

ECLIPSE Spectrum

Patient API Developer Guide

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Table of Contents

| | |
|--|----|
| Introduction | 2 |
| Registration | 2 |
| Authentication | 2 |
| 1. Patient Search | 4 |
| 2. Allergies and Intolerance | 9 |
| 3. Assessment and Plan of Treatment (Care Plan) | 12 |
| 4. Care Team | 15 |
| 5. Clinical Notes (Document Reference) | 17 |
| 6. Goals | 19 |
| 7. Health Concerns (Condition) | 20 |
| 8. Immunization | 22 |
| 9. Diagnostic Report | 24 |
| 10. Medication Request | 27 |
| 11. Procedures | 29 |
| 12. Provenance | 31 |
| 13. Observation | 35 |
| 14. Implantable Device | 38 |
| Errors | 39 |
| Terms of Use | 39 |
| Developer Policy | 39 |

Introduction

ECLIPSE EHR Patient API(s) are designed to be aligned with the Information Blocking criteria of certification that covers 170.315(g)(10) Standardized API for patient and population services.

It allows developers building client application to connect with ECLIPSE EHR Patient API in order to provide patients access to their health records stored in ECLIPSE EHR desktop application.

Registration

For an application to communicate with the ECLIPSE EHR APIs, a Vendor must register its application.

Send an email to "ProgrammingSpecifications@mpnsoft.com" with the following details:

- Contact email id
- Organization name
- Application name
- Application use case (Patient | Provider | Bulk)
- Application Type (Confidential | Public)
- JWK Set URL or Key in case of Bulk client only
- Callback URL (Redirect URI)

MPN team will then do the registration process on their end and would provide the Client ID and Client Secret for the application via registered contact email id.

Authentication

ECLIPSE EHR supports using the OAuth 2.0 framework to authenticate and authorize applications.

For Authentication, you need to pass client ID and Client secret provided by ECLIPSE EHR. Using the client Id and client secret, do the following to obtain the access token

Steps to obtain Access token:

Auth URL: <https://ehr-fhirapi-dev.azurehealthcareapis.com>
Grant_Type: client_credentials
Client_ID: Client ID for the application
Client_Secret: Client Secret for the application

After obtaining the token, you can subsequently call the Patient resource API passing the bearer token as a header parameter.

You can always get a new access token by calling the authorization server.

The response format for patient search and patient data requests are based on FHIR release 4 JSON.

1. Patient Search

| | |
|---------------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/Patient/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|-------------|---|------------------|
| name | First name of the patient | String |
| gender | Sex of the patient (male, female, other, unknown) | String |
| Id | MRN of the patient | String |
| birthdate | DOB of the patient | YYYY-MM-DD |

Return Parameters

| Name | Description | Optionality |
|-----------------------|---|--------------------|
| First Name | First name of the patient | R |
| Middle Name | Middle name of the patient | O |
| Last Name | Last name of the patient | R |
| Previous Name | Patient was known formerly by this name aka old name | O |
| Previous Name.period | The period during which the previous name of patient was used | O |
| Suffix | Suffix of the patient name | O |
| Sex | Gender of the patient | R |
| Date of Birth | DOB of the patient in the format YYYY-MM-DD | R |
| Race (Extension) | Race of the patient | R |
| Ethnicity (Extension) | Ethnicity of the patient | R |
| Preferred Language | Preferred language of communication | R |
| Address | Address where patient resides | R |
| Phone Number | Contact number for the patient | O |
| Birth sex (Extension) | Gender of the patient at the time of birth | O |

Sample Response JSON

```
{
  "resourceType": "Patient",
  "id": "53619836-f030-4938-b681-6d15112f69c0",
  "meta": {
    "versionId": "16",
```

```

"lastUpdated": "2022-12-07T10:58:23.637+00:00",
"source": "#AsIWLqdaQcJ09",
"profile": [
  "http://hl7.org/fhir/us/core/StructureDefinition/us-core-patient"
]
},
"text": {
  "status": "generated",
  "div": "<div xmlns=\\"http://www.w3.org/1999/xhtml\">Generated by <a
href=\\"https://github.com/synthetichealth/synthea\">Synthea</a>.Version identifier:
v2.6.1-3-g50f4f58f\n . Person seed: 4286870567281389426 Population seed: 3</div>"
},
"extension": [
  {
    "extension": [
      {
        "url": "ombCategory",
        "valueCoding": {
          "system": "urn:oid:2.16.840.1.113883.6.238",
          "code": "2106-3",
          "display": "White"
        }
      },
      {
        "url": "text",
        "valueString": "White"
      }
    ],
    "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race"
  },
  {
    "extension": [
      {
        "url": "ombCategory",
        "valueCoding": {
          "system": "urn:oid:2.16.840.1.113883.6.238",
          "code": "2186-5",
          "display": "Non Hispanic or Latino"
        }
      },
      {
        "url": "text",
        "valueString": "Non Hispanic or Latino"
      }
    ],
    "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity"
  },
  {
    "url": "http://hl7.org/fhir/StructureDefinition/patient-mothersMaidenName",
    "valueString": "Christen366 Murray856"
  },
  {
    "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-birthsex",
    "valueCode": "M"
  }
},

```

```

{
  "url": "http://hl7.org/fhir/StructureDefinition/patient-birthPlace",
  "valueAddress": {
    "city": "Springfield",
    "state": "Massachusetts",
    "country": "US"
  }
},
],
"identifier": [
  {
    "system": "https://github.com/synthetichealth/synthea",
    "value": "e91975f5-9445-c11f-cabf-c3c6dae161f2"
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
          "code": "MR",
          "display": "Medical Record Number"
        }
      ],
      "text": "Medical Record Number"
    },
    "system": "http://hospital.smarthealthit.org",
    "value": "e91975f5-9445-c11f-cabf-c3c6dae161f2"
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
          "code": "SS",
          "display": "Social Security Number"
        }
      ],
      "text": "Social Security Number"
    },
    "system": "http://hl7.org/fhir/sid/us-ssn",
    "value": "999-61-9797"
  },
  {
    "type": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
          "code": "DL",
          "display": "Driver's License"
        }
      ],
      "text": "Driver's License"
    },
    "system": "urn:oid:2.16.840.1.113883.4.3.25",
    "value": "S99940283"
  }
]

```

```

    }
  ],
  "name": [
    {
      "use": "official",
      "family": "Ritchie",
      "given": [
        "Dustin"
      ],
      "prefix": [
        "Mr."
      ],
      "suffix": [
        "Jr."
      ]
    },
    {
      "use": "old",
      "family": "Ritchie",
      "given": [
        "John"
      ],
      "prefix": [
        "Mr."
      ],
      "period": {
        "start": "1940-09-05",
        "end": "1962-04-30"
      }
    }
  ],
  "telecom": [
    {
      "system": "phone",
      "value": "555-770-2787",
      "use": "home"
    }
  ],
  "gender": "male",
  "birthDate": "1940-09-05",
  "address": [
    {
      "extension": [
        {
          "extension": [
            {
              "url": "latitude",
              "valueDecimal": 42.1343534042923
            },
            {
              "url": "longitude",
              "valueDecimal": -72.67217549422628
            }
          ]
        },
        {
          "url": "http://hl7.org/fhir/StructureDefinition/geolocation"
        }
      ]
    }
  ]
}

```

```
    }
  ],
  "line": [
    "599 Schowalter Promenade"
  ],
  "city": "West Springfield",
  "state": "MA",
  "postalCode": "01089",
  "country": "US",
  "period": {
    "start": "1940-09-05"
  }
}
],
"maritalStatus": {
  "coding": [
    {
      "system": "http://terminology.hl7.org/CodeSystem/v3-MaritalStatus",
      "code": "M",
      "display": "M"
    }
  ],
  "text": "M"
},
"multipleBirthBoolean": false,
"communication": [
  {
    "language": {
      "coding": [
        {
          "system": "urn:ietf:bcp:47",
          "code": "en-US",
          "display": "English"
        }
      ],
      "text": "English"
    }
  }
]
}
```


2. Allergies and Intolerance

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/AllergyIntolerance/{id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|-------------------------------------|-----------|
| Id | The Allergy and Intolerance FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|-----------------|---|-------------|
| Clinical status | The current status of the Allergy | R |
| Reaction | Reaction Manifestation of the Allergy | R |
| Code | The code for the Food or Medication Allergy | R |

Sample Response JSON

```
{
  "resourceType": "AllergyIntolerance",
  "id": "f9cd870f-484a-40ca-a7b5-1ab81008fee3",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-10-18T11:02:19.097+00:00"
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><p><b>Allergy Intolerance</b></p><p><b>Patient</b>: SMART, SANDY A</p><p><b>Allergy</b>: Eggs (edible) (substance)</p><p><b>Verification Status</b>: Confirmed</p><p><b>Clinical Status</b>: Active</p><p><b>Criticality</b>: High Risk</p><p><b>Category</b>: Food</p><p><b>Reactions</b>: Breathing abnormal</p><p><b>Onset</b>: Dec 14, 2019 6:00 P.M. CST</p></div>"
  },
  "clinicalStatus": {
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/allergyintolerance-clinical",
        "code": "active",
        "display": "Active"
      }
    ]
  }
}
```

```

    "text": "Active"
  },
  "verificationStatus": {
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/allergyintolerance-
verification",
        "code": "confirmed",
        "display": "Confirmed"
      }
    ],
    "text": "Active"
  },
  "type": "allergy",
  "category": [
    "food"
  ],
  "criticality": "high",
  "code": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "102263004",
        "display": "Eggs (edible) (substance)"
      }
    ],
    "text": "Egg"
  },
  "patient": {
    "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
    "display": "SMART, SANDY A"
  },
  "encounter": {
    "reference": "Encounter/97953523"
  },
  "onsetDateTime": "2019-12-15T00:00:00Z",
  "recordedDate": "2020-03-04T20:16:02Z",
  "recorder": {
    "reference": "Practitioner/12724045",
    "display": "Graham, Joshua"
  },
  "reaction": [
    {
      "id": "12760027",
      "manifestation": [
        {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "386813002",
              "display": "Abnormal breathing (finding)"
            }
          ],
          "text": "Breathing abnormal"
        }
      ]
    }
  ]
}

```

```
} ] }
```

3. Assessment and Plan of Treatment (Care Plan)

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/CarePlan/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|-----------------------|-----------|
| Id | The Care Plan FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|-----------|---|-------------|
| Care Plan | The action plan(s) for the patient care | R |

Sample Response JSON

```
{
  "resourceType": "CarePlan",
  "id": "f32e201d-c29f-4f43-9849-70a69393a75a",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-12-05T08:25:22.434+00:00",
    "source": "#E1VolYkq84D3M96u",
    "profile": [
      "http://hl7.org/fhir/us/core/StructureDefinition/us-core-careplan"
    ]
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\">Care Plan for Fracture care.<br/>Activities: <ul><li>Fracture care</li><li>Fracture care</li></ul><br/>Care plan is meant to treat Fracture of clavicle.</div>"
  },
  "status": "completed",
  "intent": "order",
  "category": [
    {
      "coding": [
        {
          "system": "http://hl7.org/fhir/us/core/CodeSystem/careplan-category",
          "code": "assess-plan"
        }
      ]
    }
  ],
  {
    "coding": [
      {
```

```

        "system": "http://snomed.info/sct",
        "code": "385691007",
        "display": "Fracture care"
    }
  ],
  "text": "Fracture care"
}
],
"subject": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
},
"encounter": {
  "reference": "Encounter/018c1573-bab5-4aa3-9045-8c8df19af2c7"
},
"period": {
  "start": "1946-11-23T06:11:45+00:00",
  "end": "1947-01-22T06:11:45+00:00"
},
"careTeam": [
  {
    "reference": "CareTeam/2ec43f40-4e1f-41d5-911f-abf4d1eb0fa2"
  }
],
"addresses": [
  {
    "reference": "Condition/68d985ee-56ff-4756-a169-91cc47d40942"
  }
],
"activity": [
  {
    "detail": {
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "183051005",
            "display": "Recommendation to rest"
          }
        ]
      },
      "text": "Recommendation to rest"
    },
    "status": "completed",
    "location": {
      "reference": "Location/103",
      "display": "LOWELL GENERAL HOSPITAL"
    }
  }
],
{
  "detail": {
    "code": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "408580007",

```

```
        "display": "Physical activity target light exercise"
      }
    ],
    "text": "Physical activity target light exercise"
  },
  "status": "completed",
  "location": {
    "reference": "Location/103",
    "display": "LOWELL GENERAL HOSPITAL"
  }
}
]
```

4. Care Team

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/CareTeam/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|---|-----------|
| Id | The Care Team FHIR ID | String |
| Patient | Search by patient ID | String |
| Status | Status of the care plan (Active, Proposed, Inactive, Suspended, Entered-in-error) | |

Return Parameters

| Name | Description | Optionality |
|-----------|---|-------------|
| Care Team | The details of Practitioner who are part of the care team | R |

Sample Response JSON

```
{
  "resourceType": "CareTeam",
  "id": "2ec43f40-4e1f-41d5-911f-abf4d1eb0fa2",
  "meta": {
    "versionId": "3",
    "lastUpdated": "2022-12-05T08:24:53.679+00:00"
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><p><b>Care Team</b></p><p><b>Patient</b>: FHIR, FIRE3</p><p><b>Care Team Name</b>: Psychology;Blue Team</p><p><b>Status</b>: Active</p><p><b>Category</b>: Encounter-focused care team</p><p><b>Encounter</b>: 34768489</p><p><b>Participant</b>:</p><ul><li>Name: Dickey, Bo; Role: Psychologist (occupation)</li></ul></div>"
  },
  "status": "active",
  "category": [
    {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "LA27976-2",
          "display": "Encounter-focused care team"
        }
      ]
    }
  ],
  "text": "Encounter-focused care team"
}
```

```
],
"name": "Psychology;Blue Team",
"subject": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
  "display": "FHIR, FIRE3"
},
"encounter": {
  "reference": "Encounter/018c1573-bab5-4aa3-9045-8c8df19af2c7"
},
"participant": [
  {
    "role": [
      {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "59944000",
            "display": "Psychologist (occupation)"
          }
        ],
        "text": "Psychologist (occupation)"
      }
    ],
    "member": {
      "reference": "Practitioner/9920d3b7-2389-47ad-9c6b-c5d0fb6d2410",
      "display": "Dickey, Bo"
    }
  }
]
}
```


5. Clinical Notes (Document Reference)

| | |
|--------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/DocumentReference/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|--------------------------------|-----------|
| Id | The Document Reference FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|---------------|------------------------------|-------------|
| Clinical Note | Details of the Clinical note | R |

Sample Response JSON

```
{
  "resourceType": "DocumentReference",
  "id": "3a5b154b-bfb3-4278-be9e-519c8219927c",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-12-05T11:48:43.26+00:00",
    "source": "#E1VolYkq84D3M96u",
    "profile": [
      "http://hl7.org/fhir/us/core/StructureDefinition/us-core-documentreference"
    ]
  },
  "identifier": [
    {
      "system": "urn:ietf:rfc:3986",
      "value": "urn:uuid:acc9d16d-da9b-9dc9-fbb4-9e6f950b11e6"
    }
  ],
  "status": "superseded",
  "type": {
    "coding": [
      {
        "system": "http://loinc.org",
        "code": "11506-3",
        "display": "Progress note"
      }
    ]
  },
  "text": "Progress note"
},
"category": [
  {
    "coding": [
      {
```

```

      "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-
documentreference-category",
      "code": "clinical-note",
      "display": "Clinical Note"
    }
  ]
},
"subject": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
},
"date": "1940-09-06T05:11:45.131+00:00",
"author": [
  {
    "reference": "Practitioner/9920d3b7-2389-47ad-9c6b-c5d0fb6d2410",
    "display": "Dr. Melvin857 Torp761"
  }
],
"custodian": {
  "reference": "Organization/e1fb6281-727e-48da-8922-be46434bc525",
  "display": "PCP87052"
},
"content": [
  {
    "attachment": {
      "contentType": "text/plain",
      "data":
"CjE5NDAtMDktMDYkCiMgQ2hpZWYgQ29tcGxhaw50Ck5vIGNvbXBsYW1udHMuCGojIEhpc3Rvcnkgb2YgUHJl
c2VudCBJbGxuzXNzCkx1Y2l1bjQwOCBpcyBhIDUgbW9udGgtb2xkIG5vbi1oaXNwYW5pYyB3aGl0ZSBtYWx1L
goKIyBTb2NpYWwgSGlzdG9yeQogUGF0aWVudCB0eXNMcGbmV2ZXIgc21va2VkIGFuZCBpcyBhbiBhbGNvaG9saW
MuCgpQYXRpZW50IGNvbWVzIGZyb20gYSBoaWdoIHNVY2lvZWNVbm9taWMgYmFja2dyb3VuZC4gUGF0aWVudCB
jdXJyZW50bHkgaGFzIEJsdWUgQ3Jvc3MgQmx1ZSBTaGl1bGQuCGojIEFsbGVyZ2l1cwp0byBLbm93biBBbGx1
cmdpZXMuCGojIE1lZGljYXRpb25zCk5vIEFjdGl2ZSBnZWVudCB0aW9ucy4KCjE5NDAtMDktMDYkCiMgQ2hpZWYg
GxhbGkCiMjIFBsYW4KClRoZSBmb2xsb3dpbmcgcHJvY2VkdXJlcyB3ZXJlIGNvbR1Y3RlZDoKLSBtZWVudCB0aW9u
IHJlY29uY2lsawF0aW9uIChwcm9jZWR1cmUpCg=="
    },
    "format": {
      "system": "http://ihe.net/fhir/ValueSet/IHE.FormatCode.codesystem",
      "code": "urn:ihe:iti:xds:2017:mimeTypeSufficient",
      "display": "mimeType Sufficient"
    }
  }
],
"context": {
  "encounter": [
    {
      "reference": "Encounter/018c1573-bab5-4aa3-9045-8c8df19af2c7"
    }
  ],
  "period": {
    "start": "1940-09-06T05:11:45+00:00",
    "end": "1940-09-06T05:26:45+00:00"
  }
}
}
}

```

6. Goals

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/Goal/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|----------------------|-----------|
| Id | The Goal FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|---------------|-----------------------|-------------|
| Patient Goals | Defined Patient Goals | R |

Sample Response JSON

```
{
  "resourceType": "Goal",
  "id": "03a0468c-c039-4caa-b038-3fd3dacdd2db",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-12-05T11:58:07.958+00:00",
    "source": "#iLFSV70Lv0KF8dmQ",
    "profile": [
      "http://hl7.org/fhir/us/core/StructureDefinition/us-core-goal"
    ]
  },
  "lifecycleStatus": "active",
  "description": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "281004",
        "display": "Alcoholic dementia"
      }
    ],
    "text": "Alcoholic dementia"
  },
  "subject": {
    "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
  },
  "target": [
    {
      "dueDate": "2020-12-07"
    }
  ]
}
```

7. Health Concerns (Condition)

| | |
|--------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/Condition/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|-----------------------|-----------|
| Id | The Condition FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|-----------------|--------------------------------------|-------------|
| Clinical Status | The current status of the conditions | R |
| Problem | The actual Health Concern | R |
| Category | Category of the Health Concern | R |

Sample Response JSON

```
{
  "resourceType": "Condition",
  "id": "68d985ee-56ff-4756-a169-91cc47d40942",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-10-18T14:10:09.335+00:00"
  },
  "text": {
    "status": "generated",
    "div": "<div
xmlns=\\"http://www.w3.org/1999/xhtml\"><p><b>Condition</b></p><p><b>Patient</b>:
SMART, NANCYU</p><p><b>Health Concern</b>: Afraid my community will not be as close
with COVID19.</p><p><b>Clinical Status</b>: Active</p><p><b>Verification Status</b>:
Confirmed</p><p><b>Onset</b>: Jul 6, 2020</p><p><b>Recorder</b>: Spence,
Stephen</p><p><b>Recorded Date</b>: Jul 6, 2020 7:36 P.M.
UTC</p><p><b>Asserter</b>: SMART, NANCYU</p></div>"
  },
  "clinicalStatus": {
    "coding": [
      {
        "system": "http://terminology.hl7.org/CodeSystem/condition-clinical",
        "code": "active",
        "display": "Active"
      }
    ],
    "text": "Active"
  },
  "verificationStatus": {
```

```
"coding": [
  {
    "system": "http://terminology.hl7.org/CodeSystem/condition-ver-status",
    "code": "confirmed",
    "display": "Confirmed"
  }
],
"text": "Confirmed"
},
"category": [
  {
    "coding": [
      {
        "system": "http://hl7.org/fhir/us/core/CodeSystem/condition-category",
        "code": "health-concern",
        "display": "Health Concern"
      }
    ],
    "text": "Health Concern"
  }
],
"code": {
  "text": "Afraid my community will not be as close with COVID19."
},
"subject": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
  "display": "SMART, NANCYU"
},
"onsetDateTime": "2020-07-06",
"recordedDate": "2020-07-06T19:36:23Z",
"recorder": {
  "reference": "Practitioner/12724064",
  "display": "Spence, Stephen"
},
"asserter": {
  "reference": "Patient/12724066",
  "display": "SMART, NANCYU"
},
"note": [
  {
    "time": "2020-07-06T19:36:23Z",
    "text": "Concerns with impact of COVID19 on community."
  }
]
}
```

8. Immunization

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/Immunization/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|--------------------------|-----------|
| Id | The Immunization FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|---------|---------------------------------|-------------|
| Date | When was the Immunization given | R |
| Status | The status of the Immunization | R |
| Vaccine | The Vaccine which was given | R |

Sample Response JSON

```
{
  "resourceType": "Immunization",
  "id": "318672dd-9d5c-4b3e-8dd3-427dc0a7bc75",
  "meta": {
    "versionId": "3",
    "lastUpdated": "2022-12-02T08:13:35.168+00:00"
  },
  "status": "not-done",
  "statusReason": {
    "coding": [
      {
        "system": "https://fhir.cerner.com/eb2384f8-839e-4c6e-8b29-18e71db1a0b1/codeSet/30440",
        "code": "679607",
        "display": "Patient Refuses",
        "userSelected": true
      },
      {
        "system": "http://snomed.info/sct",
        "code": "591000119102",
        "display": "Vaccine refused by patient (situation)",
        "userSelected": false
      }
    ]
  },
  "text": "Patient Refuses"
},
"vaccineCode": {
  "coding": [
```

```

    {
      "system": "https://fhir.cerner.com/ec2458f2-1e24-41c8-b71b-
0e701af7583d/codeSet/72",
      "code": "2798767",
      "display": "tetanus toxoid",
      "userSelected": true
    }
  ],
  "text": "tetanus toxoid"
},
"patient": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
},
"encounter": {
  "reference": "Encounter/97939518"
},
"occurrenceDateTime": "2019-07-15T15:35:00+00:00",
"primarySource": false,
"reportOrigin": {
  "coding": [
    {
      "system": "https://fhir.cerner.com/ec2458f2-1e24-41c8-b71b-
0e701af7583d/codeSet/30200",
      "code": "679978",
      "display": "Self",
      "userSelected": true
    }
  ],
  "text": "Self"
},
"performer": [
  {
    "function": {
      "coding": [
        {
          "system": "http://terminology.hl7.org/CodeSystem/v2-0443",
          "code": "AP",
          "display": "Administering Provider"
        }
      ]
    },
    "text": "Administering Provider"
  },
  "actor": {
    "reference": "Practitioner/4122622"
  }
}
]
}

```

9. Diagnostic Report

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/DiagnosticReport/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|----------|-------------------------------|-----------|
| Id | The Diagnostic Report FHIR ID | String |
| Patient | Search by patient ID | String |
| Category | Category of the Report (Lab) | String |

Return Parameters

| Name | Description | Optionality |
|--------|--------------------------------------|-------------|
| Date | When was the Immunization given | R |
| Status | The status of the Immunization | R |
| Result | The observation resulted in the test | R |

Sample Response JSON

```
{
  "resourceType": "DiagnosticReport",
  "id": "f35dee26-8729-4e6e-9177-c964be2a4e8c",
  "meta": {
    "extension": [
      {
        "url": "http://hl7.org/fhir/StructureDefinition/instance-name",
        "valueString": "CBC Example"
      },
      {
        "url": "http://hl7.org/fhir/StructureDefinition/instance-description",
        "valueMarkdown": "This is a CBC example for the *US Core DiagnosticReport Lab Profile*."
      }
    ],
    "versionId": "4",
    "lastUpdated": "2022-12-05T12:04:29.145+00:00",
    "profile": [
      "http://hl7.org/fhir/us/core/StructureDefinition/us-core-diagnosticreport-lab"
    ]
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><h2><span title=\"Codes: {http://loinc.org 58410-2}\">CBC panel - Blood by Automated count</span> (<span title=\"Codes: {http://terminology.hl7.org/CodeSystem/v2-0074 LAB}\">Laboratory</span>) </h2><table class=\"grid\"><tr><td>Subject</td><td><b>Amy
```


V. Baxter female, DoB: 1987-02-20 (Medical Record Number: 1032702 (USUAL))</td></tr><tr><td>When For</td><td>2005-07-05</td></tr><tr><td>Reported</td><td>2005-07-06 11:45:33+1100</td></tr></table><p>Report Details</p><table class=\ "grid\"><tr><td>Code</td><td>Value</td><td>Reference Range</td><td>When For</td></tr><tr><td>Neutrophils %</td><td>40.0 %</td><td>Normal Range: 37.0 % - 67.0 %</td><td>2005-07-05</td></tr><tr><td>MCHC RBC Auto-mCnc</td><td>34.7 g/dL</td><td>Normal Range: 30.0 g/dL - 34.0 g/dL</td><td>2005-07-05</td></tr><tr><td>Hgb Bld-mCnc</td><td>17.0 g/dL</td><td>Normal Range: 16.5 g/dL - 21.5 g/dL</td><td>2005-07-05</td></tr><tr><td>RBC # Bld Auto</td><td>4.58 10*6/uL</td><td>Normal Range: 4.1 10*6/uL - 6.1 10*6/uL</td><td>2005-07-05</td></tr></table></div></p></div>

```

    },
    "status": "final",
    "category": [
      {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/v2-0074",
            "code": "LAB",
            "display": "Laboratory"
          }
        ]
      }
    ],
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "58410-2",
          "display": "CBC panel - Blood by Automated count"
        }
      ]
    },
    "subject": {
      "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
      "display": "Amy Shaw"
    },
    "effectiveDateTime": "2005-07-05",
    "issued": "2005-07-06T00:45:33+00:00",
    "performer": [
      {
        "reference": "Organization/e1fb6281-727e-48da-8922-be46434bc525",
        "display": "Acme Laboratory, Inc"
      }
    ]
  }

```

```
],  
"result": [  
  {  
    "reference": "Observation/13e76392-7253-4799-8187-34cee01886ff",  
    "display": "NEUTROPHILS"  
  }  
]  
}
```

10. Medication Request

| | |
|--------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/MedicationRequest/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|--------------------------------|-----------|
| Id | The Medication Request FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|------------|--|-------------|
| Date | Date of Medication request | R |
| Medication | The medication(s) that are part of the request | R |

Sample Response JSON

```
{
  "resourceType": "MedicationRequest",
  "id": "e720de54-a12b-4737-ab67-6596c4965946",
  "meta": {
    "versionId": "4",
    "lastUpdated": "2022-12-02T08:50:41.313+00:00"
  },
  "status": "active",
  "intent": "order",
  "doNotPerform": false,
  "reportedBoolean": true,
  "medicationCodeableConcept": {
    "coding": [
      {
        "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
        "code": "352362"
      }
    ],
    "text": "Acetaminophen"
  },
  "subject": {
    "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
  },
  "encounter": {
    "reference": "Encounter/018c1573-bab5-4aa3-9045-8c8df19af2c7"
  },
  "authoredOn": "2020-07-06T20:37:13+00:00",
  "requester": {
    "reference": "Practitioner/9920d3b7-2389-47ad-9c6b-c5d0fb6d2410",
    "display": "CERNER, CERNER CERNER"
  }
}
```

```

},
"note": [
  {
    "authorString": "Leslie Knope",
    "time": "2020-03-03T20:07:53Z",
    "text": "Patient has had medication in past."
  }
],
"dosageInstruction": [
  {
    "text": "5 mL, Oral, Daily.",
    "additionalInstruction": [
      {
        "text": "Take with food."
      }
    ]
  },
  {
    "timing": {
      "repeat": {
        "boundsPeriod": {
          "start": "2020-02-25T23:19:10Z",
          "end": "2021-02-27T23:19:10Z"
        },
        "count": 1,
        "duration": 1,
        "durationUnit": "d"
      },
      "code": {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/v3-GTSAbbreviation",
            "code": "BID"
          }
        ]
      }
    }
  },
  {
    "asNeededBoolean": true,
    "site": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "368208006"
        }
      ]
    },
    "route": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "41974700"
        }
      ]
    },
    "doseAndRate": [
      {
        "doseQuantity": {

```

```

        "value": 23,
        "unit": "tabs",
        "system": "http://unitsofmeasure.org",
        "code": "tbl"
      }
    ]
  },
  "dispenseRequest": {
    "numberOfRepeatsAllowed": 5,
    "quantity": {
      "value": 10,
      "system": "http://unitsofmeasure.org",
      "code": "tbl"
    }
  },
  "substitution": {
    "allowedBoolean": true
  }
}

```

11. Procedures

| | |
|---------------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/Procedure/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|--------------------------------|-----------|
| Id | The Procedure Resource FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|-----------|---------------------------------------|-------------|
| Date | Date when the procedure was performed | R |
| Procedure | The Procedure performed | R |

Sample Response JSON

```

{
  "resourceType": "Procedure",
  "id": "f20f0374-975b-4efc-b0e0-af9830e56fb4",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-11-24T07:57:30.305+00:00"
  },
}

```

```

"text": {
  "status": "generated",
  "div": "<div
xmlns=\"http://www.w3.org/1999/xhtml\"><p><b>Procedure</b></p><p><b>Patient</b>:
SMART, NANCY</p><p><b>Procedure</b>: Appendectomy;</p><p><b>Date</b>:
2002</p><p><b>Status</b>: Completed</p><p><b>Recorder</b>: Cerner Test, Physician -
Women's Health Cerner</p></div>"
},
"status": "completed",
"code": {
  "coding": [
    {
      "system": "http://www.ama-assn.org/go/cpt",
      "code": "44950",
      "display": "Appendectomy;",
      "userSelected": true
    }
  ],
  "text": "Appendectomy;"
},
"subject": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
  "display": "SMART, NANCY"
},
"encounter": {
  "reference": "Encounter/97953477"
},
"performedDateTime": "2002",
"recorder": {
  "reference": "Practitioner/4122630",
  "display": "Cerner Test, Physician - Women's Health Cerner"
}
}

```

12. Provenance

| | | |
|--------|--|-----------------|
| URI | | https://{client |
| Method | | GET |

Search Parameters

| Name | Description | Data type |
|---------|------------------------|-----------|
| Id | The Provenance FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|--------------|--|-------------|
| Date | The instance of time when the activity was recorded | R |
| Agent | The user who recorded the data | R |
| Organization | The Organization on behalf of whom the data was recorded | R |

Sample Response JSON

```
{
  "resourceType": "Provenance",
  "id": "c2279c1c-ba3c-47e6-b4f8-f79c236bb6a3",
  "meta": {
    "versionId": "18",
    "lastUpdated": "2022-12-05T12:08:38.385+00:00"
  },
  "target": [
    {
      "reference": "CarePlan/f32e201d-c29f-4f43-9849-70a69393a75a"
    },
    {
      "reference": "Observation/13e76392-7253-4799-8187-34cee01886ff"
    },
    {
      "reference": "Observation/56f958ee-8c48-4d84-a8c4-d8ae5ec6e72d"
    },
    {
      "reference": "Observation/0af87ba6-52b7-408a-8d7c-3ae037174559"
    },
    {
      "reference": "Observation/ca93c5b9-903d-4359-a2b8-d85158b1be98"
    },
    {
      "reference": "Observation/ba72eaf0-48bc-4b80-9a04-a95bab3ab03f"
    }
  ]
}
```

```
"reference": "Observation/ac1f974f-90d8-4cbc-a4f1-8588e9228fb0"
},
{
  "reference": "Observation/6401b069-b73e-4bb3-aa7b-ab7599568f97"
},
{
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0"
},
{
  "reference": "Observation/26239abe-9c1d-4a56-b2f1-7a6eb746c81c"
},
{
  "reference": "Observation/5c262de3-ebbc-41e8-9aa5-6432b886bbde"
},
{
  "reference": "Observation/a175cacb-8d28-48e9-9c6d-8af2e649b534"
},
{
  "reference": "Observation/d50d14bc-6902-4229-9459-34efad3d17ec"
},
{
  "reference": "Observation/67947303-fe3f-4f18-bb39-0532e62d4895"
},
{
  "reference": "AllergyIntolerance/f9cd870f-484a-40ca-a7b5-1ab81008fee3"
},
{
  "reference": "CareTeam/2ec43f40-4e1f-41d5-911f-abf4d1eb0fa2"
},
{
  "reference": "Condition/68d985ee-56ff-4756-a169-91cc47d40942"
},
{
  "reference": "Device/e988fc39-bb9f-4375-beaa-a4313b0f337d"
},
{
  "reference": "DiagnosticReport/c0117aad-3bf1-4435-b438-85bf59e907ad"
},
{
  "reference": "Immunization/318672dd-9d5c-4b3e-8dd3-427dc0a7bc75"
},
{
  "reference": "MedicationRequest/e720de54-a12b-4737-ab67-6596c4965946"
},
{
  "reference": "Procedure/f20f0374-975b-4efc-b0e0-af9830e56fb4"
},
{
  "reference": "DiagnosticReport/f35dee26-8729-4e6e-9177-c964be2a4e8c"
},
{
  "reference": "DocumentReference/3a5b154b-bfb3-4278-be9e-519c8219927c"
},
{
  "reference": "Goal/03a0468c-c039-4caa-b038-3fd3dacdd2db"
```



```

    }
  ],
  "recorded": "2019-10-25T14:57:43+00:00",
  "agent": [
    {
      "type": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-provenance-
participant-type",
            "code": "transmitter"
          }
        ]
      },
      "role": [
        {
          "coding": [
            {
              "system":
"http://terminology.hl7.org/CodeSystem/contractsignertypecodes",
              "code": "SOURCE"
            }
          ]
        }
      ],
      "who": {
        "reference": "Practitioner/9920d3b7-2389-47ad-9c6b-c5d0fb6d2410"
      },
      "onBehalfOf": {
        "reference": "Organization/e1fb6281-727e-48da-8922-be46434bc525",
        "display": "PCP87052"
      }
    },
    {
      "type": {
        "coding": [
          {
            "system": "http://terminology.hl7.org/CodeSystem/provenance-participant-
type",
            "code": "author",
            "display": "Author"
          }
        ],
        "text": "Author"
      },
      "who": {
        "reference": "Practitioner/9920d3b7-2389-47ad-9c6b-c5d0fb6d2410",
        "display": "Dr. Melvin857 Torp761"
      },
      "onBehalfOf": {
        "reference": "Organization/e1fb6281-727e-48da-8922-be46434bc525",
        "display": "PCP87052"
      }
    }
  ],
],

```

```
"entity": [  
  {  
    "role": "source",  
    "what": {  
      "reference": "DocumentReference/S-201"  
    }  
  }  
]  
}
```

13. Observation

| | |
|---------------|---|
| URI | https://{client_name}.azurewebsites.net/fhir/Observation/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|---|-----------|
| Id | The Observation FHIR ID | String |
| Code | The Observation type code 72166-2 Smoking Status 77606-2 Pediatric Weight for Height 59576-9 Pediatric BMI for Age 2708-6 Oxygen saturation in arterial blood 59408-5 Oxygen saturation in arterial blood by pulse oximetry 8289-1 Pediatric Head Occipital-frontal Circumference 8302-2 Body Height 8310-5 Body Temperature 85354-9 Blood Pressure 29463-7 Body Weight 8867-4 Heart Rate 9279-1 Respiratory Rate | |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|-------|---|-------------|
| Date | When was the Vital sign recorded | R |
| Vital | The vital sign for which data is recorded | R |
| Value | The value of the vital sign | R |

Sample Response JSON

```
{
  "resourceType": "Observation",
  "id": "6401b069-b73e-4bb3-aa7b-ab7599568f97",
  "meta": {
    "extension": [
      {
        "url": "http://hl7.org/fhir/StructureDefinition/instance-name",
        "valueString": "Height Example"
      }
    ],
  },
}
```

```

    {
      "url": "http://hl7.org/fhir/StructureDefinition/instance-description",
      "valueMarkdown": "This is a height example for the *Vitalsigns Profile*."
    }
  ],
  "versionId": "1",
  "lastUpdated": "2022-12-03T12:07:51.681+00:00",
  "profile": [
    "http://hl7.org/fhir/us/core/StructureDefinition/us-core-body-height"
  ]
},
"text": {
  "status": "generated",
  "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><p><b>Generated Narrative</b></p><div style=\"display: inline-block; background-color: #d9e0e7; padding: 6px; margin: 4px; border: 1px solid #8da1b4; border-radius: 5px; line-height: 60%\"><p style=\"margin-bottom: 0px\">Resource \"height\" </p><p style=\"margin-bottom: 0px\">Profile: <a href=\"StructureDefinition-us-core-body-height.html\">US Core Body Height Profile</a></p></div><p><b>status</b>: final</p><p><b>category</b>: Vital Signs <span style=\"background: LightGoldenRodYellow; margin: 4px; border: 1px solid khaki\"> (<a href=\"http://terminology.hl7.org/3.1.0/CodeSystem-observation-category.html\">Observation Category Codes</a>#vital-signs)</span></p><p><b>code</b>: height <span style=\"background: LightGoldenRodYellow; margin: 4px; border: 1px solid khaki\"> (<a href=\"https://loinc.org/\">LOINC</a>#8302-2 \"Body height\")</span></p><p><b>subject</b>: <a href=\"Patient-example.html\">Patient/example: Amy Shaw</a> \" SHAW\"</p><p><b>encounter</b>: <span> GP Visit</span></p><p><b>effective</b>: 1999-07-02</p><p><b>value</b>: 111.506 cm<span style=\"background: LightGoldenRodYellow\"> (Details: UCUM code cm = 'cm')</span></p></div>"
},
  "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": "height"
  },
  "subject": {

```

```
    "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
    "display": "Amy Shaw"
  },
  "encounter": {
    "display": "GP Visit"
  },
  "effectiveDateTime": "1999-07-02",
  "valueQuantity": {
    "value": 111.506,
    "unit": "cm",
    "system": "http://unitsofmeasure.org",
    "code": "cm"
  }
}
```

14. Implantable Device

| | |
|--------|--|
| URI | https://{client_name}.azurewebsites.net/fhir/Device/{Id} |
| Method | GET |

Search Parameters

| Name | Description | Data type |
|---------|--------------------------------|-----------|
| Id | The Implantable Device FHIR ID | String |
| Patient | Search by patient ID | String |

Return Parameters

| Name | Description | Optionality |
|------------------|--|-------------|
| UDI | UDI String which is the Unique Device Identifier | R |
| Manufacture Date | The date when the device was manufacture | R |
| Expiration Date | The Expiration date for the device | R |
| Type | The type of device | R |

Sample Response JSON

```
{
  "resourceType": "Device",
  "id": "e988fc39-bb9f-4375-beaa-a4313b0f337d",
  "meta": {
    "versionId": "9",
    "lastUpdated": "2022-12-03T09:42:32.273+00:00"
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\">text</div>"
  },
  "udiCarrier": [
    {
      "deviceIdentifier": "20884521062853",
      "carrierHRF": "(01)10884521062856(11)141231(17)150707(10)A213B1(21)1234"
    }
  ],
  "status": "active",
  "distinctIdentifier": "SampleString012",
  "manufacturer": "Pacemaker Plus",
  "manufactureDate": "2017-01-09T12:00:00Z",
  "expirationDate": "2040-07-02T10:00:00Z",
  "lotNumber": "7723",
  "serialNumber": "17642857292",
  "deviceName": [
    {
```

```

    "name": "Pacemaker",
    "type": "user-friendly-name"
  }
],
"modelName": "T0765",
"type": {
  "coding": [
    {
      "system": "http://snomed.info/sct",
      "code": "14106009",
      "display": "Cardiac pacemaker implant"
    }
  ],
  "text": "Pacemaker"
},
"patient": {
  "reference": "Patient/53619836-f030-4938-b681-6d15112f69c0",
  "display": "SMART, NANCY"
},
"owner": {
  "display": "Model Clinic"
}
}

```

Errors

| Status | Response |
|--------|--|
| 204 | {"string":"No Content."} |
| 401 | {"string":"Invalid Token."} |
| 500 | {"string":"Something went wrong. Please try again later."} |

Terms of Use

ECLIPSE® Patient API can be used by third party applications to connect to the ECLIPSE® data and authorized users can access their health information from different applications. Third party vendors shall allow only authorized users to access (Read-only) their common clinical information from their native applications. The API sets forth a pathway for patients and third party applications to utilize data captured by the clinicians, using intuitive applications.

Developer Policy

The documentation for ECLIPSE® PatientAPI has been made available to engineers for development and testing. The materials made available to them are as-is, with no other warranties expressed or implied. You may use the materials adhering to the below mentioned terms and conditions:

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3. The API interface restricts accessible data defined by the USCDI, allows for “all” patient data, or “by specific data category” in agreement with §170.315(g)(10).
4. This technical documentation of API comprises at a minimum, API syntax, function names, required/optional parameters and their data types, return variables and types/structures, exceptions and exception handling methods and their return types.