Overview

The Patient Access API is used to build applications that enable Sentara members to easily access their claims and encounter information (including cost), as well as a defined sub-set of their clinical information. This is a RESTful API that conforms to the FHIR standard and provides access to a Sentara member's data.

This section describes the FHIR profiles, resources, and RESTful capabilities that the Patient Access API supports. A **profile** is a set of rules which allows a resource to be constrained, or to include extensions, so the resource can add additional attributes. The RESTful capabilities are discussed in further detail below.

Implementation guidelines:

This specification uses **SHALL**, **SHOULD** and **MAY** as a guideline for required, recommended and optional data FHIR standards.

1. SHALL: An absolute requirement for all implementations. The FHIR server must return this data.
2. SHOULD: A best practice or recommendation for the implementation. The FHIR server is recommended to return this data.
3. MAY: An optional inclusion for the implementation; not a requirement. The FHIR server may return the data, but there is no requirement to do so.

3rd Party App Requirements: Developer Application Registration

Follow these steps to register your developer account and get your application authorized so you can begin building your application.

1. Register your developer account
2. Verify your developer account. After registering your developer account, you will receive an email to verify your account, which contains a verification code. Upon receiving the code, enter it to continue.
3. Log in to your new developer account. Upon successfully registering your account, it's time to start using your account.
4. Register your application.
5. Provide the details for your application. In the application registration form, you will be asked to provide the name of your application, the callback URL, and the scopes.
6. You will receive an email when your application is approved

7. After your application is approved, you will be given a *Client ID* and *Client Secret* for your application. You will need these (along with the callback URL and scope) to use during authentication.
8. Start using APIs with your newly registered application. Once you have successfully registered your application, you can begin using the APIs.

Security

All Sentara patient access transactions must be secured appropriately, and directed by regulations, with access limited to authorized individuals, data protected, and appropriate audit measures taken.

How to Connect

Below are the steps to use your application's Client ID, Client Secret, authorization codes, and tokens to securely connect your application to the Patient Access API.

Authorization Overview

The FHIR server supports the standard OAuth 2.0 C web application authorization flow.

Application Registration

To begin, you must first register your application. When you register your application, you will need to have a callback URL (aka redirect URI) to assign to your application, which will be used during the authorization flow. If you will be creating a mobile application, or a web application that cannot securely store the Client Secret,

Standard Authorization Code Flow

In the standard authorization code flow, to connect to the Member/Patient Access API, you will need to use the OAuth 2.0 and OpenID Connect (OIDC) flow for authentication. This flow should only be used by sites that can safely protect the Client ID and Client Secret, such as a site running on a secure server.

Request authorization from user

To allow a user to authorize your application, direct them to our authorization server with your Client ID and callback URL. If the user consents, we will redirect back to your callback URL.

Exchange Code for Token

After sending the authorization request, the customer will be directed to a sign in page through browser re-directs, where they will provide their credentials to authenticate themselves. Upon completing sign-in, the customer will be presented with an authorization page. Once the customer authorizes your application, your application can now exchange the code provided.

Authorization, Authentication, and Registration

Client applications and systems of record SHALL support the standalone launch sequence of the **SMART App Launch framework** for user authorization and client authentication. Systems of record SHALL publish their authorization and token endpoints for discovery in accordance with the SMART App Launch framework.

Security guidelines

 As per the implementation guide, security guidelines are as follows:

- Systems SHALL establish a risk analysis and management regime that conforms with HIPAA security regulatory requirements.
- Systems SHALL keep audit logs of the various transactions.

FHIR RESTful API Capabilities

- Implements RESTful behaviors according to the FHIR specification
- Supports JSON source formats for all US Core interactions.
- Returns the following http status codes:

HTTP Status Code	Description
200	Successful Request
400	Invalid Parameter
401	Not Authorized
403	Insufficient Scope
404	Unknown Resource
410	Deleted Resource

Patient Access Resources

These are the endpoints and resources available with the Patient Access API. The Patient Access API supports the following FHIR approved implementation guides, and supports the following profiles:

Implementation Guides

- **US Core Implementation Guide Version 3.1.1**
- **CARIN Consumer Directed Payer Data Exchange Implementation Guide Version 1.0.0**
- **DaVinci Payer Data Exchange Implementation Guide Version 1.0.0**
- **DaVinci Payer Data Exchange US Drug Formulary Implementation Guide Version 1.0.0**

Supported Profiles

- **US Core Profiles**
- **CARIN BB Profiles**
- **DaVinci PDex CoveragePlan Profile**
- **DaVinci PDex FormularyDrug Profile**

Base URL

The base URL for each endpoint is:

1. **Patient:** Information about an individual receiving health care service. The **US Core Patient Profile** is based upon the core **FHIR Patient resource** and designed to meet the applicable patient demographic data elements from the 2015 Edition Common Clinical Data Set. This resource is also based on the **CARIN BB Patient Profile**.

   https://shpp.interop.sentara.com/api/v1/shpp/Patient

Key	Value
_lastUpdated	2022-06-30T06:49:01Z
meta.profile	http://hl7.org/fhir/us/carin-bb/StructureDefinition/C4BB-Patient
family	DRUMHELLER
given	PERCY
birthDate	1962-07-04
address-city	Arrington
address-state	VA
address-postalcode	22922

address	627 Hubbards Hill Ln
gender	male

2. **Coverage**: **Coverage resource** is intended to provide the high-level identifiers and descriptors of an insurance plan, typically the information which would appear on an insurance card, which may be used to pay, in part or in whole, for the provision of health care products and services. Supports the **CARIN BB Coverage Profile**.

   https://shpp.interop.sentara.com/api/v1/shpp/Coverage

Key	Value
_lastUpdated	2022-06-30T09:51:57Z
meta.profile	http://hl7.org/fhir/us/carin-bb/StructureDefinition/C4BB-Coverage|1.1.0
type	HIP
subscriberId	351726983001
dependent	01

3. **ExplanationOfBenefit**: This resource provides: the claim details; adjudication details from the processing of a Claim; and optionally account balance information, for informing the subscriber of the benefits provided. The ExplanationOfBenefit resources can represent a Patient, Provider, Insurer, Care Team, Facility and Coverage with references to Patient, Organization, Practitioner, PractitionerRole, Location and Coverage resources. The FHIR server is capable of returning all Patient, Practitioner, Organization, PractitionerRole, Location and Coverage resources for an ExplanationOfBenefit via the _id of the reference resource.

   https://shpp.interop.sentara.com/api/v1/shpp/ExplanationOfBenefit

Key	Value
_lastUpdated	2022-06-30T12:10:56Z

meta.profile	http://hl7.org/fhir/us/carin-bb/StructureDefinition/C4BB-ExplanationOfBenefit-Outpatient-Institutional|1.1.0
type	institutional
identifier.value	21354E24294

4. **Organization:** A formally or informally recognized grouping of people or organizations formed for the purpose of achieving some form of collective action. Includes companies, institutions, corporations, departments, community groups, healthcare practice groups, payer/insurer, etc.

   https://shpp.interop.sentara.com/api/v1/shpp/Organization/{id}

5. **Practitioner**: A person with a formal responsibility in the provisioning of healthcare or related services.

   https://shpp.interop.sentara.com/api/v1/shpp/Practitioner/{id}

US Core Clinical FHIR API Documentation

This documentation provides details on the endpoints and capabilities of the US Core Clinical API based on HL7® FHIR® standards and the US Core Implementation Guide.

Implementation Guide

HL7® FHIR® US Core Implementation Guide

API Access Setup Guide

Follow these steps to register your developer account and get your application authorized so you can begin building your application.

1. **Register** your application. This process is initiated by contacting the Sentara Health Plans CMS Interoperability support team at, CMSIODevSupport@sentara.com.
2. Provide the details for your application. In the application registration form, you will be asked to provide the **application name**, **callback URL**, and the **scopes**. Sentara's

support team will work with application developers to begin the onboarding process and verify application security compliance status.

3. You will receive an email when your application is **approved**.
4. After your application is approved, you will be given a **Client ID** and **Client Secret** for your application. You will need these, along with the **callback URL** and scope, to use during **authentication**.
5. **Start using APIs** with your newly registered application. Once you have successfully registered your application, you can begin using the APIs.

Base URL

https://shpp.interop.sentara.com/api/v1/shpp/

Resources

1. AllergyIntolerance

The AllergyIntolerance resource records clinical assessments of allergies, intolerances, or adverse reactions.

◆ Interactions

- **Read:** GET [base]/AllergyIntolerance/[id]
- **Search:** GET [base]/ AllergyIntolerance?{parameters...}

◆ Search Parameters

Search Parameter	Type	Example
_id	String	GET [base]/AllergyIntolerance?_id= [_id]
_lastUpdated	Date	GET [base]/AllergyIntolerance?_lastUpdated= [lastUpdated]
clinical-status	String	GET [base]/AllergyIntolerance?clinical-status= [clinical-status]

---

2. Condition

The Condition resource represents detailed information about a problem or diagnosis.

◆ **Interactions**

- **Read:** GET [base]/Condition/[id]
- **Search:** GET [base]/Condition?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
_id	String	GET [base]/Condition?_id= [_id]
_lastUpdated	Date	GET [base]/Condition?_lastUpdated= [_lastUpdated]
clinical-status	String	GET [base]/Condition?clinical-status= [clinical-status]
code	String	GET [base]/Condition?code= [code]

---

3. Observation

The Observation resource captures measurements and simple assertions.

◆ **Interactions**

- **Read:** GET [base]/Observation/[id]
- **Search:** GET [base]/Observation?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
_id	String	GET [base]/Observation?_id= [_id]
_lastUpdated	Date	GET [base]/Observation?_lastUpdated= [_lastUpdated]
status	String	GET [base]/Observation?status= [status]
code	String	GET [base]/Observation?code= [code]
date	date	GET [base]/Observation?date= [date]
category	String	GET [base]/Observation?category= [category]

---

4. Goal

The Goal resource describes planned objectives for a patient's care.

◆ Interactions

- **Read:** GET [base]/Goal/[id]
- **Search:** GET [base]/Goal?{parameters...}

◆ Search Parameters

Search Parameter	Type	Example
_id	String	GET [base]/Goal?_id= [_id]
_lastUpdated	Date	GET [base]/Goal?_lastUpdated= [_lastUpdated]
lifecycle-status	String	GET [base]/Goal?lifecycle-status= [lifecycle-status]
description	String	GET [base]/Goal?description= [description]
target-date	Date	GET [base]/Goal?target-date= [target-date]

---

5. DiagnosticReport

The DiagnosticReport resource provides the findings and interpretation of diagnostic tests.

◆ Interactions

- **Read:** GET [base]/DiagnosticReport/[id]
- **Search:** GET [base]/DiagnosticReport?{parameters...}

◆ Search Parameters

Search Parameter	Type	Example
_id	String	GET [base]/DiagnosticReport?_id= [_id]
_lastUpdated	Date	GET [base]/DiagnosticReport?_lastUpdated= [_lastUpdated]
status	String	GET [base]/DiagnosticReport?status= [status]
code	String	GET [base]/DiagnosticReport?code= [code]
date	Date	GET [base]/DiagnosticReport?date= [date]

HTTP Status Code

HTTP Status Code	Description
200	Successful Request
400	Invalid Parameter
401	Not Authorized
403	Insufficient Scope
404	Unknown Resource
410	Deleted Resource

Provider Directory Resources

These are the resources and endpoints available in the **Sentara Health Plan Provider Directory API**. The API supports the following **FHIR-approved implementation guide** and profiles:

Implementation Guides

[HL7® FHIR® DaVinci PDEX (Plan-Net) Implementation Guide](#)

Base URL

https://shpp.interop.sentara.com/shpp/api/plannet/

Organization

An **Organization** represents a healthcare provider entity, such as a facility or group practice that delivers healthcare services and may be part of an insurance network or participate in insurance plans.

- ◆ **Interactions**

  - • **Read:** GET [base]/Organization/[id]

- **Search:** GET [base]/Organization?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
name	String	GET [base]/Organization?name=[name]
_id	String	GET [base]/Organization?_id=[_id]
partof	Reference	GET [base]/Organization?partof=[partof]
endpoint	Reference	GET [base]/Organization?endpoint=[endpoint]
address	String	GET [base]/Organization?address=[address]
address-state	String	GET [base]/Organization?address-state=[address-state]
address-city	String	GET [base]/Organization?address-city=[address-city]
address-postalcode	String	GET [base]/Organization?address-postalcode=[address-postalcode]
_lastUpdated	String	GET [base]/Organization?_lastUpdated=[_lastUpdated]
type	String	GET [base]/Organization?type=[type]
coverage-area	Reference	GET [base]/Organization?coverage-area=[coverage-area]

◆ **Supported _includes & _revincludes**

- **_includes →**
  - Organization:partof
  - Organization:endpoint
  - Organization:coverage-area

- **_revincludes →**
  - Endpoint:organization
  - HealthcareService:organization
  - InsurancePlan:administered-by
  - InsurancePlan:owned-by
  - OrganizationAffiliation:primary-organization
  - PractitionerRole:organization
  - PractitionerRole:network
  - OrganizationAffiliation:participating-organization

Location

A **Location** represents the physical place where healthcare services are provided, organizations operate, or practitioners work.

◆ Interactions

- **Read:** GET [base]/Location/[id]
- **Search:** GET [base]/Location?{parameters...}

◆ Search Parameters

Search Parameter	Type	Example
address-city	String	GET [base]/Location?address-city=[address-city]
address-state	String	GET [base]/Location?address-state=[address-state]
address-postalcode	String	GET [base]/Location?address-postalcode=[address-postalcode]
address	String	GET [base]/Location?address=[address]
partof	Reference	GET [base]/Location?partof=[partof]
organization	Reference	GET [base]/Location?organization=[organization]
endpoint	Reference	GET [base]/Location?endpoint=[endpoint]
type	String	GET [base]/Location?type=[type]
_lastUpdated	Date	GET [base]/Location?lastUpdated=[lastUpdated]
_id	String	GET [base]/Location?id=[id]

◆ Supported **_includes & _revincludes**

- **_includes →**
  - o Location:endpoint
  - o Location:organization
  - o Location:partof

- **_revIncludes →**
  - o PractitionerRole:location,HealthcareService:location
  - o InsurancePlan:coverage-area
  - o OrganizationAffiliation:location

OrganizationAffiliation

Defines the relationships between **two organizations**, such as a **health system** and **its affiliated hospitals**.

◆ **Interactions**

- **Read:** GET [base]/OrganizationAffiliation/[id]
- **Search:** GET [base]/OrganizationAffiliation?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
primary-organization	Reference	GET [base]/OrganizationAffiliation?primary-organization=[primary-organization]
participating-organization	Reference	GET [base]/OrganizationAffiliation?participating-organization=[participating-organization]
network	Reference	GET [base]/OrganizationAffiliation?network=[network]
location	Reference	GET [base]/OrganizationAffiliation?location=[location]
service	Reference	GET [base]/OrganizationAffiliation?service=[service]
endpoint	Reference	GET [base]/OrganizationAffiliation?endpoint=[endpoint]
role	Reference	GET [base]/OrganizationAffiliation?role=[role]
specialty	Reference	GET [base]/OrganizationAffiliation?specialty=[specialty]
_id	String	GET [base]/OrganizationAffiliation?_id=[_id]
_lastUpdated	Date	GET [base]/OrganizationAffiliation?_lastUpdated=[_lastUpdated]

◆ Supported includes & revincludes

- **_includes** →
  - ○ OrganizationAffiliation:primary-organization
  - ○ OrganizationAffiliation:participating-organization
  - ○ OrganizationAffiliation:network
  - ○ OrganizationAffiliation:location
  - ○ OrganizationAffiliation:service
  - ○ OrganizationAffiliation:endpoint
- **_revIncludes** → N/A

Practitioner

A **Practitioner** is a healthcare provider, directly or indirectly involved in patient care.

- ◆ **Interactions**

  - **Read:** GET [base]/Practitioner/[id]
  - **Search:** GET [base]/Practitioner?{parameters...}

- ◆ **Search Parameters**

Search Parameter	Type	Example
name	String	GET [base]/Practitioner?name=[name]
family	String	GET [base]/Practitioner?family=[family]
given	String	GET [base]/Practitioner?given=[given]
_id	String	GET [base]/Practitioner?_id=[_id]
_lastUpdated	Date	GET [base]/Practitioner?_lastUpdated=[_lastUpdated]

- ◆ **Supported includes & revincludes**

  - **_include** → N/A
  - **_revInclude** →
    - ○ PractitionerRole:practitioner

PractitionerRole

Defines the **roles, responsibilities, and locations** of a **healthcare practitioner** in an organization.

- ◆ **Interactions**

  - **Read:** GET [base]/PractitionerRole/[id]
  - **Search:** GET [base]/PractitionerRole?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
practitioner	Reference	GET [base]/PractitionerRole?practitioner=[practitioner]
organization	Reference	GET [base]/PractitionerRole?organization=[organization]
location	Reference	GET [base]/PractitionerRole?location=[location]
sspecialty	Token	GET [base]/PractitionerRole?specialty=[specialty]
network	Reference	GET [base]/PractitionerRole?network=[network]
service	String	GET [base]/PractitionerRole?service=[service]
endpoint	Reference	GET [base]/PractitionerRole?endpoint=[endpoint]
role	String	GET [base]/PractitionerRole?role=[role]
_id	String	GET [base]/PractitionerRole?_id=[_id]
_lastUpdated	Date	GET [base]/PractitionerRole?_ lastUpdated = [_lastUpdated]

◆ **Supported includes & revincludes**

- **_includes →**
  - PractitionerRole:practitioner
  - PractitionerRole:organization
  - PractitionerRole:location
  - PractitionerRole:network
- **_revIncludes →** N/A

HealthcareService

Describes services offered by an organization/practitioner at a location (e.g., prevention, diagnostics, ambulatory care, etc.).

◆ **Interactions**

- **Read:** GET [base]/HealthcareService/[id]

- **Search:** GET [base]/HealthcareService?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
endpoint	Reference	GET [base]/HealthcareService?location=[endpoint]
coverage-area	Reference	GET [base]/HealthcareService?coverage-area=[coverage-area]
organization	Reference	GET [base]/HealthcareService?organization=[organization]
name	String	GET [base]/HealthcareService?name=[name]
service-category	String	GET [base]/HealthcareService?service-category =[service-category]
service-type	String	GET [base]/HealthcareService?service-type=[service-type]
specialty	String	GET [base]/HealthcareService?specialty=[specialty]
_id	String	GET [base]/HealthcareService?_id=[_id]
_lastUpdated	Date	GET [base]/HealthcareService?_lastUpdated=[_lastUpdated]

◆ **Supported includes & revincludes**

- **_includes →**
  - HealthcareService:location
  - HealthcareService:coverage-area
  - HealthcareService:organization
  - HealthcareService:endpoint
- **_revIncludes →**
  - PractitionerRole:service
  - OrganizationAffiliation:service

InsurancePlan

Defines a health insurance offering, including covered benefits, provider networks, and coverage area.

◆ **Interactions**

- **Read:** GET [base]/InsurancePlan/[id]

- **Search:** GET [base]/InsurancePlan?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
administered-by	Reference	GET [base]/InsurancePlan?administered-by=[administered-by]
owned-by	Reference	GET [base]/InsurancePlan?owned-by=[owned-by]
coverage-area	Reference	GET [base]/InsurancePlan?coverage-area=[coverage-area]
name	String	GET [base]/InsurancePlan?name=[name]
_lastUpdated	String	GET [base]/InsurancePlan?_lastUpdated=[_lastUpdated]
_id	String	GET [base]/InsurancePlan?_id=[_id]
plan-type	String	GET [base]/InsurancePlan?plan-type=[plan-type]
identifier	String	GET [base]/InsurancePlan?identifier=[identifier]
type	String	GET [base]/InsurancePlan?type=[type]

◆ **Supported includes & revincludes**

- **_includes** →
  - InsurancePlan:administered-by
  - InsurancePlan:owned-by
  - InsurancePlan:coverage-area
- **_revIncludes** → N/A

HTTP Status Code

HTTP Status Code	Status	Description
200	OK	Resource read or updated successfully
400	Bad Request	Invalid request format (bad JSON, invalid query parameter)
403	Forbidden	Authenticated but not allowed to access that resource
404	Not Found	Resource doesn't exist (wrong Practitioner/Organization ID)
500	Internal Server Error	Something went wrong on server side
503	Service Unavailable	API temporarily down or overloaded

Formulary Drug API FHIR Documentation

This documentation provides details on the endpoints and capabilities of the Sentara Health Plan Formulary Drug API based on HL7® FHIR® standards and the **Da Vinci PDex US Drug Formulary Implementation Guide**.

Implementation Guide

[HL7® FHIR® DaVinci PDex US Drug Formulary Implementation Guide](#)

Base URL

https://shpt.interop.sentara.com/shpt/api/plannet/

Resources

1. List

The List resource is used to represent the **Formulary** itself. It includes a set of drugs (entries) available under a specific insurance plan.

- ◆ **Interactions**

    - **Read:** GET [base]/List/[id]
    - **Search:** GET [base]/List?{parameters...}

- ◆ **Search Parameters**

Search Parameter	Type	Example
_id	Token	GET [base]/List?_id=[id]
status	Token	GET [base]/List?status=[status]
identifier	Token	GET [base]/List?identifier=[identifier]
item	Reference	GET [base]/List?item=[item]

---

2. MedicationKnowledge

The MedicationKnowledge resource represents details about a drug, including cost, dosage form, classification, and related formulary information.

- ◆ **Interactions**

- **Read:** GET [base]/MedicationKnowledge/[id]
- **Search:** GET [base]/MedicationKnowledge?{parameters...}

◆ **Search Parameters**

Search Parameter	Type	Example
_id	Token	GET [base]/MedicationKnowledge?_id=[id]
code	Token	GET [base]/MedicationKnowledge?code=[code]
DrugPlan	Token	GET [base]/MedicationKnowledge?DrugPlan= [DrugPlan]
DrugTier	Token	GET [base]/MedicationKnowledge?DrugTier=[DrugTier]
DrugName	Token	GET [base]/MedicationKnowledge?DrugName=[DrugName]

HTTP Status Code

HTTP Status Code	Status	Description
200	OK	Resource read or updated successfully
400	Bad Request	Invalid request format (bad JSON, invalid query parameter)
403	Forbidden	Authenticated but not allowed to access that resource
404	Not Found	Resource doesn't exist (wrong Practitioner/Organization ID)
500	Internal Server Error	Something went wrong on server side
503	Service Unavailable	API temporarily down or overloaded

Sentara Health Plans is committed to assisting developers to complete the registration process. If you need to report an issue or concern with the CMS Interoperability solution, please email the Sentara Health Plans Compliance Department at shpsupport@sentara.com.