



DATA INTEROPERABILITY & EHI DATA EXPORT GUIDE

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Introduction:

Enable Healthcare Inc, through its certified Electronic Medical Record platform MDNET V10.0 offers multiple and “always available” data export and data mining technology available services which allows authorized users and patients associated with a medical practice to perform data extraction and retrieval of key healthcare data components from a patient chart (single and bulk mode).

The data export and extractions processes are available in multiple methods explained below.

Enable Healthcare, Inc also works with technology vendors and data aggregators to reduce the implementation time, assist in building a clean longitudinal health record of the patient, remove any need of maintaining a tracking database and overall provide a more real time information and updates on the health record of the patient. Enable Healthcare, Inc offers this as an add-on additional service and the methods & benefits of this implementation will be explained in this document. This add-on service is a combination of CCDA R2.1, HL7, EDI and custom JSON data formats. The add-on service is designed on a “ANNOUNCE & DELIVER” model, whereby the data aggregator is not required to maintain any queue or logic of records they need to get the data for.



Scope of Export of Electronic health information

Enable Healthcare focuses on a set of health record information that entities authorized by a practice or provider need to collect and manage. The scope of data exports is primarily around the below components.

- a) Health Data stored in MDNet v10.0 which has been captured by the practice or received electronically related to a medical record.
- b) Financial data stores in MDNet v10.0 which has been captured by the practice or received electronically related to a medical record. This includes claim, adjudication and all other related data sets

Types of Exports offered by

- 1) **FHIR API's**- Utilize and leverage MDNet's FHIR API which are designed for structured, accurate and organized data exchange and interoperability. All Information related to registration, detailed documentation and testing sandbox are available at the URL

<https://fhir.ehiconnect.com/ehifhirportal/>

- 2) **Integrated and on demand CCD R2.1 bulk or single export:** Authorized users of a practice who have been granted required access to the MDNet's integrated CCD R2.1 Export tracker can set up one time or scheduled task to provide the data consumer with a FULL SET, Partial date based, Partial Segment based or a clean incremental update on a patient chart or health record. Enable Healthcare, Inc CCD R2.1 implementation covers all the required segments as published under. Please refer to training videos embedded into MDNet and accessible by authorized users.



- 3) **CSV full data set export**- MDNet allows the authorized users to request for detailed export of health , activity and financial data related to a specific patients or all patients. The data set is available in machine readable CSV-**Comma-separated values** files. More information related to CSV files can be found at https://en.wikipedia.org/wiki/Comma-separated_values . Data dictionary and data format with detailed explanation can be found at <https://emr.ehiconnect.com/docs/>
- 4) HL7 2.x or 3.X ADT: Used to provide real time updates on new patient chart creation, chart updates across demographics and payer information. This service also allows a technology vendor to supply back the internal data aggregators patient unique identifier in the ACK which thereafter is utilized by MDNET in all its future outbound transactions to the vendor across all data payloads wherever it is supported.
- 5) HL7 2.x SIU: Used to implement real time updates on patient appointments, appointment edits, appointments cancelation and check-in.
- 6) HL7 2.x DFT: Used to implement real time updates on patient appointments, appointment edits, appointments cancelation and check-in.
- 7) JSON based Exchange on Scanned documents, faxes and custom reports : Used to provide real time exchange of all scanned documents, faxes across all or specific folders using JSON as the payload. The JSON provides segments for patient identification and the actual scanned document content is sent in as a compressed BASE-64 encoded text
- 8) EDI 837P and 835 Claims files- Used typically to provide healthcare data aggregator with continuous feed of all claim EDI 837P and EDI 835 files created for the practice.



Optional Service- Implementation of CCDA R2.1 Full set and Incremental data

- 1) Data Exchange Bridge: Enable Healthcare supports multiple data exchange methodologies depending on what suits the data consumers workflow and technical capabilities.
 - a. VPN Based P2P secure tunnel
 - i. Real time data feed push over the tunnel
 - ii. Support for ACK and NACK (re-queue and retry in case of negative ACK)
 - iii. FIFO (First in First out) auto implemented in queue. If the interface breaks, the data exchange is resumed from the transaction which failed keeping the queue sanity in order.
 - iv. Most suited for healthcare transactions to maintain integrity of health records and incremental data.
 - b. SFTP Hosted by Enable Healthcare
 - i. Enable Healthcare will host a SFTP for the data aggregator to make manual or automated data fetch request.
 - ii. Data consumer must maintain integrity of FIFO
 - c. SFTP Hosted by Data Consumer
 - i. Enable Healthcare will drop the queue in an orderly fashion to a SFTP hosted by the data consumer.
 - ii. Data consumer must maintain integrity of FIFO while reading data.
 - d. Web Service Hosted by Enable Healthcare
 - i. Data consumers will make a secure call to a HTTPS based web service with the required authentication and practice parameters.
 - ii. The web service hosted by Enable Healthcare will return a list of internal patient identifiers in an array which have changes to incremental data and are eligible to be download.



- iii. Data consumer will utilize this array and make cyclic calls for each patient identifier returned in array and this service would return an CCD A R2.1 with the incremental data in compressed and encrypted format.
- iv. If due to any reason the data consumers automated process reaches an exception or execution breaks, they can go back to step (i) and this time only those patient records will be returned who were not fetched in step (ii)

2) Data Payload Specifications and implementation process

- a. Payload Contents: The CCD A R2. 1 will always send all the required segments always. If a qualifying data set is not found the element will still be sent across still with a NULL flavor supported by the CCD A R2.1 framework. The health record elements which are a part of the CCD A are:

- i. Allergy
- ii. Assessment
- iii. Encounters
- iv. Family History
- v. Functional Status
- vi. Cognitive status
- vii. Immunizations
- viii. Medical equipment
- ix. Medications
- x. Lab results
- xi. Problems
- xii. Procedures
- xiii. Reason for Visit
- xiv. Referrals
- xv. Social History
- xvi. Vitals
- xvii. Care plan
- xviii. Goal
- xix. Health Concern
- xx. Clinical Instructions

- b. Transactional Process:

- i. The data consumer will be provided with a FULL SET CCD A (can be modified to generate back data within a limited time frame).
- ii. The data consumer will confirm back that they have processed all the FULL SET CCD A's and are ready to receive incremental data.
- iii. Enable healthcare will start queuing all incremental data sets via the chosen data exchange bridge.



- c. Incremental Data Specifications and options:
- i. All incremental data is calculated based on last human or system insert/edit time. System edits usually takes place in cases where the practice has an inbound data feed with a Lab, radiology center or other HIE's
 - ii. Incremental data supports a "sign off" mechanism for most of the data elements listed above which primarily marks a data as "ready to be transmitted" only when an authorized physician has reviewed and signed off. It is up to the practice and data consumer to either turn this ON or OFF.
 - iii. Incremental data identification routines are not bound to any visit date or encounter date. Which means if a visit from 1 year ago is altered today and a new diagnosis and E/M code are added today with a date of service of old visit the engine would still queue this record as an incremental edit, though the specific Problem item and Procedure Item original date of occurrence date events will be sent indicating the original date.
- d. Use case explaining how the process would be executed in production environment
- i. A practice in NY partners with a data aggregator (referred to as "DA").
 - ii. Practice authorizes Enable Healthcare to allow DA to fetch patient records for all Medicare HMO patients
 - iii. DA chooses VPN P2P as the data exchange mechanism.
 - iv. Enable configures the eligible payer list for which CCD R2.1 will be made available to DA (Incase of ALL Patients, no such configuration step is required)
 - v. On a Friday evening, Enable Healthcare provides FULL SET CCD R2.1 for all the 1500 patients in practice.
 - 1. The interface is at a STOP state at this point
 - vi. DA confirms on Tuesday morning that all the FULL SET CCD R2.1 have been processed and they are ready to process incremental data.
 - 1. Enable Healthcare at this point changes the interfaces status to "START"
 - vii. All incremental CCD R2.1 for patient records who went through an edit or addition between the last transmission time are queued and passed over the VPN P2P tunnel.
 - viii. Tuesday morning one of the physicians in the practice sees a patient JOHN DOE who has been under the care of physician for last 2 years. JOHN DOE's latest CCD R2.1 is already available with DA.
 - 1. The physician while reviewing the health record and symptoms discovers that the patient has developed an allergy to amoxicillin. The physicians append this under the patients' medical record and records reactions.
 - 2. The physician also provides an influenza vaccine and orders HBA1C and asks patient to report back for another appointment in 2 days.



3. The system on the identifies these edits and creates a CCDA R2.1 with following elements and all other elements with NULL Flavor.
 - a. Encounter (with todays visit information and provider information)
 - b. Allergy
 - i. Only one record with ACTIVE status which is added today will be reported. All other previous entries will not be sent as they have all been sent in initial CCDA
 - c. Immunization
 - i. Only the fresh entry of influenza will be sent in CCDA
 - d. Care Plan
 - i. Only HBA1C order information will be sent in CCDA
- ix. Wednesday there are not manual updates to the chart but the result from lab electronically is received for HBA1C
 1. The system generates as CCDA with lab results from HBA1C populated and all other segments with NULL flavor
- x. Thursday morning the patient presents for a follow up
 1. The physician identifies that the new allergy entry of amoxicillin was added in error and marks as inactive and instead adds a new allergy for simvastatin.
 2. New prescriptions are written for the patient and Metformin 500 MG HCL is prescribed electronically
 3. The physician also generates a referral to endocrinologist
 4. The system identifies these edits and generates as CCDA R2.1 with following data and segments
 - a. Allergy – 2 entries are sent. One for INACTIVE status of amoxicillin and one for active status of simvastatin
 - b. Medication section- 1 new entry for Metformin 500 MG HCL is added
 - c. Referral Section- 1 new entry for referral to endocrinologist is added.



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