



Health Companion API Interface Document

API Version 1.0

Contents

INTRODUCTION.....3

Register 3

Integrate 3

ENVIRONMENTS3

AUTHENTICATION AND AUTHORIZATION.....4

PATIENT AUTHENTICATION4

API DETAILS4

Response and Status Codes..... 5

General Info 6

Problem..... 8

Medication 9

Allergy..... 11

Immunization..... 13

Vital Signs 14

Lab Data 16

Procedures 22

Medical Devices..... 23

Health Concerns 24

Goals..... 25

Care Team..... 27

Assessment 28

Treatment Plan..... 28

Smoking Status 31

Patient Data..... 32

TERMS OF USE.....32

Introduction

This document describes the process for third party developers to register and integrate with Health Companion (HC) APIs, to query patient data, in the context of meeting the Meaningful Use Stage 3 g (7), g (8) and g (9) requirements.

Register

For integration with Health Companion APIs, you first have to register your application with Health Companion. For registration, you have to give the application name, call back URL (the URL which Health Companion has to call, after the authentication) and email. When you register, Health Companion will send the client ID and token to the registered email ID. You have to pass this key and token to authenticate the API calls.

Sandbox registration URL - <https://nist.healthcompanion.com/PRM/app/registration>

Production registration URL - <https://developer.healthcompanion.com/PRM/app/registration>

Integrate

Health Companion API is based on DSTU 2, of the Fast Healthcare Interoperability Resources (FHIR) standard. FHIR is a standard way for exchanging healthcare information electronically. More information about FHIR is available at the FHIR website <https://www.hl7.org/fhir/overview.html>.

All the APIs are RESTful APIs and it has to be accessed through HTTPS. The server responds with standard HTTP response codes and returns data back in JSON format.

Environments

URL formats

<https://<server>/<api-string>>

server	Domain name or the IP Address of the server. This is to be set based on sandbox or production environment. Sandbox – https://nist.healthcompanion.com Production – https://developer.healthcompanion.com
api-string	Path to the FHIR resource – For e.g. For getting the patient details the api-string would be “/HCServices/fhir/GeneralInfo.json”.

Authentication and Authorization

Health Companion uses OAuth 2 for authentication and authorization. More about OAuth 2 is explained in the link <https://en.wikipedia.org/wiki/OAuth>.

Patient authentication

Patient has to authorize the third party application, to fetch his/her data from HC. Each patient (user) has a username and password in HC. HC has exposed a public URL for the third party application to integrate to their systems for patient authentication.

URL to integrate with the third party application for patient authentication-
<https://<server>/HealthCompanion/api/login>

Patient has to give HC username and password here. After patient authenticates, HC will call the call back URL submitted by the third party application, at the time of application registration, with the patient unique identifier and a session token.

The third party application has to include both these identifies in all the calls to get the patient data from HC, along with access token (oAuth token) and the client Id.

API details

Data category	FHIR resource	HC Resource URL
General Info	Patient	/HCServices/fhir/{version}/GeneralInfo/{patientId}.json
Problem list	Condition	/HCServices/fhir/{version}/Problem/{patientId}.json
Medication	Medication Statement	/HCServices/fhir/{version}/Medication/{patientId}.json
Allergy	Allergy Intolerance	/HCServices/fhir/{version}/Allergy/{patientId}.json
Immunization	Immunization	/HCServices/fhir/{version}/Immunization/{patientId}.json
Vital Signs	Observation	/HCServices/fhir/{version}/VitalSigns/{patientId}.json
Lab result	Observation	/HCServices/fhir/{version}/LabData/{patientId}.json
Procedure	Procedure	/HCServices/fhir/{version}/Procedures/{patientId}.json
Medical Devices	Device	/HCServices/fhir/{version}/MedicalDevices/{patientId}.json
Health concerns	Condition	/HCServices/fhir/{version}/HealthConcern/{patientId}.json
Goal	Goal	/HCServices/fhir/{version}/Goals/{patientId}.json
Care team	Encounter	/HCServices/fhir/{version}/CareTeam/{patientId}.json
Assessment	Care Plan	/HCServices/fhir/{version}/Assessment/{patientId}.json
Treatment Plan	Care Plan	/HCServices/fhir/{version}/TreatmentPlan/{patientId}.json
Smoking status	Observation	/HCServices/fhir/{version}/SmokingStatus/{patientId}.json
Clinical Summary as CCDA		/HCServices/fhir/{version}/PatientData/{patientId}.json

The current API version is 1.0

After the application and patient authentication, for all the subsequent API requests, it should contain the following parameters.

Parameter	Values	Required
api	GeneralInfo Problem Medication Allergy Immunization VitalSigns LabData Procedures MedicalDevices HealthConcern Goals CareTeam Assessment TreatmentPlan SmokingStatus PatientData	Yes
startdate		
enddate		
date		
patientId	Patient Identified returned by HC after patient login	Yes
state	Session token returned by HC after patient login	Yes

The access token and client Id has to be set in the request header for all the API requests. It has to be set in the following format

```
httpHeaders.add("Authorization", "Bearer " + data.get("access_token"));
httpHeaders.add("clientId", clientId);
```

Response and Status Codes

This section provides the details on the response codes and error codes that will be returned as part of a 4xx or 5xx Response. These response codes are as per the HTTP Standards.

Response Code	Description
200 OK	The request has succeeded. The information returned with the response is dependent on the method used in the request.
400 BAD REQUEST	The request could not be understood by the server due to malformed syntax.
401 UNAUTHORIZED	The request requires user authentication. If the request already included Authorization credentials, then the 401 response indicates that authorization has been refused for those credentials.

404 NOT FOUND	The server has not found anything matching the Request-URI. No indication is given of whether the condition is temporary or permanent.
405 METHOD NOT ALLOWED	The method specified in the Request-Line is not allowed for the resource identified by the Request-URI.
406 NOT ACCEPTABLE	The server is refusing to process a request because the data is corrupted or the data is not able to process. (Queue issue)
412 PRE CONDITION FAILED	The server is refusing to process a request because the ccd data is not available.
413 REQUEST ENTITY TOO LARGE	The server is refusing to process a request because the request entity is larger than the server is willing or able to process.
500 INTERNAL SERVER ERROR	The server encountered an unexpected condition which prevented it from fulfilling the request.
502 BAD GATEWAY	The server, while acting as a gateway or proxy, received an invalid response from the upstream server it accessed in attempting to fulfil the request.
503 SERVICE UNAVAILABLE	The server is currently unable to handle the request due to a temporary overloading or maintenance of the server.

General Info

API – HCServices/fhir/1.0/GeneralInfo/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/GeneralInfo/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/GeneralInfo/1234.json?state=)

Response JSON format

```
{
  "resourceType": "Patient",
  "extension": [
    {
      "url": "http://hl7.org/fhir/Profile/us-core#ethnicity",
      "valueCodeableConcept": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/v3/Ethnicity",
            "code": "NHL"
          }
        ]
      }
    }
  ]
}
```

```

    }
  },
  {
    "url": "http://hl7.org/fhir/Profile/us-core#race",
    "valueCodeableConcept": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/v3/Race"
        }
      ]
    }
  }
],
"name": [
  {
    "family": [
      "Newman1"
    ],
    "given": [
      "Alice"
    ]
  }
],
"telecom": [
  {
    "system": "email"
  },
  {
    "system": "phone",
    "value": "+1(555)-115-1234"
  }
],
"gender": "female",
"birthDate": "1970-05-01",
"address": [
  {
    "use": "home",
    "city": "Beaverton",
    "postalCode": "97006"
  }
],
"communication": [
  {
    "language": {
      "coding": [
        {
          "system": "urn:ietf:bcp:47",
          "code": "EN-US"
        }
      ]
    }
  }
],
"preferred": true
}
]
}

```

Problem

API – HCServices/fhir/1.0/ Problem/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Problem/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date="](https://<server>/HCServices/fhir/1.0/Problem/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Condition",
      "id": "1",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "386661006",
            "display": "Fever"
          }
        ]
      },
      "category": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/condition-category",
            "code": "diagnosis"
          }
        ]
      },
      "clinicalStatus": "resolved",
      "verificationStatus": "confirmed",
      "onsetDateTime": "2015-06-22T00:00:00-05:00"
    },
    {
      "resourceType": "Condition",
      "id": "2",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "236578006",
            "display": "Chronic rejection of renal transplant"
          }
        ]
      },
      "clinicalStatus": "resolved",
      "verificationStatus": "confirmed",
      "onsetDateTime": "2011-12-31T00:00:00-06:00"
    }
  ]
}

```



```

    },
    {
      "resourceType": "Condition",
      "id": "3",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "59621000",
            "display": "Essential hypertension"
          }
        ]
      },
      "clinicalStatus": "resolved",
      "verificationStatus": "confirmed",
      "onsetDateTime": "2011-10-05T00:00:00-05:00"
    }
  ],
  "status": "current",
  "mode": "working",
  "entry": [
    {
      "item": {
        "reference": "#1"
      }
    },
    {
      "item": {
        "reference": "#2"
      }
    },
    {
      "item": {
        "reference": "#3"
      }
    }
  ]
}

```

Medication

API – HCServices/fhir/1.0/Medication/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Medication/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/Medication/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {

```

```

"resourceType": "MedicationStatement",
"id": "1",
"status": "active",
"effectiveDateTime": "2015-06-22T00:00:00-05:00",
"medicationCodeableConcept": {
  "coding": [
    {
      "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
      "code": "309090",
      "display": "Ceftriaxone 100MG/ML"
    }
  ]
},
"dosage": [
  {
    "route": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "display": "INTRAVENOUS"
        }
      ]
    }
  }
]
},
{
"resourceType": "MedicationStatement",
"id": "2",
"status": "active",
"effectiveDateTime": "2015-06-22T00:00:00-05:00",
"medicationCodeableConcept": {
  "coding": [
    {
      "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
      "code": "209459",
      "display": "Tylenol 500mg"
    }
  ]
},
"dosage": [
  {
    "route": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "display": "ORAL"
        }
      ]
    }
  }
]
},
{
"resourceType": "MedicationStatement",
"id": "3",
"status": "active",
"effectiveDateTime": "2015-06-22T00:00:00-05:00",
"medicationCodeableConcept": {
  "coding": [
    {

```

```

      "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
      "code": "731241",
      "display": "Aranesp 0.5 MG/ML"
    }
  ]
},
"dosage": [
  {
    "route": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "display": "INTRAVENOUS"
        }
      ]
    }
  }
]
},
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#2"
    }
  },
  {
    "item": {
      "reference": "#3"
    }
  }
]
}

```

Allergy

API – HCServices/fhir/1.0/Allergy/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Allergy/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/Allergy/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {

```

```

"resourceType": "AllergyIntolerance",
"id": "1",
"onset": "1980-05-01T00:00:00-05:00",
"substance": {
  "coding": [
    {
      "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
      "code": "7980",
      "display": "Penicillin G"
    }
  ]
},
"category": "medication",
"reaction": [
  {
    "manifestation": [
      {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "247472004",
            "display": "Hives/Rash"
          }
        ]
      }
    ],
    "severity": "moderate"
  }
]
},
{
  "resourceType": "AllergyIntolerance",
  "id": "2",
  "onset": "1980-05-01T00:00:00-05:00",
  "substance": {
    "coding": [
      {
        "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
        "code": "733",
        "display": "Ampicillin"
      }
    ]
  },
  "category": "medication",
  "reaction": [
    {
      "manifestation": [
        {
          "coding": [
            {
              "system": "http://snomed.info/sct",
              "code": "247472004",
              "display": "Hives/Rash"
            }
          ]
        }
      ],
      "severity": "moderate"
    }
  ]
}

```

```

],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#2"
    }
  }
]
}

```

Immunization

API – HCServices/fhir/1.0/Immunization/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Immunization/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date="](https://<server>/HCServices/fhir/1.0/Immunization/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Immunization",
      "id": "1",
      "status": "completed",
      "date": "2012-01-04T00:00:00-06:00",
      "vaccineCode": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/sid/cvx",
            "code": "106"
          }
        ]
      },
      "wasNotGiven": false,
      "reported": false
    },
    {
      "resourceType": "Immunization",
      "id": "2",
      "status": "completed",
      "date": "2014-05-10T00:00:00-05:00",
      "vaccineCode": {
        "coding": [
          {

```

```

        "system": "http://hl7.org/fhir/sid/cvx",
        "code": "88"
      }
    ]
  },
  "wasNotGiven": false,
  "reported": false
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#2"
    }
  }
]
}

```

Vital Signs

API – HCServices/fhir/1.0/VitalSigns/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/VitalSigns/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/VitalSigns/1234.json?state=)

Response JSON format

```

{
  "resourceType": "Bundle",
  "type": "collection",
  "entry": [
    {
      "resource": {
        "resourceType": "Bundle",
        "type": "batch",
        "entry": [
          {
            "resource": {
              "resourceType": "Observation",
              "status": "final",
              "code": {
                "coding": [
                  {
                    "system": "http://loinc.org",
                    "code": "55284-4",
                    "display": "Blood pressure systolic & diastolic"
                  }
                ]
              }
            }
          }
        ]
      }
    }
  ]
}

```

```

    }
  ]
},
"effectiveDateTime": "2015-06-22T15:15:00-05:00",
"component": [
  {
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "8462-4",
          "display": "Diastolic blood pressure"
        }
      ]
    },
    "valueQuantity": {
      "value": 39.92,
      "unit": "mm[Hg]"
    }
  }
]
},
{
  "resource": {
    "resourceType": "Observation",
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "9279-1",
          "display": "Respiratory rate"
        }
      ]
    },
    "effectiveDateTime": "2015-06-22T15:15:00-05:00",
    "valueQuantity": {
      "value": 8.16,
      "unit": "breaths/minute",
      "system": "http://unitsofmeasure.org",
      "code": "/min"
    }
  }
},
{
  "resource": {
    "resourceType": "Observation",
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "8867-4",
          "display": "Pulse rate"
        }
      ]
    },
    "effectiveDateTime": "2015-06-22T15:15:00-05:00",
    "valueQuantity": {
      "value": 36.29,

```

```

        "unit": "beats/minute",
        "system": "http://unitsofmeasure.org",
        "code": "/min"
    }
}
]
}
]
}

```

Lab Data

API – HCServices/fhir/1.0/LabData/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/LabData/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/LabData/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "DiagnosticReport",
      "id": "1",
      "status": "final",
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "5778-6",
            "display": "Color of Urine"
          }
        ]
      },
      "effectiveDateTime": "2015-06-22T00:00:00-05:00",
      "result": [
        {
          "reference": "#2"
        }
      ]
    },
    {
      "resourceType": "Observation",
      "id": "2",
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct"
          }
        ]
      }
    }
  ]
}

```



```

    },
    "interpretation": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/v2/0078",
          "code": "N"
        }
      ]
    },
    "referenceRange": [
      {
        "text": "YELLOW"
      }
    ]
  },
  {
    "resourceType": "DiagnosticReport",
    "id": "3",
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "5767-9",
          "display": "Appearance of Urine"
        }
      ]
    },
    "effectiveDateTime": "2015-06-22T00:00:00-05:00",
    "result": [
      {
        "reference": "#4"
      }
    ]
  },
  {
    "resourceType": "Observation",
    "id": "4",
    "code": {
      "coding": [
        {
          "system": "http://snomed.info/sct"
        }
      ]
    },
    "interpretation": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/v2/0078",
          "code": "N"
        }
      ]
    },
    "referenceRange": [
      {
        "text": "CLEAR"
      }
    ]
  },
  {
    "resourceType": "DiagnosticReport",

```

```

    "id": "5",
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "5811-5",
          "display": "Specific gravity of Urine by Test strip"
        }
      ]
    },
    "effectiveDateTime": "2015-06-22T00:00:00-05:00",
    "result": [
      {
        "reference": "#6"
      }
    ]
  },
  {
    "resourceType": "Observation",
    "id": "6",
    "valueQuantity": {
      "value": 1.015,
      "system": "http://unitsofmeasure.org",
      "code": "1"
    },
    "interpretation": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/v2/0078",
          "code": "N"
        }
      ]
    },
    "referenceRange": [
      {
        "text": " 1.005 1.030"
      }
    ]
  },
  {
    "resourceType": "DiagnosticReport",
    "id": "7",
    "status": "final",
    "code": {
      "coding": [
        {
          "system": "http://loinc.org",
          "code": "5803-2",
          "display": "pH of Urine by Test strip"
        }
      ]
    },
    "effectiveDateTime": "2015-06-22T00:00:00-05:00",
    "result": [
      {
        "reference": "#8"
      }
    ]
  },
  {

```

```

"resourceType": "Observation",
"id": "8",
"valueQuantity": {
  "value": 5.0,
  "unit": "pH",
  "system": "http://unitsofmeasure.org",
  "code": "[pH]"
},
"interpretation": {
  "coding": [
    {
      "system": "http://hl7.org/fhir/v2/0078",
      "code": "N"
    }
  ]
},
"referenceRange": [
  {
    "text": " 5.0 8.0"
  }
]
},
{
  "resourceType": "DiagnosticReport",
  "id": "9",
  "status": "final",
  "code": {
    "coding": [
      {
        "system": "http://loinc.org",
        "code": "5792-7",
        "display": "Glucose [Mass/volume] in Urine by Test strip"
      }
    ]
  },
  "effectiveDateTime": "2015-06-22T00:00:00-05:00",
  "result": [
    {
      "reference": "#10"
    }
  ]
},
{
  "resourceType": "Observation",
  "id": "10",
  "valueQuantity": {
    "value": 50.0,
    "unit": "mg/dL",
    "system": "http://unitsofmeasure.org",
    "code": "mg/dL"
  },
  "interpretation": {
    "coding": [
      {
        "system": "http://hl7.org/fhir/v2/0078",
        "code": "N"
      }
    ]
  }
}
},
{

```

```

"resourceType": "DiagnosticReport",
"id": "11",
"status": "final",
"code": {
  "coding": [
    {
      "system": "http://loinc.org",
      "code": "5797-6",
      "display": "Ketones [Mass/volume] in Urine by Test strip"
    }
  ]
},
"effectiveDateTime": "2015-06-22T00:00:00-05:00",
"result": [
  {
    "reference": "#12"
  }
]
},
{
"resourceType": "Observation",
"id": "12",
"code": {
  "coding": [
    {
      "system": "http://snomed.info/sct",
      "code": "260385009",
      "display": "Negative (qualifier value)"
    }
  ]
},
"interpretation": {
  "coding": [
    {
      "system": "http://hl7.org/fhir/v2/0078",
      "code": "N"
    }
  ]
}
},
{
"resourceType": "DiagnosticReport",
"id": "13",
"status": "final",
"code": {
  "coding": [
    {
      "system": "http://loinc.org",
      "code": "5804-0",
      "display": "Protein [Mass/volume] in Urine by Test strip"
    }
  ]
},
"effectiveDateTime": "2015-06-22T00:00:00-05:00",
"result": [
  {
    "reference": "#14"
  }
]
},
{

```

```

"resourceType": "Observation",
"id": "14",
"valueQuantity": {
  "value": 100.0,
  "unit": "mg/dL",
  "system": "http://unitsofmeasure.org",
  "code": "mg/dL"
},
"interpretation": {
  "coding": [
    {
      "system": "http://hl7.org/fhir/v2/0078",
      "code": "N"
    }
  ]
}
},
{
  "resourceType": "DiagnosticReport",
  "id": "15",
  "status": "final",
  "code": {
    "coding": [
      {
        "system": "http://loinc.org",
        "display": "Chest X-ray 2 Views"
      }
    ]
  },
  "effectiveDateTime": "2015-06-22T00:00:00-05:00",
  "result": [
    {
      "reference": "#16"
    }
  ]
},
{
  "resourceType": "Observation",
  "id": "16",
  "code": {
    "coding": [
      {
        "system": "http://snomed.info/sct"
      }
    ]
  }
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#3"
    }
  }
],

```

```

{
  "item": {
    "reference": "#5"
  }
},
{
  "item": {
    "reference": "#7"
  }
},
{
  "item": {
    "reference": "#9"
  }
},
{
  "item": {
    "reference": "#11"
  }
},
{
  "item": {
    "reference": "#13"
  }
},
{
  "item": {
    "reference": "#15"
  }
}
]
}

```

Procedures

API – HCServices/fhir/1.0/Procedures/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Procedures/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date="](https://<server>/HCServices/fhir/1.0/Procedures/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Procedure",
      "id": "1",
      "status": "completed",
      "code": {
        "coding": [
          {
            "system": "http://www.ama-assn.org/go/cpt",

```

```

        "code": "175135009"
      }
    ]
  },
  "performedDateTime": "2011-10-05T00:00:00-05:00"
},
{
  "resourceType": "Procedure",
  "id": "2",
  "status": "completed",
  "code": {
    "coding": [
      {
        "system": "http://www.ama-assn.org/go/cpt",
        "code": "56251003"
      }
    ]
  },
  "performedDateTime": "2015-06-22T00:00:00-05:00"
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#2"
    }
  }
]
}

```

Medical Devices

API – HCServices/fhir/1.0/MedicalDevices/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/MedicalDevices/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/MedicalDevices/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Device",
      "id": "1",
      "type": {

```

```

    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "704708004",
        "display": "Cardiac resynchronization therapy implantable pacemaker"
      }
    ]
  },
  "status": "not-available",
  "udi": "(01)00643169007222(17)160128(21)BLC200461H"
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  }
]
}

```

Health Concerns

API – HCServices/fhir/1.0/HealthConcern/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/HealthConcern/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/HealthConcern/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Condition",
      "id": "1",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",
            "code": "83986005",
            "display": "Severe Hypothyroidism"
          },
          {
            "system": "http://snomed.info/sct",
            "code": "238131007",
            "display": "Overweight"
          }
        ]
      }
    }
  ]
}

```



```

    ]
  },
  "category": {
    "coding": [
      {
        "system": "http://hl7.org/fhir/condition-category",
        "code": "complaint"
      }
    ]
  },
  "clinicalStatus": "resolved",
  "verificationStatus": "confirmed"
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  }
]
}

```

Goals

API – HCServices/fhir/1.0/Goals/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Goals/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/Goals/1234.json?state=)

Response JSON format

```

{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "Goal",
      "id": "1",
      "extension": [
        {
          "url": "http://hl7.org/fhir/StructureDefinition/goal-target",
          "extension": [
            {
              "url": "measure",
              "valueCodeableConcept": {
                "coding": [
                  {
                    "system": "http://loinc.org",
                    "code": "58144-7"
                  }
                ]
              }
            }
          ]
        }
      ]
    }
  ]
}

```

```

        }
      }
    ]
  }
],
"startDate": "2015-06-22",
"description": "Get rid of intermittent fever that is occurring every few
weeks.",
"status": "accepted",
"author": {
  "display": "patient"
}
},
{
  "resourceType": "Goal",
  "id": "2",
  "extension": [
    {
      "url": "http://hl7.org/fhir/StructureDefinition/goal-target",
      "extension": [
        {
          "url": "measure",
          "valueCodeableConcept": {
            "coding": [
              {
                "system": "http://loinc.org",
                "code": "58144-7"
              }
            ]
          }
        }
      ]
    }
  ]
},
"startDate": "2015-06-22",
"description": "Need to gain more energy to do regular activities.",
"status": "accepted",
"author": {
  "display": "patient"
}
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  },
  {
    "item": {
      "reference": "#2"
    }
  }
]
}

```

Care Team

API – HCServices/fhir/1.0/CareTeam/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/CareTeam/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/CareTeam/1234.json?state=)

Response JSON format

```
{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "EpisodeOfCare",
      "id": "1",
      "status": "active",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "careManager": {
        "display": "Albert Davis"
      }
    },
    {
      "resourceType": "EpisodeOfCare",
      "id": "2",
      "status": "active",
      "patient": {
        "display": "Alice Jones Newman1"
      },
      "careTeam": [
        {
          "member": {
            "display": "Tracy Davis"
          }
        }
      ]
    }
  ],
  "status": "current",
  "mode": "working",
  "entry": [
    {
      "item": {
        "reference": "#1"
      }
    },
    {
      "item": {
        "reference": "#2"
      }
    }
  ]
}
```

Assessment

API – HCServices/fhir/1.0/Assessment/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/Assessment/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/Assessment/1234.json?state=)

Response JSON format

```
{
  "resourceType": "Bundle",
  "type": "collection",
  "entry": [
    {
      "resource": {
        "resourceType": "CarePlan",
        "text": {
          "status": "additional",
          "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\">The patient was
found to have fever and Dr Davis is suspecting Anemia based on the patient
history. So Dr Davis asked the patient to closely monitor the temperature and
blood pressure and get admitted to Community Health Hospitals if the fever does
not subside within a day.</div>"
        },
        "status": "active",
        "description": "The patient was found to have fever and Dr Davis is
suspecting Anemia based on the patient history. So Dr Davis asked the patient to
closely monitor the temperature and blood pressure and get admitted to Community
Health Hospitals if the fever does not subside within a day."
      }
    }
  ]
}
```

Treatment Plan

API – HCServices/fhir/1.0/TreatmentPlan/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/TreatmentPlan/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/TreatmentPlan/1234.json?state=)

Response JSON format

```
{
  "resourceType": "List",
  "contained": [
    {
      "resourceType": "CarePlan",
```

```

"id": "1",
"status": "active",
"activity": [
  {
    "detail": {
      "category": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/care-plan-activity-category",
            "code": "observation"
          }
        ]
      },
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "24357-6",
            "display": "Urinalysis macro (dipstick) panel"
          }
        ]
      },
      "prohibited": false
    }
  },
  {
    "detail": {
      "category": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/care-plan-activity-category",
            "code": "observation"
          }
        ]
      },
      "code": {
        "coding": [
          {
            "system": "http://loinc.org",
            "code": "34534-8",
            "display": "EKG 12 channel panel"
          }
        ]
      },
      "prohibited": false
    }
  },
  {
    "detail": {
      "category": {
        "coding": [
          {
            "system": "http://hl7.org/fhir/care-plan-activity-category",
            "code": "observation"
          }
        ]
      },
      "code": {
        "coding": [
          {
            "system": "http://snomed.info/sct",

```

```

        "code": "168731009",
        "display": "Chest X-ray"
    }
  ],
  },
  "prohibited": false
}
},
{
  "detail": {
    "category": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/care-plan-activity-category",
          "code": "drug"
        }
      ]
    },
    "code": {
      "coding": [
        {
          "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
          "code": "284215",
          "display": "Clindamycin 300mg"
        }
      ]
    },
    "prohibited": false
  }
},
{
  "detail": {
    "category": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/care-plan-activity-category",
          "code": "encounter"
        }
      ]
    },
    "code": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "11429006",
          "display": "consultation"
        }
      ]
    },
    "prohibited": false
  }
}
],
}
],
"status": "current",
"mode": "working",
"entry": [
  {
    "item": {
      "reference": "#1"
    }
  }
]

```

```

    }
  }
]
}

```

Smoking Status

API – HCServices/fhir/1.0/SmokingStatus/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/SmokingStatus/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date="](https://<server>/HCServices/fhir/1.0/SmokingStatus/1234.json?state=)

Response JSON format

```

{
  "resourceType": "Observation",
  "status": "final",
  "category": {
    "coding": [
      {
        "system": "http://hl7.org/fhir/observation-category",
        "code": "social-history",
        "display": "Social History"
      }
    ]
  },
  "code": {
    "coding": [
      {
        "system": "http://loinc.org",
        "code": "72166-2",
        "display": "Tobacco smoking status"
      }
    ],
    "text": "Tobacco smoking status"
  },
  "effectiveDateTime": "2017-08-04T13:21:13-05:00",
  "valueCodeableConcept": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "449868002",
        "display": "Current every day smoker"
      }
    ],
    "text": "Current every day smoker"
  }
}

```

Patient Data

API – HCServices/fhir/1.0/PatientData/{patientId}.json

Sample request –

[https://<server>/HCServices/fhir/1.0/PatientData/1234.json?state=""&startDate="07/05/2016"&endDate="07/05/2017"&date=""](https://<server>/HCServices/fhir/1.0/PatientData/1234.json?state=)

Response JSON format

```
[{fileName=Clinical Document.xml, contentType=text/xml, content=YJFYi+sADwi15qQmiSoX+TvOEsvoylWNohRzpcYRoy2EuqHE95SwhuSKg..., documentDate=null}]
```

Attributes	Description
File name	Name of the file
Content type	Content type (text/xml)
Content	CCDA data (base64 encoded)
Document date	Date

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