)
- Data provenance (recognized authority - but how much do we trust the data from those systems outside of the EHR and the EHR ingests the data - and the detail of information and method of transmission e.g., orally reported, substantiated with material or electronic)
 - The MedMorph Reference Architecture IG would recommend (or require in available) support for Provenance as defined by USCDI and apply to all data classes being reported.

Appendices

Related Use Cases and Links

References to Appropriate Documentation

- National Center for Health Statistics: <https://www.cdc.gov/nchs/index.htm>
- National Health Care Surveys: <https://www.cdc.gov/nchs/dhcs/index.htm>
- National Health Care Surveys Registry: https://www.cdc.gov/nchs/dhcs/nhcs_registry_landing.htm
- HL7 CDA® R2 Implementation Guide: National Health Care Surveys: https://www.hl7.org/implement/standards/product_brief.cfm?product_id=385
- USCDI: <https://www.healthit.gov/isa/us-core-data-interoperability-uscdi>

Terms and Definitions

Ambulatory Setting: Medical services performed on an outpatient basis, without admission to a hospital or other facility. It is provided in settings such as physician offices, hospital outpatient departments, ambulatory surgical centers, and clinics (including Community Health Centers). (adapted from <https://www.ipfcc.org/>)

Clinical Encounter: Any physical or virtual contact between a patient (or trial subject) and healthcare provider at which an assessment or activity takes place. (from <https://ncit.nci.nih.gov/>)

Health Care Survey: Designed to answer key questions of interest to health care policy makers, public health professionals, and researchers. These can include the factors that influence the use of health care resources, the quality of health care, including safety, and disparities in health care services provided to population subgroups in the United States. (from <https://www.cdc.gov/nchs/dhcs/index.htm>)

HL7 FHIR Encounter Resource: An interaction between a patient and healthcare provider(s) for the purpose of providing healthcare service(s) or assessing the health status of a patient. (from <http://hl7.org/fhir/R4/encounter.html>)

Inpatient Setting: Medical services involving a patient treated for a brief but severe episode of illness, for conditions that are the result of disease or trauma, and during recovery from surgery.

SMART on FHIR: Substitutable Medical Applications, Reusable Technologies on Fast Healthcare Interoperability Resource.

Use Case: Document used to capture user (actor) point of view while describing functional requirements of the system. They describe the step by step process a user goes through to complete that goal using a software system. A Use Case is a description of the ways an end-user wants to "use" a system. Use Cases capture ways the user and system can interact that result in the user achieving the goal. (adapted from <https://www.visual-paradigm.com/>)

User Story: A User Story is a note that captures what a user does or needs to do as part of his/her work. Each User Story consists of a short description written from user's point of view, with natural language. (adapted from <https://www.visual-paradigm.com/>)

[1] https://www.cdc.gov/nchs/ahcd/namcs_participant.htm

[2] https://www.cdc.gov/nchs/nhcs/about_nhcs.htm

[3] Adapted from <https://www.healthit.gov/faq/what-electronic-health-record-ehr>
