

# Medgen EHR

## FHIR API Developer Guide

*MedgenFHIR API-Client Document, September 2022*

**Version 1.3**

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**By Medgen Developers**

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## Purpose of this document

This document is written for developers building client applications that connect to the MedgenFHIR API. These client applications give patients access to their health records in the application of their choosing, outside of access via your selected app. This document covers the following

- How to register as a client application and gain access credentials
- A detailed walk-through of using the MedgenFHIR API

**\*\*Note:** The URLs mentioned in this document will be dummy or test URLs

### *How to register your client application to access MedgenFHIR API:*

- Contact Name
- Contact Email
- Organization Name
- Client Name
- Redirect URL
- Launch URL
- JWKS URL

**\*Note:** JWKS URL is required only for accessing bulk data API

## API Transparency Conditions

**Confidential** – Proprietary Information Property of Medgen EHR For Use By Authorized Company Clients Only.

**NOTICE:** This document contains information that is confidential and Property of MedgenFHIR API and is intended for use solely by its authorized clients.

Below are guidelines you should follow to be successful in your MedgenFHIR API integration.

### Your privacy policy

You will be asked to provide a URL to your privacy policy when registering your organization and your application in the MedgenFHIR API Portal. These links should be easy to access and understand by a member using your app.

### Terms of Use

This is a legal agreement between "you" (a "Developer" or "User") and Medgen EHR. You must accept the Terms of Use ("Agreement") in order to use the Medgen EHR public Application Programming Interface ("API"). This Agreement describes your rights and your obligations if you use the Medgen EHR FHIR API. By accepting this Agreement or by accessing or using the Medgen EHR FHIR API, you agree to be bound by this Agreement.

If you are entering into this Agreement on behalf of a company or other legal entity ("Entity"), you represent that you have the authority to bind such Entity to this Agreement. In that case, the terms "you" or "your" shall also refer to such Entity. If you do not have such authority, or if the Entity does not agree to be bound by this Agreement, the Entity and you may not use the Medgen EHR FHIR API.

## Introduction

The Medgen EHR FHIR API Reference Guide describes Medgen EHR’s implementation of the HL7® Fast Healthcare Interoperability Resources (FHIR®) specification, which is a standard for exchanging healthcare information electronically. The guide outlines the steps necessary for clients to connect to the Application Programming Interface (API), as well as how to retrieve patient health information within Medgen EHR (including example requests and responses).

### What is FHIR?

Fast Healthcare Interoperability Resources (FHIR) is an interoperability standard for electronic exchange of healthcare information. FHIR was developed by Health Level Seven International (HL7), a not-for-profit organization accredited by the American National Standards Institute that develops and provides frameworks and standards for the sharing, integration and retrieval of clinical health data and other electronic health information.

## MedgenFHIR API Overview

HL7 FHIR spec follows the protocols that are similar to **OAuth 2** protocols. In the client-server authentication model, the client requests an access-restricted resource (protected resource) on **MedgenFHIR** server by authenticating using the **Client & Resource owner (User)** credentials. In order to provide third-party applications access to restricted resources, we shares its credentials with the third party.

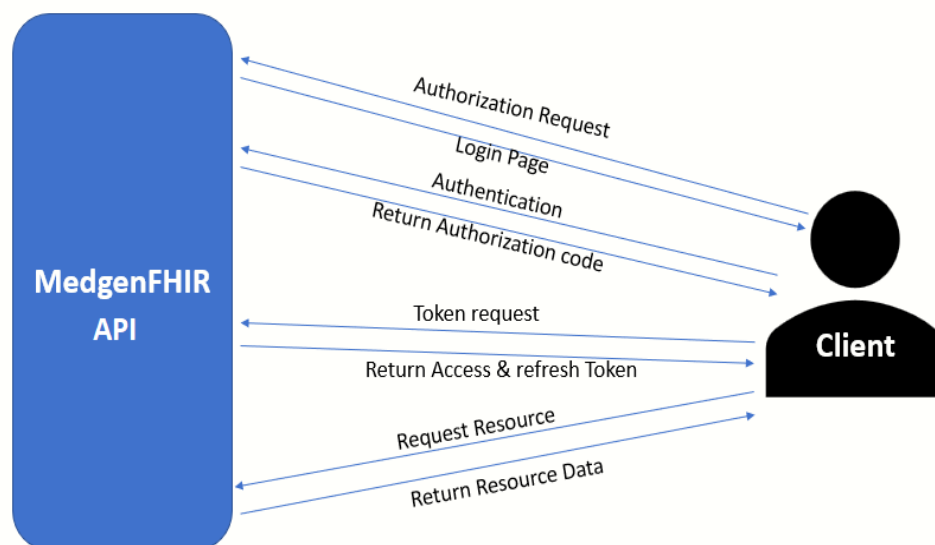


Figure 1 - MedgenFHIR-Client Flow

## What is OAuth 2.0?

MedgenFHIR APIs use OAuth 2.0 for authorization. OAuth 2.0 is an open standard for API authorization and is generally considered to be the best way to secure modern RESTful APIs.

There are different ways of use with OAuth 2.0, and we use three of them:

- **'Authorization code flow'** - where the end user authenticates directly with one of our identity providers (**Medgen Login Page**) as part of the process of obtaining an access token
- **'Token exchange'** - where the end user authenticates with an identity provider separately using Open ID Connect (OIDC) and then exchanges their ID token with an API access token.
- **'JSON web tokens'** - where the calling application authorizes securely without end user involvement

## MedgenFHIR Smart Discovery End Point:

### API URLs

Medgen FHIR base URL is <https://domain/fhir>. As per the FHIR standards, we need to provide a discovery document. Our FHIR discovery document accessed using the following URL.

**<https://domain/fhir/.well-known/smart-configuration>**

In the above smart configuration, Will provide different type of support from MedgenFHIR API. Discovery document consists of one server's specifications like capabilities and end points.

Whenever client want to any request to the MedgenFHIR API need to provide end points to authorization, access the data, etc.

There are 3 types of end points to access/authorize MedgenFHIR API

- **Authorization end-point**
- **Revocation end-point**
- **Token end-point**

**Authorization end-point:** Using this end-point any client shall initially authorize. The authorization code is obtained by using our MedgenFHIR server as an intermediary between the client and resource owner (User). Instead of requesting authorization directly from the resource owner, the client directs the resource owner to our MedgenFHIR server. MedgenFHIR server redirects authorization code to the client using the redirect **URL** at the time of client registration.

<https://base-url/oauth/authorize>

**Revocation end-point:** Using this end-point client can revoke a token any time, which MedgenFHIR provided.

<https://base-url/oauth/revocation>

**Token end-point:** Using this end-point client request to MedgenFHIR after authorize success.

<https://base-url/oauth/token>

## MedgenFHIR API Open Id Discovery Document:

As per OAuth 2 specification, every authorization server contains a open id document which reveals information about various server end points, Scopes, API Resources, JWKS URL's, Grand Types etc.

<https://bill.medgenehr.com:7043/fhir/.well-known/openid-configuration>

Client can be able to register with the scopes, which are available in this discovery document.

## API Request and Response Format (Syntax):

### HTTP Methods:

Method	Description
GET	Used for retrieve resources.
Post	Used for creating resources and performing resources action.
PUT	Used for updating resources.
DELTE	Used for deleting resources.

### 6.1. Authorization:

- Any client and user must be authorized before requesting for the resources.
- So before requesting any resource you need to send us an authorization request to the `authorization_endpoint` which received in smart-configuration.
- Below is the request and response format for authorization



**Request:****Request Method:** GET**Authorization:** none**Request Params:**

- a. response\_type:code(the responsetype must be code)
- b. client\_id
- c. redirect\_uri (URL which is provided at the time of client registration)
- d. scope ()
- e. state (unique id for every authorization request which should be maintained at client side)
- f. aud (It must be base URL path)

**Expected:**

[https://base-url/oauth/authorize?  
response\\_type=code&client\\_id=registered\\_client\\_id&redirect\\_uri=registered\\_client\\_re  
direct\\_url&scope=scopes\\_of\\_data\\_to\\_be\\_requested&state=123456&aud=medgen\\_server\\_base\\_url](https://base-url/oauth/authorize?response_type=code&client_id=registered_client_id&redirect_uri=registered_client_redirect_url&scope=scopes_of_data_to_be_requested&state=123456&aud=medgen_server_base_url)

**Response:**

Response will be redirected to the client redirect\_url with the following paramaters

**Content-type:** application/json**Response Parameters:**

- a. code (This code need to be shared to get the access\_token)
- b. scope
- c. state
- d. session\_state

**Expected:**

[https://client\\_redirect\\_url?code=authorization code provided by medgen&scope=  
scopes&state=123456&session\\_state=randome unique provided by medgen](https://client_redirect_url?code=authorization_code_provided_by_medgen&scope=scopes&state=123456&session_state=randome_unique_provided_by_medgen)

## Errors & Exception Handling (HTTPS Status Codes)

MedgenFHIR uses status code to indicate success or failure of an API call. In general, Status codes are different types like below.

- 2xx range means success.
- 4xx range means there was an error in the provided information.
- 5xx range indicates server side error.

HTTP Status codes are listed below.

Status Code	Description
200	Ok
201	Created
400	Bad Request
401	Unauthorized (Invalid Auth Token)
404	URL Not Found
405	Method Not Allowed (Method you have called is not supported for the invoked API)
429	Rate Limit Exceeded (API usage limit exceeded)
500	Internal Error

### **Not Found Response:**

```
{
  "resourceType": "OperationOutcome",
  "issue": [
    {
      "severity": "error",
      "code": "processing",
      "diagnostics": "No resource entries found for the given search criteria."
    }
  ]
}
```

## Resources/Scopes Available with MedgenFHIR API:

Scopes	Action For Scope
<a href="#"><u>AllergyIntolerance</u></a>	<a href="https://base-url/fhir/AllergyIntolerance"><u>https://base-url/fhir/AllergyIntolerance</u></a>
<a href="#"><u>CarePlan</u></a>	<a href="https://base-url/fhir/CarePlan"><u>https://base-url/fhir/CarePlan</u></a>
<a href="#"><u>CareTeam</u></a>	<a href="https://base-url/fhir/CareTeam"><u>https://base-url/fhir/CareTeam</u></a>
<a href="#"><u>Condition</u></a>	<a href="https://base-url/fhir/Condition"><u>https://base-url/fhir/Condition</u></a>
<a href="#"><u>Device</u></a>	<a href="https://base-url/fhir/Device"><u>https://base-url/fhir/Device</u></a>
<a href="#"><u>DiagnosticReport</u></a>	<a href="https://base-url/fhir/DiagnosticReport"><u>https://base-url/fhir/DiagnosticReport</u></a>
<a href="#"><u>DocumentReference</u></a>	<a href="https://base-url/fhir/DocumentReference"><u>https://base-url/fhir/DocumentReference</u></a>
<a href="#"><u>Encounter</u></a>	<a href="https://base-url/fhir/Encounter"><u>https://base-url/fhir/Encounter</u></a>
<a href="#"><u>Goal</u></a>	<a href="https://base-url/fhir/Goal"><u>https://base-url/fhir/Goal</u></a>
<a href="#"><u>Immunization</u></a>	<a href="https://base-url/fhir/Immunization"><u>https://base-url/fhir/Immunization</u></a>
<a href="#"><u>Location</u></a>	<a href="https://base-url/fhir/MedicationRequest"><u>https://base-url/fhir/MedicationRequest</u></a>
<a href="#"><u>Medication</u></a>	<a href="https://base-url/fhir/Medication"><u>https://base-url/fhir/Medication</u></a>
<a href="#"><u>MedicationRequest</u></a>	<a href="https://base-url/fhir/MedicationRequest"><u>https://base-url/fhir/MedicationRequest</u></a>
<a href="#"><u>Observation</u></a>	<a href="https://base-url/fhir/Observation"><u>https://base-url/fhir/Observation</u></a>
<a href="#"><u>Organization</u></a>	<a href="https://base-url/fhir/Organization"><u>https://base-url/fhir/Organization</u></a>
<a href="#"><u>Patient</u></a>	<a href="https://base-url/fhir/Organization"><u>https://base-url/fhir/Organization</u></a>
<a href="#"><u>Practitioner</u></a>	<a href="https://base-url/fhir/Practitioner"><u>https://base-url/fhir/Practitioner</u></a>
<a href="#"><u>Procedure</u></a>	<a href="https://base-url/fhir/Procedure"><u>https://base-url/fhir/Procedure</u></a>
<a href="#"><u>Provenance</u></a>	<a href="https://base-url/fhir/Provenance"><u>https://base-url/fhir/Provenance</u></a>
<a href="#"><u>VitalSigns</u></a>	<a href="https://base-url/fhir/VitalSigns"><u>https://base-url/fhir/VitalSigns</u></a>

## US Core Profiles Data Elements and Classes:

### USCDI: Allergies and Intolerances

#### AllergyIntolerance:

This profile sets minimum expectations for the [AllergyIntolerance](#) resource to record, search, and fetch allergies/adverse reactions associated with a patient.

- **Description:** Retrieve the [patient](#) allergies, medication, substances, etc.
- **Method:** GET
- **Support Interaction:** Search, Read
- **Response Format:** application/JSON

#### *Parameters:*

The following search parameters are supported for the [Allergy Intolerance](#) resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's allergies.	String
startDate	A date used to filter entries by clinically relevant date, in the format: yyyy-mm-dd	Date
endDate	A date used to filter entries by clinically relevant date, in the Following format: yyyy-mm-dd	Date

### Response Fields:

The following fields may appear in a JSON response for the [Allergy Intolerance](#) resource.

Field	Type	Description
resourceType	AllergyIntolerance	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
clinicalStatus	code	The clinical status of the allergy. Supported values include active or inactive
Type	code	The underlying physiological mechanism for the reaction risk. The only supported value is allergy.
category	code	The category of the identified substance. Supported values include food, medication, or environment.
patient	reference	The patient associated with the allergy, described by the patient's unique identifier preceded by Patient/
onsetPeriod	dateTime	The period of time when the allergy was identified, defined by a start and end date/time.
assertedDate	dateTime	The date and time on which the existence of the allergy was first declared or acknowledged.
reaction		Details about the adverse reaction to an identified substance.
substance		The specific substance that is considered responsible for the adverse reaction.
manifestation		The clinical symptoms and/or signs that are observed or associated with the adverse reaction.
onset	dateTime	The date and/or time of the onset of the reaction
severity	code	The clinical assessment of the severity of the adverse reaction as a whole. Supported values include mild, moderate, or severe

### Example Requests and Responses:

**Request:** Return a single allergy entry for the patient using the specified clinical entry identifier

**GET:** <https://base-url/fhir/AllergyIntolerance?patient=3306747>

## Response - Read:

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "AllergyIntolerance/30565373",
      "resource": {
        "resourceType": "AllergyIntolerance",
        "id": "30565373",
        "clinicalStatus": {
          "coding": [
            {
              "system":
"http://terminology.hl7.org/CodeSystem/allergyintolerance-clinical",
              "code": "active"
            }
          ]
        },
        "verificationStatus": {
          "coding": [
            {
              "system":
"http://terminology.hl7.org/CodeSystem/allergyintolerance-verification",
              "code": "confirmed"
            }
          ]
        },
        "type": "intolerance",
        "category": [
          "medication"
        ],
        "criticality": "unable-to-assess",
        "code": {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "10395",
              "display": "TETRACYCLINE"
            }
          ]
        },
        "patient": {
          "reference": "Patient/3306747"
        },
        "encounter": {
          "reference": "Encounter/14223206"
        },
        "onsetDateTime": "2019-12-27T00:00:00-05:00",
        "recordedDate": "2019-12-27T00:00:00-05:00",

```

```
      "reaction": [
        {
          "manifestation": [
            {
              "coding": [
                {
                  "system":
"http://terminology.hl7.org/CodeSystem/allergyintolerance-verification",
                  "code": "confirmed"
                }
              ]
            }
          ],
          "severity": "moderate"
        }
      ]
    }
  ]
}
```

**Get:** <https://base-url/fhir/Patient/3306747>

### Response – Search:

```
{
  "resourceType": "Patient",
  "id": "3306747",
  "meta": {
    "profile": [
      "http://hl7.no/fhir/StructureDefinition/no-basis-Patient"
    ]
  },
  "extension": [
    {
      "extension": [
        {
          "url": "http://hl7.org/fhir/us/core/ValueSet/omb-race-category",
          "valueCodeableConcept": {
            "coding": [
              {
                "system": "urn:oid:2.16.840.1.113883.6.238",
                "code": "2056-0",
                "display": "Black"
              }
            ]
          }
        }
      ]
    },
    {
      "url": "text",
      "valueString": "Black"
    }
  ],
  "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race"
```

```
},
{
  "extension": [
    {
      "url": "http://hl7.org/fhir/us/core/ValueSet/omb-ethnicity-category",
      "valueCodeableConcept": {
        "coding": [
          {
            "system": "urn:oid:2.16.840.1.113883.6.238",
            "code": "2135-2",
            "display": "Hispanic or Latino"
          }
        ]
      }
    },
    {
      "url": "text",
      "valueString": "Hispanic or Latino"
    }
  ],
  "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity"
},
{
  "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-birthsex",
  "valueCode": "M"
}
],
"identifier": [
  {
    "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
    "value": "3306747"
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
          "code": "MR",
          "display": "Medical Record Number"
        }
      ]
    },
    "text": "Medical Record Number"
  },
  {
    "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
    "value": "3306747"
  }
]
},
"name": [
  {
    "use": "official",
    "family": "TESTFHIRPAT",
    "given": [
      "PATIENT"
    ],
    "prefix": [
      "pat_prefix"
    ],
    "suffix": [
      "patsuffix"
    ]
  }
]
```



```
]
},
{
  "use": "old",
  "family": "pat_pervious_name",
  "period": {
    "end": "2022-06-17T11:57:54-04:00"
  }
}
],
"telecom": [
  {
    "system": "phone",
    "value": "5554561235",
    "use": "home"
  }
],
"gender": "male",
"birthDate": "1984-09-15",
"address": [
  {
    "use": "home",
    "line": [
      "155-25 SANFORD AVE"
    ],
    "city": "FLUSHING",
    "postalCode": "11355",
    "country": "US",
    "period": {
      "start": "1900-01-01"
    }
  }
],
"communication": [
  {
    "language": {
      "coding": [
        {
          "system": "urn:ietf:bcp:47",
          "code": "eng",
          "display": "English (Region=United States)"
        }
      ],
      "text": "English (Region=United States)"
    }
  }
]
}
```

## USCDI: Assessment and Plan of Treatment

### CarePlan:

This profile sets minimum expectations for the **CarePlan** resource to record, search, and fetch assessment and plan of treatment data associated with a patient.

- **Description:** Retrieve the patient [Care plan](#).
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the Care Plan resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient Care plan search	String

### Response Fields:

The following fields may appear in a JSON response for the Care Plan resource.

Field	Type	Description
resourceType	CarePlan	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
Subject	code	Identifies the patient or group whose taking the care plan
category	code	Identify the type of plan

### Example Requests and Responses:

**Request:** Return a patient care plan

**GET:** `https://base-url/fhir/CarePlan?category=assess-plan&patient=3306747`

### Response - Read:

```
{
  "resourceType": "CarePlan",
  "id": "21097605",
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"> Care Plan.<br /> Actions:
    <ul><li>Referral to dietitian</li></ul></div>"
  },
  "status": "completed",
  "intent": "plan",
  "category": [
    {
      "coding": [
        {
          "system": "http://hl7.org/fhir/us/core/CodeSystem/careplan-category",
          "code": "assess-plan"
        }
      ]
    }
  ],
  "subject": {
    "reference": "Patient/3306747"
  },
  "encounter": {
    "reference": "Encounter/21097605"
  }
}
```

```
},
"period": {
  "start": "2022-06-20T00:00:00-04:00",
  "end": "2022-06-20T00:00:00-04:00"
},
"careTeam": [
  {
    "reference": "CareTeam/33481"
  }
],
"activity": [
  {
    "detail": {
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "103699006",
            "display": "Referral to dietitian"
          }
        ],
        "text": "Referral to dietitian"
      },
      "status": "completed",
      "location": {
        "reference": "Location/223",
        "display": ".Glen Head Office"
      }
    }
  }
]
}
```

## Response – Search:

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "CarePlan/21097605",
      "resource": {
        "resourceType": "CarePlan",
        "id": "21097605",
        "text": {
          "status": "generated",
          "div": "<div xmlns=\\"http://www.w3.org/1999/xhtml\\"> Care
Plan.<br/> Actions: <ul><li>Referral to dietitian</li></ul></div>"
        },
        "status": "completed",
        "intent": "plan",
        "category": [
          {

```

```
        "coding": [
          {
            "system": "http://hl7.org/fhir/us/core/CodeSystem/careplan-
category",
            "code": "assess-plan"
          }
        ]
      },
    ],
    "subject": {
      "reference": "Patient/3306747"
    },
    "encounter": {
      "reference": "Encounter/21097605"
    },
    "period": {
      "start": "2022-06-20T00:00:00-04:00",
      "end": "2022-06-20T00:00:00-04:00"
    },
    "careTeam": [
      {
        "reference": "CareTeam/33481"
      }
    ],
    "activity": [
      {
        "detail": {
          "code": {
            "coding": [
              {
                "system": "http://snomed.info/sct",
                "code": "103699006",
                "display": "Referral to dietitian"
              }
            ],
            "text": "Referral to dietitian"
          },
          "status": "completed",
          "location": {
            "reference": "Location/223",
            "display": ".Glen Head Office"
          }
        }
      }
    ]
  }
}
```

## USCDI: Care Team Member(s)

### CareTeam:

This profile sets minimum expectations for the **CareTeam** resource for identifying the Care Team members associated with a patient.

- **Description:** Retrieve the patient's [Care Team](#).
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the Care Team resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient Care team	String

### *Response Fields:*

The following fields may appear in a JSON response for the Care Team resource.

Field	Type	Description
resourceType	CareTeam	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
Subject	code	Identifies the patient or group whose care is handled by the team.
category	code	Identify the type of team
Participant		Identifies all people and organizations who are part of the care team.

## Example Requests and Responses:

**Request:** Return a patient care team

**GET:** <https://base-url/fhir/CareTeam?patient=3306747&status=proposed>

### **Response - Read:**

```
{
  "resourceType": "CareTeam",
  "id": "21205630",
  "status": "active",
  "category": [
    {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "LA27976-2",
          "display": "Encounter-focused care team"
        }
      ],
      "text": "Encounter-focused care team"
    }
  ],
  "name": "Encounter Team",
  "subject": {
    "reference": "Patient/3306747"
  },
  "encounter": {
    "reference": "Encount/21205630"
  },
  "participant": [
    {
      "role": [
        {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "153500000",
              "display": "Provider of Encounter"
            }
          ],
          "text": "Provider of Encounter"
        }
      ],
      "member": {
        "reference": "Practitioner/33481",
        "display": "MEDGEN SRWWWW MIKE"
      }
    }
  ]
}
```

## Response - Search:

```
{
  "resourceType": "Bundle",
  "id": "fda08911-40bf-465e-b449-6770d2ce6a0e",
  "meta": {
    "lastUpdated": "2021-05-07T15:30:15.278+00:00"
  },
  "type": "searchset",
  "total": 1,
  "link": [
    {
      "relation": "self",
      "url": "https://base_url/medgen-ehr-fhir-server-
/fhir/CareTeam?patient=2c92a61179378ae2017938b606d04c0f"
    }
  ],
  "entry": [
    {
      "fullUrl": "https://base_url/medgen-ehr-fhir-server-
/fhir/CareTeam/2c92a61179378ae2017938b606d04c0f",
      "resource": {
        "resourceType": "CareTeam",
        "id": "2c92a61179378ae2017938b606d04c0f",
        "category": [
          {
            "coding": [
              {
                "system": "http://hl7.org/fhir/care-team-category",
                "code": "care-team",
                "display": "Care Team"
              }
            ],
            "text": "Care Team"
          }
        ],
        "subject": {
          "reference": "Patient/2c92a61179378ae2017938b606d04c0f"
        },
        "participant": [
          {
            "role": [
              {
                "text": "Caregiver"
              }
            ],
            "member": {
```



```
    "display": "Test1"
  },
  {
    "role": [
      {
        "text": "Family physician"
      }
    ],
    "member": {
      "display": "TestPatient"
    }
  }
]
}
```

## USCDI: Problems

### **Condition:**

This resource is used to record detailed information about a [condition](#), problem, diagnosis, or other event, situation, issue, or clinical concept that has risen to a level of concern.

- **Description:** Retrieve the patient's [Condition](#).
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the condition resource to check patient problems.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient condition	String
Problem	Can retrieve the patient's problems	string
Diagnosis	Retrieve the patient diagnosis reports	string
ClinicalStatus	Retrieve the patient's clinical status	code

### *Response Fields:*

The following fields may appear in a JSON response for the **Condition** resource.

Field	Type	Description
resourceType	Condition	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
Subject	code	The patient associated with the condition, described by the patient's unique identifier preceded by Patient

category	code	A category assigned to the condition.
clinicalStatus	Code	The status of the condition. Supported values include active or inactive

## Example Requests and Responses:

### Request: Return a patient Condition

**GET:** <https://bill.medgenehr.com:7043/fhir/Condition?patient=3306747>

### Response-Search:

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 94,
  "entry": [
    {
      "fullUrl": "Condition/64007191",
      "resource": {
        "resourceType": "Condition",
        "id": "64007191",
        "clinicalStatus": {
          "coding": [
            {
              "system": "http://terminology.hl7.org/CodeSystem/condition-clinical",
              "code": "active"
            }
          ]
        },
        "verificationStatus": {
          "coding": [
            {
              "system": "http://terminology.hl7.org/CodeSystem/condition-ver-status",
              "code": "confirmed"
            }
          ]
        },
        "category": [
          {
            "coding": [
              {
                "system": "http://terminology.hl7.org/CodeSystem/condition-category",
                "code": "problem-list-item",
                "display": "Problem List Item"
              }
            ]
          }
        ],
        "code": {
          "coding": [
            {
              "system": "http://hl7.org/fhir/sid/icd-10-cm",
```

```
        "code": "E78.00",
        "display": "PURE HYPERCHOLESTEROLEMIA"
      }
    ],
    "text": "PURE HYPERCHOLESTEROLEMIA"
  },
  "subject": {
    "reference": "Patient/3306747"
  },
  "onsetDateTime": "2022-04-20T00:00:00-04:00",
  "recordedDate": "2022-04-20T00:00:00-04:00"
}
]
}
```

## USCDI: Unique Device Identifier(s) for a Patient's

### Devices:

This profile sets minimum expectations for the Device resource to record, search, and fetch UDI information associated with a patient's implantable device

- **Description:** Retrieve the Patient [Device](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Device](#) resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's Device.	String
startDate	A date used to filter entries by clinically relevant date, in the format: yyyy-mm-dd	Date
endDate	A date used to filter entries by clinically relevant date, in the following format: yyyy-mm-dd	Date

### *Response Fields:*

The following fields may appear in a JSON response for the Device resource.

Field	Type	Description
-------	------	-------------

resourceType	Device	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
status	code	The status of the Device availability. Supported values include active or inactive
Type	code	The code or identifier that indicates the kind of device.
udi	code	The unique device identifier assigned to the device
patient	reference	The patient whom device is fixed, described by the patient unique identifier preceded by patient
lotNumber	string	The lot number assigned to the device manufacturer
manufacturer	string	Name of the device's manufacturer.
serialNumber	string	Serial number of device
expirationDate	date	The date and time after which this device is no longer valid or should not be used

### Example Requests and Responses:

**Request:** Return a patient device information

**GET:** `https://base-url/fhir/Device?patient=625516`

**Response-Search:**

```
{
  "resourceType": "Device",
  "id": "433",
  "udiCarrier": [
    {
      "deviceIdentifier": "00643169007222",
      "carrierHRF": "(01)00643169007222(17)160128(21)BLC200461H"
    }
  ],
  "status": "active",
  "distinctIdentifier": "00643169007222",
  "manufactureDate": "1900-01-01",
  "expirationDate": "2016-01-28",
  "lotNumber": "No number",
  "serialNumber": "BLC200461H",
  "deviceName": [
    {
      "name": "Cardiac Pacemaker",
      "type": "user-friendly-name"
    }
  ],
  "type": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "72506001",
        "display": "Cardiac Pacemaker"
      }
    ]
  }
}
```

```
    "text": "Cardiac Pacemaker"
  },
  "patient": {
    "reference": "Patient/3306747"
  }
}
```

## Response-Read:

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "Device/433",
      "resource": {
        "resourceType": "Device",
        "id": "433",
        "udiCarrier": [
          {
            "deviceIdentifier": "00643169007222",
            "carrierHRF": "(01)00643169007222(17)160128(21)BLC200461H"
          }
        ],
        "status": "active",
        "distinctIdentifier": "00643169007222",
        "manufactureDate": "1900-01-01",
        "expirationDate": "2016-01-28",
        "lotNumber": "No number",
        "serialNumber": "BLC200461H",
        "deviceName": [
          {
            "name": "Cardiac Pacemaker",
            "type": "user-friendly-name"
          }
        ],
        "type": {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "72506001",
              "display": "Cardiac Pacemaker"
            }
          ]
        },
        "text": "Cardiac Pacemaker"
      },
      "patient": {
        "reference": "Patient/3306747"
      }
    }
  ]
}
```

## USCDI: Laboratory Tests - DiagnosticReport

### DiagnosticReport:

This profile sets minimum expectations for searching and fetching Diagnostic Reports and Notes using the DiagnosticReport resource.

- **Description:** Retrieve the patient [diagnostic report](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Diagnostic Report](#) resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient diagnostic report search	String

### *Response Fields:*

The following fields may appear in a JSON response for the Diagnostic Report resource.



Field	Type	Description
resourceType	DiagnosticReport	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
Subject	code	Identifies the patient diagnostic report
category	code	Identify the type of diagnostic

### Example Requests and Responses:

**Request:** Return a patient diagnostic report

**GET:** <https://base-url/fhir/DiagnosticReport?category=LAB&patient=3306747>

**Response- Search:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 2,
  "entry": [
    {
      "fullUrl": "DiagnosticReport/127155237",
      "resource": {
        "resourceType": "DiagnosticReport",
        "id": "127155237",
        "status": "final",
        "category": [
          {
            "coding": [
              {
                "system": "http://loinc.org",
                "code": "LP29684-5",
                "display": "Radiology"
              }
            ],
            "text": "Radiology"
          }
        ],
        "code": {
          "coding": [
            {
              "system": "http://loinc.org",
              "code": "57133-1",
              "display": "Referral Note"
            }
          ],
          "text": "Referral Note"
        }
      }
    },
  ],
}
```

```

"subject": {
  "reference": "Patient/3306747"
},
"encounter": {
  "reference": "Encounter/21097605"
},
"effectiveDateTime": "2022-06-20T00:00:00-04:00",
"issued": "2022-06-20T00:00:00-04:00",
"performer": [
  {
    "reference": "Practitioner/33481",
    "display": "TEST NAME"
  }
],
"presentedForm": [
  {
    "contentType": "text/html",
    "data":
"UmFkaW9sb2Z5IFJlZmVycmFsIE5vdGU8dGFibGUgd2lkdGg9IjgwJSIgYm9yZGVyPSIwIj48dGJvZHK+PHRYPjx0
ZCB3aWR0aD0iMjAiPiZuYnNwOzwvdGQ+PHRkPiZuYnNwOzwvdGQ+PHRkIHdpZHRoPSIyMCI+Jm5ic3A7PC90ZD48L
3RyPjwvdGJvZHK+PC90YWJsZT4="
  }
]
},
{
  "fullUrl": "DiagnosticReport/127155245",
  "resource": {
    "resourceType": "DiagnosticReport",
    "id": "127155245",
    "status": "final",
    "category": [
      {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "LP29684-5",
            "display": "Radiology"
          }
        ],
        "text": "Radiology"
      }
    ],
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "11488-4",
          "display": "Consultation Note"
        }
      ],
      "text": "Consultation Note"
    },
    "subject": {
      "reference": "Patient/3306747"
    },
    "encounter": {
      "reference": "Encounter/21097605"
    }
  },

```

```

    "effectiveDateTime": "2022-06-20T00:00:00-04:00",
    "issued": "2022-06-20T00:00:00-04:00",
    "performer": [
      {
        "reference": "Practitioner/33481",
        "display": "TEST PATIENT"
      }
    ],
    "presentedForm": [
      {
        "contentType": "text/html",
        "data":
"VGhpcyBpcyBhIENvbnN1bHJm90ZTo8ZG12Pjxicj48L2Rpdj48ZG12PlBhdG11bnQgVGZvdGZoaXJwYXQ8YnI+
PGRpdj48YnI+PC9kaXY+PGRpdj48YnI+PHRlYm91dG8lZHRoPSI4MCUuIGJvcmlj0iMCI+PHRlYm91dG8lZHRoPSI4MCUuIGJvcmlj0iMCI+
GQgd2lkdG9IjIwIj4mbmJzcDs8L3RkPjx0ZD4mbmJzcDs8L3RkPjx0ZCB3aWR0aD0iMjAiPiZuYnNwOzwvdGQ+PC
90cj48L3Rib2R5PjwvdGFibGU+PC9kaXY+PC9kaXY+"
      }
    ]
  }
}
]
}
}

```

### Response- Read:

```

{
  "resourceType": "Encounter",
  "id": "21097605",
  "identifier": [
    {
      "use": "official",
      "system": "https://github.com/synthetichealth/synthea",
      "value": "21097605"
    }
  ],
  "status": "finished",
  "class": {
    "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",
    "code": "AMB"
  },
  "type": [
    {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "185345009",
          "display": "Encounter for symptom"
        }
      ],
      "text": "Encounter for symptom"
    }
  ],
  "subject": {
    "reference": "Patient/3306747",
    "display": "PATIENT TESTFHIRPAT"
  }
}

```

```
},
"participant": [
  {
    "type": [
      {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/v3-ParticipationType",
            "code": "PPRF",
            "display": "primary performer"
          }
        ],
        "text": "primary performer"
      }
    ],
    "period": {
      "start": "2022-06-20T00:00:00-04:00",
      "end": "2022-06-20T00:00:00-04:00"
    },
    "individual": {
      "reference": "Practitioner/33481",
      "display": "Test patient"
    }
  }
],
"period": {
  "start": "2022-06-20T00:00:00-04:00",
  "end": "2022-06-20T00:00:00-04:00"
},
"reasonCode": [
  {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "404684003",
        "display": "Clinical finding (finding)"
      }
    ],
    "text": "Clinical finding (finding)"
  }
],
"hospitalization": {
  "dischargeDisposition": {
    "coding": [
      {
        "system": "http://www.nubc.org/patient-discharge",
        "code": "01",
        "display": "Discharged to home care or self care"
      }
    ],
    "text": "Discharged to home care or self care"
  }
},
"location": [
  {
    "location": {
      "reference": "Location/223",
      "display": ".Test Office"
    }
  }
]
```

```
    }  
  ],  
  "serviceProvider": {  
    "reference": "Organization/TEST",  
    "display": "-TEST PRACTICE 1"  
  }  
}
```

## USCDI: Clinical Summary Document as C-CDA- DocumentReference

### DocumentReference:

This profile sets minimum expectations for searching and fetching patient documents including Clinical Notes using the DocumentReference resource.

- **Description:** Retrieve the patient [document reference](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Response Fields:*

The following fields may appear in a JSON response for the [Document Reference](#) resource.

Field	Type	Description
resourceType	Document Reference	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
subject	code	Identifies the patient documents describe by the patient's unique identifier preceded by patient
status	code	Identify the status of the document
Indexed		Date and time of the document reference was created
Content		The MIME type of the content and the referenced document

### Example Requests and Responses:

**Request:** Return a patient document reference

**GET:** <https://base-url/fhir/DocumentReference?patient=3306747>

Document reference can read Organization, Encounter and practitioner

### **Response-read - Organization:**

```
{
  "resourceType": "Organization",
  "id": "TEST",
  "identifier": [
    {
      "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
      "value": "TEST"
    },
    {
      "system": "http://hl7.org/fhir/sid/us-npi",
      "value": "2222222222"
    }
  ],
  "active": true,
  "type": [
    {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/organization-type",
          "code": "prov",
          "display": "Healthcare Provider"
        }
      ],
      "text": "Healthcare Provider"
    }
  ]
}
```

```
    }
  ],
  "name": "-TEST PRACTICE 1",
  "telecom": [
    {
      "system": "phone",
      "value": "8888888888",
      "use": "work"
    }
  ],
  "address": [
    {
      "line": [
        "ABCDEFGHIJKLM"
      ],
      "city": "GREAT NECK",
      "state": "NY",
      "postalCode": "110211000",
      "country": "US"
    }
  ]
}
```

### Response-read - Encounter:

```
{
  "resourceType": "Encounter",
  "id": "20959308",
  "identifier": [
    {
      "use": "official",
      "system": "https://github.com/synthetichealth/synthea",
      "value": "20959308"
    }
  ],
  "status": "finished",
  "class": {
    "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",
    "code": "AMB"
  },
  "type": [
    {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "185345009",
          "display": "Encounter for symptom"
        }
      ],
      "text": "Encounter for symptom"
    }
  ],
  "subject": {
    "reference": "Patient/3306747",
    "display": "PATIENT TESTFHIRPAT"
  }
}
```

```
},
"participant": [
  {
    "type": [
      {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/v3-ParticipationType",
            "code": "PPRF",
            "display": "primary performer"
          }
        ],
        "text": "primary performer"
      }
    ],
    "period": {
      "start": "2022-06-01T00:00:00-04:00",
      "end": "2022-06-01T00:00:00-04:00"
    },
    "individual": {
      "reference": "Practitioner/108217",
      "display": "PROVIDER EVISIT"
    }
  }
],
"period": {
  "start": "2022-06-01T00:00:00-04:00",
  "end": "2022-06-01T00:00:00-04:00"
},
"reasonCode": [
  {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "404684003",
        "display": "Clinical finding (finding)"
      }
    ],
    "text": "Clinical finding (finding)"
  }
],
"hospitalization": {
  "dischargeDisposition": {
    "coding": [
      {
        "system": "http://www.nubc.org/patient-discharge",
        "code": "01",
        "display": "Discharged to home care or self care"
      }
    ],
    "text": "Discharged to home care or self care"
  }
},
"location": [
  {
    "location": {
      "reference": "Location/223",
      "display": ".Glen Head Office"
    }
  }
]
```



```
    }
  ],
  "serviceProvider": {
    "reference": "Organization/TEST",
    "display": "-TEST PRACTICE 1"
  }
}
```

### Response-read - Practitioner:

```
{
  "resourceType": "Practitioner",
  "id": "108217",
  "extension": [
    {
      "url": "http://hl7.org/fhir/StructureDefinition/data-absent-reason",
      "valueCode": "unknown"
    },
    {
      "url": "http://hl7.org/fhir/StructureDefinition/data-absent-reason",
      "valueCode": "unknown"
    }
  ],
  "identifier": [
    {
      "system": "http://hl7.org/fhir/sid/us-npi",
      "value": "1321313333"
    }
  ],
  "name": [
    {
      "family": "EVISIT",
      "given": [
        "PROVIDER"
      ],
      "prefix": [
        "Dr."
      ]
    }
  ],
  "telecom": [
    {
      "system": "phone",
      "value": "5165551212",
      "use": "work"
    }
  ],
  "address": [
    {
      "use": "work",
      "line": [
        "1111 MAIN STREET"
      ],
      "city": "GREAT NECK",
      "state": "NY",
      "postalCode": "11021",
      "country": "US",
      "period": {
        "start": "1900-01-01"
      }
    }
  ]
}
```

```

    }
  }
]
}

```

## Response - Search

```

{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "DocumentReference/126545257",
      "resource": {
        "resourceType": "DocumentReference",
        "id": "126545257",
        "identifier": [
          {
            "system": "urn:ietf:rhc:3986",
            "value": "urn:uuid:8300c2c2-b4cc-bab0-5386-064f28707290"
          }
        ],
        "status": "current",
        "type": {
          "coding": [
            {
              "system": "http://loinc.org",
              "code": "11488-4",
              "display": "Consultation Note"
            }
          ],
          "text": "Consultation Note"
        },
        "category": [
          {
            "coding": [
              {
                "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-documentreference-category",
                "code": "clinical-note",
                "display": "Clinical Note"
              }
            ]
          }
        ],
        "subject": {
          "reference": "Patient/3306747"
        },
        "date": "2022-06-01T00:00:00-04:00",
        "author": [
          {
            "reference": "Practitioner/108217",
            "display": "PROVIDER EVISIT"
          }
        ],

```

```
"custodian": {
  "reference": "Organization/TEST",
  "display": "-TEST PRACTICE 1"
},
"content": [
  {
    "attachment": {
      "contentType": "text/plain",
      "data":
"VGhpcyBpcyBhIENvbnN1bHQgTm90ZTo8ZG12Pjxicj48L2Rpdj48ZG12P1BhdG11bnQgVGZvdGZoaXJwYXQ8YnI+
PGRpdj48YnI+PC9kaXY+PGRpdj48YnI+PHRhYmN1IHdpZHRoPSI4MCUiIGJvcmlrcj0iMCI+PHRib2R5Pjx0cj48d
GQgd2lkdGg9IjIwIj4mbmJzcDs8L3RkPjx0ZD4mbmJzcDs8L3RkPjx0ZCB3aWR0aD0iMjAiPiZuYnNwOzwvdGQ+PC
90cj48L3Rib2R5PjwvdGFibGU+PC9kaXY+PC9kaXY+"
      },
      "format": {
        "system": "http://ihe.net/fhir/ValueSet/IHE.FormatCode.codesystem",
        "code": "urn:ihe:iti:xds:2017:mimeTypeSufficient",
        "display": "mimeType Sufficient"
      }
    }
  ],
  "context": {
    "encounter": [
      {
        "reference": "Encounter/20959308"
      }
    ],
    "period": {
      "start": "2022-06-01T00:00:00-04:00",
      "end": "2022-06-01T00:00:00-04:00"
    }
  }
}
]
```

## USCDI: Encounter

### Encounter:

- **Description:** Retrieve the patient health status, the purpose of providing healthcare service

- **Method:** GET
- **Support Interaction:** Read, Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Encounter](#) resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's encounter.	String
startDate	A date used to filter entries by clinically relevant date, in the format: yyyy-mm-dd	Date
endDate	A date used to filter entries by clinically relevant date, in the following format: yyyy-mm-dd	Date

### *Response Fields:*

The following fields may appear in a JSON response for the Encounter resource.

Field	Type	Description
resourceType	Encounter	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
status	code	Indicates the type of service provided. Accepted is the only supported value.
description	code	The description of the Patient status and service provided by health care service provider
subject	reference	The patient health status, described by the patient's unique identifier preceded by Patient

## Example Requests and Responses:

### Request:

**Get:** `https://base-url/fhir/Encounter/20959308`

```
{
  "resourceType": "Encounter",
  "id": "20959308",
  "identifier": [
    {
      "use": "official",
      "system": "https://github.com/synthetichealth/synthea",
      "value": "20959308"
    }
  ],
  "status": "finished",
  "class": {
    "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",
    "code": "AMB"
  },
  "type": [
    {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "185345009",
          "display": "Encounter for symptom"
        }
      ],
      "text": "Encounter for symptom"
    }
  ],
  "subject": {
    "reference": "Patient/3306747",
    "display": "PATIENT TESTFHIRPAT"
  },
  "participant": [
    {
```

```
"type": [
  {
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/v3-ParticipationType",
        "code": "PPRF",
        "display": "primary performer"
      }
    ],
    "text": "primary performer"
  }
],
"period": {
  "start": "2022-06-01T00:00:00-04:00",
  "end": "2022-06-01T00:00:00-04:00"
},
"individual": {
  "reference": "Practitioner/108217",
  "display": "PROVIDER EVISIT"
}
],
"period": {
  "start": "2022-06-01T00:00:00-04:00",
  "end": "2022-06-01T00:00:00-04:00"
},
"reasonCode": [
  {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "404684003",
        "display": "Clinical finding (finding)"
      }
    ],
    "text": "Clinical finding (finding)"
  }
],
"hospitalization": {
  "dischargeDisposition": {
    "coding": [
      {
        "system": "http://www.nubc.org/patient-discharge",
        "code": "01",
        "display": "Discharged to home care or self care"
      }
    ],
    "text": "Discharged to home care or self care"
  }
},
"location": [
  {
    "location": {
      "reference": "Location/223",
      "display": ".Glen Head Office"
    }
  }
],
"serviceProvider": {
```

```
"reference": "Organization/TEST",  
"display": "-TEST PRACTICE 1"  
}  
}
```

## USCDI: Goals

### Goal:

This profile sets minimum expectations for the Goal resource to record, search, and fetch Goal information associated with a patient.

- **Description:** Retrieve the patient [Goal](#) Profile
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Goal](#) resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical	String

Entry identifier can be retrieved by performing a search for a Patient's goal.

**startDate** A date used to filter entries by clinically relevant date, in the Date  
format: yyyy-mm-dd

**endDate** A date used to filter entries by clinically relevant date, in the Date  
following format: yyyy-mm-dd

### Response Fields:

The following fields may appear in a JSON response for the goal resource.

Field	Type	Description
resourceType	Goal	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
status	code	Indicates whether the goal has been reached and is still relevant. Accepted is the only supported value.
description	code	The description of the goal
subject	reference	The patient associated with the goal, described by the patient's unique identifier preceded by Patient
note	reference	Comments on goal

### Example Requests and Responses:

**Request:** Return a patient goals

**GET:** <https://base-url/fhir/Goal?patient=3306747>

**Response - Search:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 2,
  "entry": [
    {
      "fullUrl": "Goal/-2141168229",
      "resource": {
        "resourceType": "Goal",
        "id": "-2141168229",
        "lifecycleStatus": "active",
        "description": {
```



```
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "373986000",
        "display": "Test end point Goal"
      }
    ],
    "text": "Test end point Goal"
  },
  "subject": {
    "reference": "Patient/3306747"
  },
  "target": [
    {
      "dueDate": "2017-09-07"
    }
  ]
}
},
{
  "fullUrl": "Goal/-2141168205",
  "resource": {
    "resourceType": "Goal",
    "id": "-2141168205",
    "lifecycleStatus": "active",
    "description": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "373986000",
          "display": "Test end point Goal"
        }
      ],
      "text": "Test end point Goal"
    },
    "subject": {
      "reference": "Patient/3306747"
    },
    "target": [
      {
        "dueDate": "2017-09-07"
      }
    ]
  }
}
]
}
```

Response - Read:

```
{
  "resourceType": "Goal",
  "id": "-2141168229",
  "lifecycleStatus": "active",
  "description": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "373986000",
```

```
        "display": "Test end point Goal"
      }
    ],
    "text": "Test end point Goal"
  },
  "subject": {
    "reference": "Patient/3306747"
  },
  "target": [
    {
      "dueDate": "2017-09-07"
    }
  ]
}
```

## USCDI: Immunizations Information

### Immunization:

This profile sets minimum expectations for the Immunization resource to record, fetch and search immunization history associated with a patient

- **Description:** Retrieve the patient [immunization](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Immunization](#) resource.

Parameter	Description	Type
-----------	-------------	------

Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's immunization.	String
startDate	A date used to filter entries by clinically relevant date, in the format: yyyy-mm-dd	Date
endDate	A date used to filter entries by clinically relevant date, in the following format: yyyy-mm-dd	Date

### **Response Fields:**

The following fields may appear in a JSON response for the immunization resource.

Field	Type	Description
resourceType	Immunization	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
status	code	Indicates the status of the vaccination event. Supported values included completed or entered in-error.
vaccineCode	code	The vaccine that was administered.

subject	reference	The patient associated with the immunization, described by the patient's unique identifier preceded by Patient
note	reference	Comments on immunization
manufacturer	Reference	The vaccine's manufacturer
patient		The patient associated with vaccine
date	datetime	The date was vaccine administered
location		The location where the vaccine was administered.

## Example Requests and Responses:

**Request:** Return a patient immunization

**GET:** `https://base-url/fhir/Immunization?patient=3306747`

**Response:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "Immunization/939958",
      "resource": {
        "resourceType": "Immunization",
        "id": "939958",
        "status": "completed",
        "statusReason": {
          "coding": [
            {
              "system": "http://hl7.org/fhir/sid/cvx",
              "code": "Status Reason",
              "display": "No correspondence data in table"
            }
          ],
          "text": "No correspondence data in table"
        },
        "vaccineCode": {
          "coding": [
            {
              "system": "http://hl7.org/fhir/sid/cvx",
              "code": "33",
              "display": "Pneumococcal"
            }
          ],
          "text": "Pneumococcal"
        },
        "patient": {
          "reference": "Patient/3306747"
        },
        "encounter": {
          "reference": "Encount/9920487.00"
        },
        "occurrenceDateTime": "2018-03-20T00:00:00-04:00",
        "primarySource": true,

```

```
    "location": {  
      "reference": "Location/TEST",  
      "display": ".Great Neck Office"  
    }  
  }  
]  
}
```

## USCDI: Location

### Location:

A Location includes both incidental [locations](#) (a place which is used for healthcare without prior designation or authorization) and dedicated, formally appointed locations.

- **Description:** Retrieve the patient **Location**
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Location](#) resource.

---

Parameter	Description	Type
-----------	-------------	------

---

Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Location	retrieve the patient location like address, Room, ward and bed number etc.	string
Address	patient's location like address,city,country and postal code	string

### Response Fields:

The following fields may appear in a JSON response for the Location resource.

Field	Type	Description
resourceType	Location	Identifies the location of the pateint.
id	Identifier	The unique identifier for the clinical entry
address	code	Indicates the patients address
location		The location where the vaccine was administered.

### Example Requests and Responses:

**Request:** Return a patient Location

**GET:**

*https://base-url/fhir/Location/223*

**Response:**

```
{
  "resourceType": "Location",
```

```
"id": "223",
"identifier": [
  {
    "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
    "value": "223"
  }
],
"name": ".Glen Head Office",
"telecom": [
  {
    "system": "phone",
    "value": "(949)494-9499",
    "use": "work"
  },
  {
    "system": "phone",
    "value": "(516)564-1454",
    "use": "work"
  },
  {
    "system": "fax",
    "value": "(949)494-9494",
    "use": "work"
  }
],
"address": {
  "use": "work",
  "line": [
    "11 Frost Pond Rd",
    " "
  ],
  "city": "ANDOVER",
  "state": "NJ",
  "postalCode": "078211001",
  "country": "US",
  "period": {
    "start": "1900-01-01"
  }
}
}
```

## USCDI: Medication

### Medication:

When referencing a medication, the MedicationRequest resource can either use a code or refer to a [Medication](#) resource. This profile sets minimum expectations for the Medication resource to record, search, and fetch medications associated with a patient.

- **Description:** Retrieve the patient [medication](#) details
- **Method:** GET
- **Support Interaction:** Read, Search

- **Response Format:** application/JSON

### Parameters:

The following search parameters are supported for the Medication resource.

Parameter	Description	Type
Medicationid	The patient's unique identifier. The patient identifier can be retrieved by performing a patient medication search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's medications.	String

### Response Fields:

The following fields may appear in a JSON response for the Medication resource.

Field	Type	Description
resourceType	medication	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
status	code	Indicates the status of the vaccination event. Supported values included completed or entered in-error.
Medication Code	code	The vaccine that was administered.
Display	String	The patient associated with the medication, described by the patient's unique identifier preceded by Patient
note	reference	Comments on medication
date	datetime	The date was vaccine administered

### Example Requests and Responses:

**Request:** Return a patient Medication details

**GET:** `https://base-url/fhir/medication?patient=3306747`

**Response:**

```
{
  "resourceType": "Medication",
```



```
"id": "2019765",
"status": "active",
"medicationCodeableConcept": {
  "coding": [
    {
      "code": "167106",
      "display": "clindamycin HCl 300 mg oral capsule"
    }
  ]
},
"dateAsserted": "2015-06-22T00:00:00+05:30",
"informationSource": {
  "reference": "Patient/3306747",
  "display": "Test Patient"
},
"subject": {
  "reference": "Patient/3306747",
  "display": "Newman, Alice"
},
"taken": "y",
"reasonCode": [
  {
    "coding": [
      {
        "code": "386661006"
      },
      {
        "code": "ICD10",
        "display": "R50.9"
      }
    ],
    "text": "Fever"
  }
],
"dosage": [
  {
    "text": "1 Every 8 Hours PRN",
    "timing": {
      "repeat": {
        "period": 0,
        "timeOfDay": [
          "Every 8 Hours"
        ]
      }
    },
    "asNeededBoolean": false,
    "maxDosePerAdministration": {
      "value": 3,
      "unit": "Capsule"
    }
  }
]
}
```

## USCDI: Medications request

## Medication Request:

The [MedicationRequest](#) resource can be used to record a patient's medication prescription or order. This profile sets minimum expectations for the MedicationRequest resource to record, search, and fetch medications associated with a patient.

- **Description:** Retrieve the patient [Medication Request](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

## Example Requests and Responses:

**Request:** Return a patient Medication request

### **GET:**

*<https://base-url/fhir/MedicationRequest?intent=proposal&patient=3306747>*

### **Response:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "MedicationRequest/21560308",
      "resource": {
        "resourceType": "MedicationRequest",
        "id": "21560308",
        "extension": [
          {
            "url":
"http://electronichealth.se/fhir/StructureDefinition/NLLPrescriptionFormat",
            "valueCoding": {
              "system": "http://electronichealth.se/fhir/ValueSet/prescription-format",
              "code": "ELECTRONIC",
              "display": "Electronic"
            }
          }
        ],
        "status": "active",
        "intent": "proposal",
        "category": [
          {
            "coding": [
              {
```

```

category",
    "system": "http://terminology.hl7.org/CodeSystem/medicationrequest-
category",
    "code": "outpatient",
    "display": "Outpatient",
    "userSelected": false
  }
]
},
"reportedBoolean": false,
"medicationCodeableConcept": {
  "coding": [
    {
      "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
      "code": "617314",
      "display": "LIPITOR 10 MG TABLET",
      "userSelected": false
    }
  ],
  "text": "LIPITOR 10 MG TABLET"
},
"subject": {
  "reference": "Patient/3306747",
  "display": "TESTFHIRPAT, PATIENT"
},
"authoredOn": "2022-07-06T14:20:21-04:00",
"requester": {
  "reference": "Practitioner/33481",
  "display": "MEDGEN, MIKE"
},
"dosageInstruction": [
  {
    "text": "1 tablet QD oral 0",
    "patientInstruction": "1 tablet QD oral 0",
    "timing": {
      "repeat": {
        "boundsPeriod": {
          "start": "2022-07-06T00:00:00-04:00",
          "end": "2022-08-05T00:00:00-04:00"
        }
      }
    },
    "route": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "oral",
          "display": "Intramuscular route (qualifier value)",
          "userSelected": false
        }
      ],
      "text": "IM"
    }
  }
],
"dispenseRequest": {
  "extension": [
    {

```

```
      "url":
"http://electronichealth.se/fhir/StructureDefinition/NLLDosePackaging",
      "valueBoolean": false
    }
  ],
  "validityPeriod": {
    "start": "2022-07-06T00:00:00-04:00",
    "end": "2022-08-05T00:00:00-04:00"
  }
}
}
}
]
```

## USCDI: Patient Demographics

### Patient:

This profile sets minimum expectations for the [Patient](#) resource to record, search, and fetch basic demographics and other administrative information about an individual patient.

- **Description:** Retrieve the [patient](#) demographic information.
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the Patient resource.

---

Parameter	Description	Type
given	The patient's first name	String
family	The patient's last name	string
name	The patient's given (first) or family (last) name	string
telecom	The patient's phone number	string
identifier	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search.	string
Birthdate	The patient's birth date, in the following format: yyyy-mm-dd	date
gender	The patient's gender. Supported values include: male, female, other, and unknown	string

### ***Response Fields:***

The following fields may appear in a JSON response for the Patient resource.

Field	Type	Description
resourceType	CarePlan	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
active	code	Identifies whether the record is active
name	code	The patient Name
Gender	code	The patient's gender. Supported values include male, female, other, and unknown.
Birthdate	date	The patient's date of birth
Address	address	The patient's postal address.
Marital status		The patient's marital status.
Communication		The language(s) that can be used to communicate with the patient.
managingOrganization	reference	The organization responsible for updating the patient's record.

### Example Requests and Responses:

**Request:** Return a patient's information

**GET:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "Patient/3306747",
      "resource": {
        "resourceType": "Patient",
        "id": "3306747",
        "meta": {
          "profile": [
            "http://hl7.no/fhir/StructureDefinition/no-basis-Patient"
          ]
        },
        "extension": [
          {
            "extension": [
              {
                "url": "http://hl7.org/fhir/us/core/ValueSet/omb-race-category",
                "valueCodeableConcept": {
                  "coding": [
                    {
                      "system": "urn:oid:2.16.840.1.113883.6.238",
```

```

        "code": "2056-0",
        "display": "Black"
      }
    ]
  },
  {
    "url": "text",
    "valueString": "Black"
  }
],
"url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race"
},
{
  "extension": [
    {
      "url": "http://hl7.org/fhir/us/core/ValueSet/omb-ethnicity-category",
      "valueCodeableConcept": {
        "coding": [
          {
            "system": "urn:oid:2.16.840.1.113883.6.238",
            "code": "2135-2",
            "display": "Hispanic or Latino"
          }
        ]
      }
    },
    {
      "url": "text",
      "valueString": "Hispanic or Latino"
    }
  ],
  "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity"
},
{
  "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-birthsex",
  "valueCode": "M"
}
],
"identifier": [
  {
    "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
    "value": "3306747"
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
          "code": "MR",
          "display": "Medical Record Number"
        }
      ],
      "text": "Medical Record Number"
    },
    "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
    "value": "3306747"
  }
]
],

```

```
"name": [
  {
    "use": "official",
    "family": "TESTFHIRPAT",
    "given": [
      "PATIENT"
    ],
    "prefix": [
      "pat_prefix"
    ],
    "suffix": [
      "patsuffix"
    ]
  },
  {
    "use": "old",
    "family": "pat_previous_name",
    "period": {
      "end": "2022-06-17T11:57:54-04:00"
    }
  }
],
"telecom": [
  {
    "system": "phone",
    "value": "5554561235",
    "use": "home"
  }
],
"gender": "male",
"birthDate": "1984-09-15",
"address": [
  {
    "use": "home",
    "line": [
      "155-25 SANFORD AVE"
    ],
    "city": "FLUSHING",
    "state": "NY",
    "postalCode": "11355",
    "country": "US",
    "period": {
      "start": "1900-01-01"
    }
  }
],
"communication": [
  {
    "language": {
      "coding": [
        {
          "system": "urn:ietf:bcp:47",
          "code": "eng",
          "display": "English (Region=United States)"
        }
      ]
    },
    "text": "English (Region=United States)"
  }
]
```



```
    ]
  }
}
]
```

## USCDI: Smoking Status - Observation

### Observation:

- **Description:** Retrieve the patient [Observation](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### Example Requests and Responses:

**Request:** Return a patient [observation](#)

**GET:** <https://base-url/fhir/Observation?code=2708-6&patient=3306747>

### **Response:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 1,
  "entry": [
    {
      "fullUrl": "Observation/2109760518",
      "resource": {
        "resourceType": "Observation",
        "id": "2109760518",
        "status": "final",
        "category": [
          {
            "coding": [
              {
                "system": "http://terminology.hl7.org/CodeSystem/observation-category",
                "code": "vital-signs",
                "display": "Vital Signs"
              }
            ],
            "text": "Vital Signs"
          }
        ]
      }
    }
  ],
}
```

```
"code": {
  "coding": [
    {
      "system": "http://loinc.org",
      "code": "2708-6",
      "display": "Oxygen saturation in Arterial blood"
    },
    {
      "system": "http://loinc.org",
      "code": "59408-5",
      "display": "Oxygen saturation in Arterial blood by Pulse oximetry"
    }
  ],
  "text": "Oxygen saturation in Arterial blood"
},
"subject": {
  "reference": "Patient/3306747"
},
"encounter": {
  "reference": "Encounter/21097605"
},
"effectiveDateTime": "2022-06-20T00:00:00-04:00",
"issued": "2022-06-20T00:00:00+00:00",
"performer": [
  {
    "reference": "Practitioner/33481"
  }
],
"valueQuantity": {
  "value": 95,
  "unit": "%",
  "system": "http://unitsofmeasure.org",
  "code": "%"
},
"component": [
  {
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "3151-8",
          "display": "Inhaled oxygen flow rate"
        }
      ],
      "text": "Inhaled oxygen flow rate"
    },
    "valueQuantity": {
      "value": 6,
      "unit": "L/min",
      "system": "http://unitsofmeasure.org",
      "code": "L/min"
    }
  },
  {
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "3150-0",
```

```
        "display": "Inhaled oxygen concentration"
      }
    ],
    "text": "Inhaled oxygen concentration"
  },
  "valueQuantity": {
    "value": 95,
    "unit": "%",
    "system": "http://unitsofmeasure.org",
    "code": "%"
  }
}
]
}
]
}
```

## USCDI: Organization

### Organization:

- **Description:** [Organizations](#) include hospitals, employers, insurance companies, physicians' offices, rehabilitation facilities, laboratories, etc
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### Example Requests and Responses:

**Request:** Return a patient organization like hospital staff, physicians, officer's etc.

**GET:** <https://base-url/fhir/Organization/TEST>

#### **Response:**

```
{
  "resourceType": "Organization",
  "id": "TEST",
  "identifier": [
    {
      "system": "https://portal.medgenehr.com/medgenweb/mportal.html",
      "value": "TEST"
    },
    {
      "system": "http://hl7.org/fhir/sid/us-npi",
```

```
    "value": "2222222222"
  }
],
"active": true,
"type": [
  {
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/organization-type",
        "code": "prov",
        "display": "Healthcare Provider"
      }
    ],
    "text": "Healthcare Provider"
  }
],
"name": "-TEST PRACTICE 1",
"telecom": [
  {
    "system": "phone",
    "value": "8888888888",
    "use": "work"
  }
],
"address": [
  {
    "line": [
      "ABCDEFGHIJKLM"
    ],
    "city": "GREAT NECK",
    "state": "NY",
    "postalCode": "110211000",
    "country": "US"
  }
]
}
```

## USCDI: Procedures

### Procedure:

This profile sets minimum expectations for the [Procedure](#) resource to record, search, and fetch procedures associated with a patient.

- **Description:** Retrieve the Patient [Procedure](#)
- **Method:** GET
- **Support Interaction:** Search
- **Response Format:** application/JSON

### **Example Requests and Responses:**

**Request:** Return a patient procedure code

**GET:** `https://base-url/fhir/Procedure?patient=3306747`

#### **Response:**

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 28,
  "entry": [
    {
      "fullUrl": "Procedure/2138669507",
      "resource": {
        "resourceType": "Procedure",
        "id": "2138669507",
        "status": "completed",
        "code": {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "99214",
              "display": "OFFICE/OUTPATIENT ESTABLISHED MOD MDM 30-39 MINUTE"
            }
          ],
          "text": "OFFICE/OUTPATIENT ESTABLISHED MOD MDM 30-39 MINUTE"
        },
        "subject": {
          "reference": "Patient/3306747"
        },
        "encounter": {
          "reference": "Encounter/3145603"
        },
        "performedPeriod": {
          "start": "2015-02-10T00:00:00-05:00",
          "end": "2015-02-10T00:00:00-05:00"
        },
        "location": {
          "reference": "Location/223",
          "display": ".Glen Head Office"
        }
      }
    }
  ]
}
```

## USCDI: Practitioners

### Practitioner:

- **Description:** Retrieve the [Practitioner](#) information.
- **Method:** GET
- **Support Interaction:** read, search
- **Response Format:** application/JSON

### *Parameters:*

Practitioner covers all individuals who are engaged in the healthcare process and healthcare-related services as part of their formal responsibilities and this Resource is used for attribution of activities and responsibilities to these individuals.

The following search parameters are supported for the Practitioner resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved patient practitioner	string
family	The patient given Family name(Last Name)	string
telecom	The patient's phone number	string
address	the patient's postal address	address

### *Response Fields:*

The following fields may appear in a JSON response for the Practitioner resource.

Field	Type	Description
resourceType	practitioner	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
category	code	Identify the type of practitioner

### **Example Requests and Responses:**

**Request:** Return a patient Practitioner

**GET:** <https://base-url/fhir/Immunization?patient=3306747>

**Response:**

```
{
  "resourceType": "Practitioner",
  "id": "33481",
  "extension": [
    {
      "url": "http://hl7.org/fhir/StructureDefinition/data-absent-reason",
      "valueCode": "unknown"
    },
    {
      "url": "http://hl7.org/fhir/StructureDefinition/data-absent-reason",
      "valueCode": "unknown"
    }
  ],
  "identifier": [
    {
      "system": "http://hl7.org/fhir/sid/us-npi",
      "value": "1234560000"
    }
  ],
  "name": [
    {
      "family": "MEDGEN",
      "given": [
        "TestName"
      ],
      "prefix": [
        "SRWWW"
      ]
    }
  ]
},
```

```
"telecom": [
  {
    "system": "phone",
    "value": "5164663838",
    "use": "work"
  }
],
"address": [
  {
    "use": "work",
    "line": [
      "11 Grace Ave"
    ],
    "city": "GREAT NECK",
    "state": "NY",
    "postalCode": "11021",
    "country": "US",
    "period": {
      "start": "1900-01-01"
    }
  }
]
```

## USCDI: Provenance

### Provenance:

This profile sets minimum expectations for the [Provenance](#) resource to record, search, and fetch Provenance information associated with a record.

- **Description:** Retrieve the authenticity, reliability, and trustworthiness, integrity, and stage in lifecycle information.
- **Method:** GET
- **Support Interaction:** read, search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the [Provenance](#) resource.



Parameter	Description	Type
Patient	The patient's unique identifier.	string
family	The patient given Family name(Last Name)	string
telecom	The patient's phone number	string
address	the patient's postal address	address

### Response Fields:

The following fields may appear in a JSON response for the Provenance resource.

Field	Type	Description
resourceType	practitioner	Identifies the resource.
id	Identifier	The unique identifier for the clinical entry
category	code	Identify the type of provenance

### Example Requests and Responses:

#### Response :

```
{
  "resourceType": "Provenance",
  "id": "3306747",
  "target": [
    {
      "reference": "AllergyIntolerance/1758482"
    },
    {
      "reference": "AllergyIntolerance/1759434"
    }
  ],
}
```

```
{
  "reference": "AllergyIntolerance/1759017"
},
{
  "reference": "AllergyIntolerance/29740388"
},
{
  "reference": "AllergyIntolerance/30565373"
},
{
  "reference": "CarePlan/20552220"
},
{
  "reference": "CarePlan/21097605"
},
{
  "reference": "Condition/9130483"
},
{
  "reference": "Condition/9182564"
},
{
  "reference": "Condition/8884184"
},
{
  "reference": "Condition/8884127"
},
{
  "reference": "Condition/8884138"
},
{
  "reference": "Condition/8884198"
},
{
  "reference": "Condition/64007191"
},
{
  "reference": "Condition/58005759"
},
{
  "reference": "Condition/20101695"
},
{
  "reference": "Condition/30706941"
},
{
  "reference": "Condition/30706951"
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  "reference": "Condition/30706943"
},
{
  "reference": "Condition/30706953"
},
{
  "reference": "Condition/30706945"
},
{
```

```
"reference": "Condition/30706955"  
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{  
  "reference": "Condition/30706937"  
},  
{  
  "reference": "Condition/30706947"  
},  
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  "reference": "Condition/30706939"  
},  
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  "reference": "Condition/30706949"  
},  
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  "reference": "Condition/57210442"  
},  
{  
  "reference": "Condition/48618040"  
},  
{  
  "reference": "Condition/48618018"  
},  
{  
  "reference": "Condition/63719950"  
},  
{  
  "reference": "Condition/63719960"  
},  
{  
  "reference": "Condition/63719951"  
},  
{  
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{  
  "reference": "Condition/63719952"  
},  
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  "reference": "Condition/63719962"  
},  
{  
  "reference": "Condition/63719953"  
},  
{  
  "reference": "Condition/63719963"  
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},  
{  
  "reference": "Condition/63719964"  
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{  
  "reference": "Condition/63719955"  
},  
{  
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```

```
},
{
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},
{
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},
{
  "reference": "Condition/63719957"
},
{
  "reference": "Condition/63719967"
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  "reference": "Condition/63719948"
},
{
  "reference": "Condition/63719958"
},
{
  "reference": "Condition/63719968"
},
{
  "reference": "Condition/63719949"
},
{
  "reference": "Condition/63719959"
},
{
  "reference": "Condition/26321803"
},
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  "reference": "Condition/63723100"
},
{
  "reference": "Condition/63723110"
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},
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  "reference": "Condition/63723101"
},
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  "reference": "Condition/63723111"
},
{
  "reference": "Condition/63723081"
},
{
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  "reference": "Condition/63723102"
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  "reference": "Condition/63723112"
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},
```

```
{
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  "reference": "Condition/63723092"
},
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},
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  "reference": "Condition/63723093"
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  "reference": "Condition/63723104"
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  "reference": "Condition/63723108"
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"reference": "Condition/63723088"  
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  "reference": "Condition/63723098"  
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  "reference": "Condition/63723109"  
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},  
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{  
  "reference": "Condition/39536314"  
},  
{  
  "reference": "Condition/39536316"  
},  
{  
  "reference": "Condition/21159424"  
},  
{  
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},  
{  
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},  
{  
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  "reference": "Condition/57484941"  
},  
{  
  "reference": "Condition/57484902"
```

```
},
{
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},
{
  "reference": "Condition/63993885"
},
{
  "reference": "Device/433"
},
{
  "reference": "DiagnosticReport/2101862221"
},
{
  "reference": "DiagnosticReport/1994047066"
},
{
  "reference": "DiagnosticReport/1994140103"
},
{
  "reference": "DocumentReference/39717061"
},
{
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},
{
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{
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{
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},
{
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{
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{
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},
{
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},
{
  "reference": "Encounter/3126668"
},
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{
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{
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},
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},
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{
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{
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},
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{
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},
{
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},
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},
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},  
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},  
{  
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},  
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{  
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},  
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  "reference": "Encounter/10498625"  
},  
{  
  "reference": "Goal/2128012218"  
},  
{  
  "reference": "Goal/2128585347"  
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{  
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},
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},
{
  "reference": "Immunization/844309"
},
{
  "reference": "Immunization/837402"
},
{
  "reference": "Immunization/939958"
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{
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{
  "reference": "Location/223"
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{
  "reference": "Location/9580"
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},
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},
{
  "reference": "MedicationRequest/21503245"
},
{
  "reference": "MedicationRequest/21560308"
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},
{
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},
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  "reference": "Observation/1994047064"
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"reference": "Observation/1994047055"  
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{  
  "reference": "Observation/1994140101"  
},  
{  
  "reference": "Observation/1994140102"  
},  
{  
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},  
{  
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},  
{  
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},  
{  
  "reference": "Practitioner/225"  
},  
{  
  "reference": "Practitioner/226"  
},  
{  
  "reference": "Practitioner/108217"  
},  
{  
  "reference": "Practitioner/72079"  
},  
{  
  "reference": "Practitioner/33481"  
},  
{  
  "reference": "Procedure/2110111100"  
},  
{  
  "reference": "Procedure/2110593225"  
},  
{  
  "reference": "Procedure/2110170550"
```

```
},
{
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{
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},
{
  "reference": "Procedure/2111617467"
},
{
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},
{
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{
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{
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{
  "reference": "Procedure/2115402098"
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},
{
  "reference": "Procedure/2115696408"
},
{
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},
{
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  "reference": "Procedure/2116158121"
},
{
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  "reference": "Procedure/2116746819"
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  "reference": "Procedure/2117479402"
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{
  "reference": "Procedure/2127543635"
},
{
  "reference": "Procedure/2137055885"
},
},
```

```

{
  "reference": "Procedure/2137055887"
},
{
  "reference": "Procedure/2138669507"
},
{
  "reference": "Procedure/2129769270"
},
{
  "reference": "Procedure/2129769271"
},
{
  "reference": "Procedure/2129769272"
},
{
  "reference": "Procedure/2129769273"
}
],
"recorded": "2022-08-05T07:07:57.4201584-04:00",
"agent": [
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/provenance-participant-type",
          "code": "author",
          "display": "Author"
        }
      ],
      "text": "Author"
    },
    "who": {
      "reference": "Practitioner/92058",
      "display": "Dr. CHIARA MARIANI"
    },
    "onBehalfOf": {
      "reference": "Organization/TEST",
      "display": "-TEST PRACTICE 1"
    }
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-provenance-participant-
type",
          "code": "transmitter",
          "display": "Transmitter"
        }
      ],
      "text": "Transmitter"
    },
    "who": {
      "reference": "Practitioner/92058",
      "display": "Dr. CHIARA MARIANI"
    },
    "onBehalfOf": {

```

```
    "reference": "Organization/TEST",  
    "display": "-TEST PRACTICE 1"  
  }  
}  
]  
}
```

## USCDI: Vital Signs

### Vitalsigns:

Vital signs will be one of the first areas where there is a need for a single, global vocabulary to allow for ubiquitous access and re-use.

**Description:** Retrieves a patient's [Vital Signs](#), including weight, height, temperature, pulse/heart rate, respiration, oxygen saturation, body mass index (BMI), blood pressure, and head circumference.

- **Method:** GET
- **Support Interaction:** Read, Search
- **Response Format:** application/JSON

### *Parameters:*

The following search parameters are supported for the vital signs resource.

Parameter	Description	Type
Patient	The patient's unique identifier. The patient identifier can be retrieved by performing a patient search	String
Identifier	The unique identifier for a specific clinical entry. The clinical Entry identifier can be retrieved by performing a search for a Patient's medications.	String
Category	categories of vital signs: <ul style="list-style-type: none"> <li>○ Weight</li> <li>○ Height</li> <li>○ Temperature</li> <li>○ Heart rate</li> <li>○ RespiratoryRate</li> <li>○ oxygenSaturation</li> <li>○ BodayMassindex</li> <li>○ BloodPressure</li> <li>○ HeadCircumference</li> </ul>	string
startDate	A date used to filter entries by clinically relevant date, in the format: yyyy-mm-dd	Date
endDate	A date used to filter entries by clinically relevant date, in the following format: yyyy-mm-dd	Date

### **Response Fields:**

The following fields may appear in a JSON response for the vital signs resource.



Field	Type	Description
resourceType	Condition	Identifies the unique identifier for the vital sign, made up of the clinical entry identifier.
id	Identifier	The unique identifier for the clinical entry
Status	code	The status of the vital result. Final is the only supported value.
Category	code	Classifies the general type of observation being made.
Code	code	The vital sign's code and/or description.
Subject	reference	The patient associated with the vital sign, described by the patient's unique identifier preceded by Patient/.
Context	reference	The clinical entry identifier for the encounter during which the vital sign was recorded.
Issued		The date and time the vitals were recorded.
valueQuantity		The vital result value and unit of measure.

### Request and Response:

**Get:** <https://base-url/fhir/Observation?category=vital-signs&date=2022-06-20T00:00:00-04:00&patient=3306747>

Response:

```
{
  "resourceType": "Bundle",
  "type": "searchset",
  "total": 10,
  "entry": [
    {
      "fullUrl": "Observation/2109760520",
      "resource": {
        "resourceType": "Observation",
        "id": "2109760520",
        "status": "final",
        "category": [
          {
            "coding": [
              {
                "system": "http://terminology.hl7.org/CodeSystem/observation-category",
                "code": "vital-signs",
                "display": "Vital Signs"
              }
            ]
          }
        ],
        "text": "Vital Signs"
      }
    }
  ]
}
```

```

    }
  ],
  "code": {
    "coding": [
      {
        "system": "http://loinc.org",
        "code": "8302-2",
        "display": "Body Height"
      }
    ],
    "text": "Body Height"
  },
  "subject": {
    "reference": "Patient/3306747"
  },
  "encounter": {
    "reference": "Encounter/21097605"
  },
  "effectiveDateTime": "2022-06-20T00:00:00-04:00",
  "issued": "2022-06-20T00:00:00+00:00",
  "performer": [
    {
      "reference": "Practitioner/33481"
    }
  ],
  "valueQuantity": {
    "value": 60,
    "unit": "[in_i]",
    "system": "http://unitsofmeasure.org",
    "code": "[in_i]"
  }
}
},
{
  "fullUrl": "Observation/2109760523",
  "resource": {
    "resourceType": "Observation",
    "id": "2109760523",
    "status": "final",
    "category": [
      {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/observation-category",
            "code": "vital-signs",
            "display": "Vital Signs"
          }
        ],
        "text": "Vital Signs"
      }
    ],
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "29463-7",
          "display": "Body Weight"
        }
      ]
    }
  }
}

```

```

    }
  ],
  "text": "Body Weight"
},
"subject": {
  "reference": "Patient/3306747"
},
"encounter": {
  "reference": "Encounter/21097605"
},
"effectiveDateTime": "2022-06-20T00:00:00-04:00",
"issued": "2022-06-20T00:00:00+00:00",
"performer": [
  {
    "reference": "Practitioner/33481"
  }
],
"valueQuantity": {
  "value": 150,
  "unit": "[lb_av]",
  "system": "http://unitsofmeasure.org",
  "code": "[lb_av]"
}
}
},
{
  "fullUrl": "Observation/2109760522",
  "resource": {
    "resourceType": "Observation",
    "id": "2109760522",
    "status": "final",
    "category": [
      {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/observation-category",
            "code": "vital-signs",
            "display": "Vital Signs"
          }
        ],
        "text": "Vital Signs"
      }
    ],
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "85354-9",
          "display": "Blood Pressure"
        }
      ],
      "text": "Blood Pressure"
    },
    "subject": {
      "reference": "Patient/3306747"
    },
    "encounter": {

```

```

    "reference": "Encounter/21097605"
  },
  "effectiveDateTime": "2022-06-20T00:00:00-04:00",
  "issued": "2022-06-20T00:00:00+00:00",
  "performer": [
    {
      "reference": "Practitioner/33481"
    }
  ],
  "component": [
    {
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "8462-4",
            "display": "Diastolic Blood Pressure"
          }
        ],
        "text": "Diastolic Blood Pressure"
      },
      "valueQuantity": {
        "value": 80,
        "unit": "mm[Hg]",
        "system": "http://unitsofmeasure.org",
        "code": "mm[Hg]"
      }
    },
    {
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "8480-6",
            "display": "Systolic Blood Pressure"
          }
        ],
        "text": "Systolic Blood Pressure"
      },
      "valueQuantity": {
        "value": 120,
        "unit": "mm[Hg]",
        "system": "http://unitsofmeasure.org",
        "code": "mm[Hg]"
      }
    }
  ]
},
{
  "fullUrl": "Observation/2109760521",
  "resource": {
    "resourceType": "Observation",
    "id": "2109760521",
    "status": "final",
    "category": [
      {

```

```
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/observation-category",
        "code": "vital-signs",
        "display": "Vital Signs"
      }
    ],
    "text": "Vital Signs"
  }
],
"code": {
  "coding": [
    {
      "system": "http://loinc.org",
      "code": "8310-5",
      "display": "Body temperature"
    }
  ],
  "text": "Body temperature"
},
"subject": {
  "reference": "Patient/3306747"
},
"encounter": {
  "reference": "Encounter/21097605"
},
"effectiveDateTime": "2022-06-20T00:00:00-04:00",
"issued": "2022-06-20T00:00:00+00:00",
"performer": [
  {
    "reference": "Practitioner/33481"
  }
],
"valueQuantity": {
  "value": 98.6,
  "unit": "[degF]",
  "system": "http://unitsofmeasure.org",
  "code": "[degF]"
}
}
]
```

# Software Requirements

## Mandatory Software Components

In order to access the MedgenFHIR API, a REST client such as Postman, or a high-level language (c#, JavaScript, etc) that can be used to make HTTP requests, is needed.

- Visual Studio 2019 16.8.1 or higher
- .NET 5.x

## Mandatory software configuration

In order to use the API, an application needs to be created in home-app as described in authentication.