



Enable Healthcare Inc



Version 1.0

Open API Utilization Instructions



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Introduction

Our MDNET API is open to users (EHR vendors) to access Protected Health Information (PHI). This guide covers our three open web services:

- **PatientSelection-170.315(g)(7):** Get the unique identifier of a patient record stored in users' MDNET account matching the given query parameters (Name, DOB, Gender, MRN#, ChartID). The querying application can use the returned identifier to fetch patient's other medical records (medications, allergies etc).
- **PatientDataBy CCDAs Segments- 170.315(g)(8) and 170.315(g)(9):** Export medical records of a patient in HL7 CCDAs format. By default, the API exports all records of the patient across dates.
- **PatientMostRecentData by Date Range:** User can utilize the optional query parameters to filter the records by date range. To get the records on a specific date, give the same date in 'from_date' and 'to_date' parameters.

Common Clinical Data Set is defined by The Office of the National Coordinator for Health Information Technology (ONC).

Webservice Link: https://reports.ehiconnect.com/ws/ws_ehiccda.asmx

****Users will not be able to change, edit, or otherwise alter patient data using our API.***

Requesting Access to MDNET web services

-Get Access Key- API Key is practice specific and provided by the administrator or authorized representative of the practice.

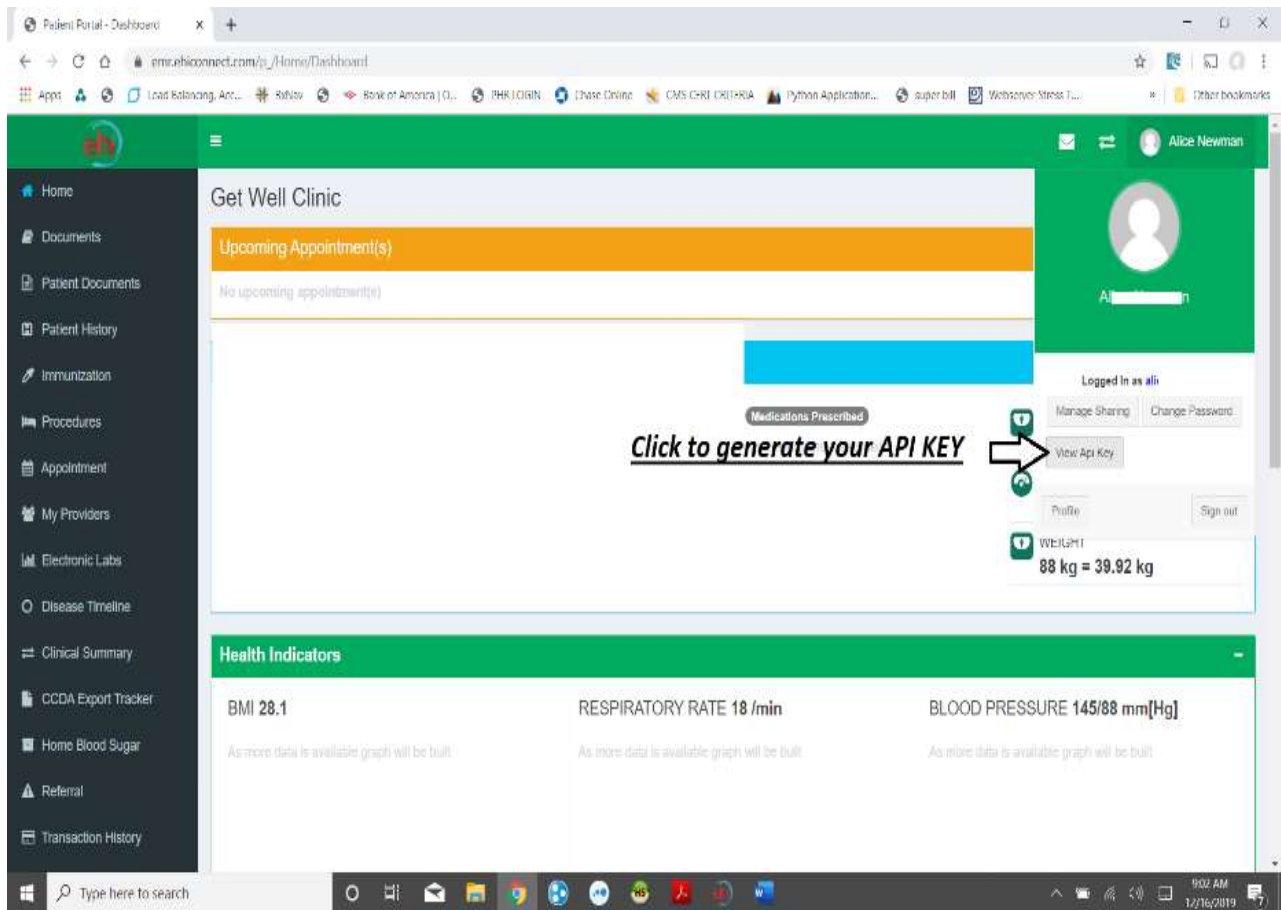


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How to Request

For Healthcare Technology Vendors authorized by practice administrator or practice owner to access data on their behalf : Please request an authorized user from the practice to generate a ticket after logging into <https://emr.ehiconnect.com> with their credentials.

For Patients who have an activated PHR: See below snapshot, all PHR are automatically activated for API access. The API key specific to a PHR login can be retrieved as shown below:



CONNECTING TO THE API SERVER

- The API server is accessed by clients through an https connection.
- **IMPORTANT:** Local customer security policies must be in place to prevent unauthorized monitoring or eavesdropping of connections to the server.
- **Note:** Only SSL 3.0/TLS 1.3 connections are accepted.



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FOR PATIENT

STEP 1: Use your Api Key to generate access token. Generate access token needs to be passed to GetCCDA.

Function: GetAccessKey

Input Parameters:

Name	Value
KEY	Valid Api Key should be passed

Output Parameters:

Name	Value
EHIResponse	Returns ErrorCode and ErrorMessage. Access Token is returned in ErrorMessage when ErrorCode is 0 otherwise it will have error message.

Example C# code:

```

WS_EHICCD.A.EHIResponse oResponse = oWs.GetAccessKey("40318F4A1154FA6E595700D64FF4553");
if (oResponse.ErrorCode == 0) {
    string sToken = oResponse.Message;
}

```

STEP 2: Call GetCCDA to get Health Data

Before calling GetCCDA, create object of PatientDemographic with value set for search parameters FIRSTNAME, LASTNAME, DOB and GENDER. Rest of the search parameters are not to be used/not required.

Additionally, you need to create Segments object which will allow you to get data for specific sections or all sections.

Function: GetCCDA

Input Parameters:

Name	Value
AccessKey	Access Token returned by GetAccessKey function should be passed here
PatientDemographic	PatientDemographic Object with patient search parameters set FIRSTNAME, LASTNAME, DOB and GENDER
Segments Array	Segments Object array needs to be passed. This parameter control what all data is returned in CCDA.
DataStartDate	Please specify start date in YYYY-MM-DD format if you wish to get health data for specific date range otherwise leave it blank
DataEndDate	Please specify end date in YYYY-MM-DD format if you wish to get health data for specific date range otherwise leave it blank
DocumentType	Available options are CCD, ReferralNote, CarePlan, ConsultationNote, ProcedureNote, TransferOfSummary, Unstruct



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Output Parameters:

Name	Value
EHIResponse	Returns ErrorCode and ErrorMessage. Health data is returned in PatientCCDAFiles[0].FileData as bytes when ErrorCode is 0 otherwise refer ErrorMessage for error information

Example C# code:

All sections of CCDA:

```

WS_EHICCDAPatientDemographic oPatient = new WS_EHICCDAPatientDemographic();
WS_EHICCDASegments[] oSegments = new WS_EHICCDASegments[1];
oPatient.FIRSTNAME = "Alice";
oPatient.LASTNAME = "Newman";
oPatient.DOB = "1970-05-01";
oPatient.GENDER = WS_EHICCDAGender.Female;
oSegments[0] = WS_EHICCDASegments.ALL;
oResponse = oWs.GetCCDA(sToken, oPatient, oSegments, "", "",
WS_EHICCDADocumentType.CCD);

```

Specific sections of CCDA with Date Range:

```

WS_EHICCDAPatientDemographic oPatient = new WS_EHICCDAPatientDemographic();
WS_EHICCDASegments[] oSegments = new WS_EHICCDASegments[3];
oPatient.FIRSTNAME = "Alice";
oPatient.LASTNAME = "Newman";
oPatient.DOB = "1970-05-01";
oPatient.GENDER = WS_EHICCDAGender.Female;
oSegments[0] = WS_EHICCDASegments.MEDICATIONS;
oSegments[1] = WS_EHICCDASegments.PROBLEMS;
oSegments[2] = WS_EHICCDASegments.LABRESULTS;
oResponse = oWs.GetCCDA(sToken, oPatient, oSegments, "2015-06-22", "2015-06-22",
WS_EHICCDADocumentType.CCD);

```

FOR HEALTHCARE VENDORS

STEP 1: Use your Api Key to generate access token. Generate access token needs to be passed to GetCCDA.

Function: GetAccessKey

Input Parameters:

Name	Value
KEY	Valid Api Key should be passed

Output Parameters:

Name	Value
------	-------



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EHIResponse	Returns ErrorCode and ErrorMessage. Access Token is returned in ErrorMessage when ErrorCode is 0 otherwise it will have error message.
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Example C# code:

```
WS_EHICCD.A.EHIResponse oResponse = oWs.GetAccessKey("40318F4A1154FA6E595700D64FF4553");
if (oResponse.ErrorCode == 0) {
    string sToken = oResponse.Message;
}
```

STEP 2: Call GetCCDA to get Health Data

Before calling GetCCDA, create object of PatientDemographic with value set for search parameters FIRSTNAME, LASTNAME, DOB and GENDER. Vendor can also use other search parameters like MRN, CHARTID, PTRPI for searching patient. ENO parameter can be used to get data for specific visit.

Additionally, you need to create Segments object which will allow you to get data for specific sections or all sections.

Function: GetCCDA

Input Parameters:

Name	Value
AccessKey	Access Token returned by GetAccessKey function should be passed here
PatientDemographic	PatientDemographic Object with patient search parameters set FIRSTNAME, LASTNAME, DOB and GENDER
Segments Array	Segments Object array needs to be passed. This parameter control what all data is returned in CCDA.
DataStartDate	Please specify start date in YYYY-MM-DD format if you wish to get health data for specific date range otherwise leave it blank
DataEndDate	Please specify end date in YYYY-MM-DD format if you wish to get health data for specific date range otherwise leave it blank
DocumentType	Available options are CCD, ReferralNote, CarePlan, ConsultationNote, ProcedureNote, TransferOfSummary, Unstruct

Output Parameters:

Name	Value
EHIResponse	Returns ErrorCode and ErrorMessage. Health data is returned in PatientCCDAFiles[0].FileData as bytes when ErrorCode is 0 otherwise refer ErrorMessage for error information

Example C# code:

All sections of CCDA:

```
WS_EHICCD.A.PatientDemographic oPatient = new WS_EHICCD.A.PatientDemographic();
WS_EHICCD.A.Segments[] oSegments = new WS_EHICCD.A.Segments[1];
```



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```
oPatient.FIRSTNAME = "Alice";
oPatient.LASTNAME = "Newman";
oPatient.DOB = "1970-05-01";
oPatient.GENDER = WS_EHICCCA.Gender.Female;
oSegments[0] = WS_EHICCCA.Segments.ALL;
oResponse = oWs.GetCCDA(sToken, oPatient, oSegments, "", "",
WS_EHICCCA.DocumentType.CCD);
```

Specific sections of CCD with Date Range:

```
WS_EHICCCA.PatientDemographic oPatient = new WS_EHICCCA.PatientDemographic();
WS_EHICCCA.Segments[] oSegments = new WS_EHICCCA.Segments[3];
oPatient.CHARTID = "100-10-1224";
oSegments[0] = WS_EHICCCA.Segments.MEDICATIONS;
oSegments[1] = WS_EHICCCA.Segments.PROBLEMS;
oSegments[2] = WS_EHICCCA.Segments.LABRESULTS;
oResponse = oWs.GetCCDA(sToken, oPatient, oSegments, "2015-06-22", "2015-06-22",
WS_EHICCCA.DocumentType.CCD);
```

There are three web services available that utilize our Open API to access patient information:

- **Patient Selection**– This web service allows you to submit identifying patient information and receive in return, an MDNET ID number unique to the patient. You can then use this to make calls to the other two web services.
- **Patient Data by CCD Segments**– This web service will return clinical information restricted to the segments (clinical) you request. Use the patient identifier received from the Patient Identifier web service described above. The entire request will be rejected if any unsupported category is submitted.
- **PatientMostRecentData (Date Range)** – This web service will return the most recent data in a specified date range for the patient, as a Continuity of Care Document.

Obtain a Patient’s Account Number

API will search for patients that match one or more of the parameters given below and return up to 30 patients.			Description/Format	Resource
Input Parameters	Data Type	Optional		



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LASTNAME	String	No	Last Name Of the patient	Patient
FIRSTNAME	String	No	First Name Of the patient	Patient
MRN	String	Yes(conditionally)	Medical Record Number	Patient
DOB	String	No	YYYY-MM-DD (Date of Birth)	Patient
GENDER	String	No	Fixed set of the following search values: Female Male Undifferentiated	Patient
CHARTID	String	Yes(conditionally)	EMR Chart ID (AlphaNumeric)	Patient

Each patient returned in the search results is assigned a unique patient Chart ID that can be found in the Patient Chart id element of the corresponding Patient resource. This patient Chart ID can be included in subsequent requests to retrieve additional resources for that specific patient. In case of multiple patient result, retry by input methods-Patient MRN# OR Chart ID.

- It is mandatory to pass at least one of the following parameters: FIRSTNAME, LASTNAME, DOB, GENDER.
- MRN OR CHARTID (multiple patient result)
- The API matches FIRSTNAME and LASTNAME in a non-case-sensitive manner

Obtain Clinical Data by Segments/AllSegments

- All Clinical Data: This API returns a response containing a Patient Chart Id and XML structured clinical document having data of ALL data categories, if specified in Common Clinical Data Set.
- Data by Category: The API returns a response data of the requested data segments, that contain a Patient Id and XML structured clinical document. This XML structured clinical document is based on CCDA guidelines.
- Client software must be capable of making HTTPS SOAP requests in accordance with the FHIR specification and consuming the following FHIR Resources in order to support the Common Clinical Data Set (CCDS)

MDNET can restrict the output for a patient to specified segments. The segments are:

CCDA Elements	Resource
All	All
Allergy	Known Allergies
Assessment	Assessment
Careplan	Care Plan
Goal	Goal



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Healthconcern	Health Concern
Clinicalinstructions	Clinical Instructions
Encounters	Encounters
Familyhistory	Family History
Functionalstatus	Functional Status
Cognitivestatus	Cognitive Status
Immunizations	Immunization
Medicalequip	Medical Equipments
Medications	Medications/Rx
Labresults	Lab Results
Problems	Problems
Procedures	Procedures/Treatment
Reasonofvisit	Reasonofvisit
Referral	Referral/Follow up
Socialhistory	Social History
Vitals	Vitals

Output format-An XML structured clinical document based on the CCDA guidelines containing data of the requested data segments.

Obtain the Most Recent Data

<p>Get patient CCDA for a limited time range. Response will be the same CCDA as above, except the encounters will be restricted to date range. Input parameters and data type</p> <p>LINK Excel.Sheet.12 "C:\\Users\\nayan\\Desktop\\user journey\\G.xlsx" Sheet3! R1C8:R6C11 \a \f 4 \h *</p> <p>MERGEFORMATXInput</p>	Data Type	Optional	Format
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Parameter			
Access Token	String	No	Alpha-Numeric
Patient Identifier	String	No	PatentDemographic Object
Segments Requested	String	No	at least one Segment is required
Date Range	String	No	'from_date' and 'to_date' (Start and end date are formatted as YYYY-MM- DD)



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Error Codes

Error Code	Description	Action
999	Application Error	Retry or contact the site administrator.
900	Missing Key	Requires an API key. Contact the site administrator.
901	Unable to generate token	Retry. Contact the site administrator.
902	Unable to save token	Retry. Contact the site administrator.
101	Multiple patients found for request	Search returned multiple patients. Identify the Chart ID as a patient identifier.
102	Patient Not Found	If the patient record does not exist for the patient being requested. Retry with Correct Patient Identifiers
103	CCDA Error	If the user calls service patientData with invalid patient identifiers/CCDA category/section name
104	Not an authorized request or used old access key	When the user is not authorized to view requested data. If the user credentials are invalid.
105	Authorization data not proper	Patient identifier data type mismatch will generate this error. Verify the data and Retry
106	Unable to verify access key	Authentication Error- Request contains invalid API key. For example, the API key is not registered or some characters are missing/incorrect in the specified API key.
107	Request Limit Reached	If the user makes too many services calls in a particular time period (10/min), following error will be generated {"Result": "Error: Request Limit Reached 30/minute reached"}. Retry after a few minutes. Note: Please limit your connection frequency to a value appropriate for your use case. Connection attempts which are more frequent than permitted by the bandwidth allocation for the data resource are not allowed.
108	Unable to check request limit	Retry or Contact Site Administrator
200	Not a valid request to find a patient	If following parameters: FirstName, LastName, DOB, Gender do not match Patient MRN# OR Chart ID (If multiple patients) do not match
201	Unable to search patient	Retry or Contact Site Administrator