

NC Notify

Event Notifications Powered by
NC HealthConnex

V2.1.1 Specifications

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1 Overview

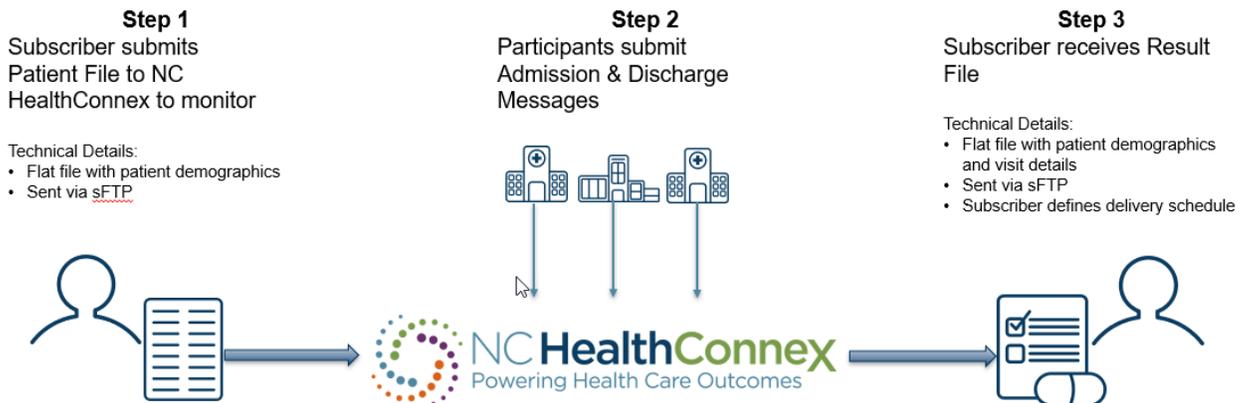
1.1 Summary

NC*Notify is a service provided by NC HealthConnex which provides subscribers insight into patients’ health care activity across North Carolina. NC*Notify allows subscribers to monitor Admission, Discharge, and Transfer (ADT) feeds for patient hospital utilization and outpatient visits via a subscription-based service. NC*Notify can be used to improve transitional care and care coordination.

1.2 Event Flow

NC*Notify requires that an Inbound Patient File is received from a Subscriber. This Inbound Patient File establishes the patient-level subscriptions for that Subscriber. As ADT messages are received by NC HealthConnex from each of the connected facilities, they are evaluated to determine if they indicate a relevant event (i.e.: admit, discharge, or visit). Messages deemed relevant are then evaluated against the existing set of subscriptions to determine if the Subscriber is interested in receiving notification of the event. If so, the appropriate information is extracted from the message and recorded in the events queue. On a recurring basis, as specified by the Subscriber, an outbound file is created by extracting the events from the event queue. This file is sent to the Subscriber via a secure method. Figure 1 below, depicts the flow.

Figure 1: NC*Notify Flow



2 Subscribing to NC*Notify

2.1 Enrollment

To subscribe to NC*Notify, an enrollment form must be completed and submitted to hiea@nc.gov. Staff from the North Carolina Health Information Exchange Authority will validate the enrollment to make sure that the organization wishing to enroll is eligible to receive notifications. Enrollees can specify how often they expect to update the Inbound Patient File and how often they would like to receive the Outbound Result File. They can also designate a third party to provide the Inbound Patient File and/or receive the Outbound Result File.

2.2 Connecting

Once enrollment in NC*Notify has been approved, the NCHIEA passes the enrollment request on to the technical vendor, SAS. SAS will work with the subscriber to determine the best method of securely exchanging data. Currently, subscribers can choose either Direct Secure Messaging (DSM) or sFTP. If DSM is chosen and the subscriber does not yet have a DSM address, one can be provided. Details for the sFTP connection are provided below.

Unless a new file is received from the Subscriber, the latest file received will continue to drive the alerts according to the frequency specified. *A new Inbound Patient File must be received at least quarterly to continue the NC*Notify service.*

2.2.1 Secure File Transfer (sFTP)

2.2.1.1 Setup

In order to exchange files via sFTP with NC HealthConnex, there must be some configuration within the SAS environments. This includes whitelisting of the IP and Port of the sender, as well as setup of an FTP account for the Subscriber.

2.2.1.2 Connecting

There are several methods for connecting to the sFTP server. One such method is via the web portal managed by NC HealthConnex technical vendor, SAS Institute. The user account provided by SAS can be used to login to this portal from the IP address configured during the setup. The sFTP server can also be reached via an FTP client or the command line, as long as the connection is originating from the IP configured during the setup process. The same account information is used in either scenario.

2.2.1.3 Directory Structure

Regardless of the sFTP method used to connect and exchange files, the following information applies to the configuration of the directories that will be encountered. At the top level, there are two directories:

- Incoming
- Outgoing

These directories indicate the direction of exchange relative to SAS. For instance, the incoming directory is the location for files sent from Subscriber to SAS. Within the Incoming directory is a folder specific to each outbound service subscribed to by the Subscriber. For this case, the folder is called “Notifications”. This is the directory in which files should be placed for pickup by SAS.

3 Inbound Patient File

3.1 File Format

NC*Notify supports a single Inbound Patient File for each Subscriber. Each inbound file will completely replace the current subscriptions for the Subscriber. Therefore, all patients of interest should be included on each Inbound Patient file.

The inbound file should be named according to the following naming convention:

<Current Date>_<OrganizationID>_request.csv

In the above convention, <Current Date> should be formatted as YYYYMMDD. The file should be a flat text file and contain a header row and at least one row in the body. Each row in the file should contain fields delimited by a “|” pipe. The rows should end with the following ascii characters: carriage return (0x0D) and line feed (0x0A). All fields should be delimited, regardless of whether there is data in the field. The expected content of the body rows is depicted in the below table. The required fields are denoted by a ‘Y’ in the “Value Required” column. Custom Fields 2 through 5 can be used to track information about a patient that a subscriber would like to see in the Outbound Result File. For example, if the patient is part of a special project or initiative, a Custom Field could be used to indicate that.

Table 1: Patient Request File

	Field Name	Value Required	Type	Max Length	Data Requirements
1	OrganizationID	Y	CHAR	10	Alphanumeric code. Provided by NC HealthConnex.
2	OrganizationName	Y	CHAR	100	Full legal name of Organization. Provided by NC HealthConnex.
3	LocalPatientID	Y	CHAR	20	An ID that uniquely identifies the patient across all Organizations or practice locations such as an Enterprise ID, MRN, HICNO.
4	PatientLastName	Y	CHAR	30	No suffixes
5	PatientFirstName	Y	CHAR	30	No middle initials
6	PatientMiddleName	N	CHAR	30	
7	PatientNameSuffix	N	CHAR	5	
8	DateOfBirth	Y	CHAR	8	Format: YYYYMMDD
9	Gender	Y	CHAR	1	Supported Values: F = Female, M = Male, U = Unknown
10	AddressLine1	Y	CHAR	50	
11	AddressLine2	N	CHAR	50	
12	City	Y	CHAR	50	
13	State	Y	CHAR	2	Standard 2-digit state code.
14	PostalCode	Y	CHAR	10	Only basic 5-digit code required (e.g. 27613)
15	AddressTypeCode	N	CHAR	2	Supported Values: HP=Primary Home, PO= Post Office Box
16	Phone	N	CHAR	10	Numbers with no spaces or special characters. E.g. 9193334444
17	PhoneTypeCode	N	CHAR	2	HP=Primary Home, MC=Mobile Cell, WP=Work Place, PG= Pager
18	SSN	N	CHAR	11	Up to 11 characters, including dashes

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19	DriversLicense	N	TEXT	20	The official driver’s license number
20	NPI	N	TEXT	20	NPI of the Patient’s Primary Care Provider (if known)
21	PCPName	N	TEXT	100	First and Last Name of the Patient’s PCP
22	Subprogram	N	TEXT	50	Alphanumeric code provided by NC HealthConnex
23	CustomField2	N	TEXT	50	For use by Subscriber
24	CustomField3	N	TEXT	50	For use by Subscriber
25	CustomField4	N	TEXT	50	For use by Subscriber
26	CustomField5	N	TEXT	50	For use by Subscriber

3.2 Additional Information

3.2.1 Header Row

The header row should appear exactly as indicated below.

OrganizationID|OrganizationName|LocalPatientID|PatientLastName|PatientFirstName|PatientMiddleName|PatientNameSuffix|DateOfBirth|Gender|AddressLine1|AddressLine2|City|State|PostalCode|AddressTypeCode|Phone|PhoneTypeCode|SSN|DriversLicense|NPI|PCPName|Subprogram|CustomField2|CustomField3|CustomField4|CustomField5

3.2.2 Body Rows

Three example rows are provided below.

HOSP|General Hospital|1234567890|Lastname_1|Firstname_1| Middlename|JR|199671231|M|123 Main street|Apt2|Raleigh|NC|27613|HP|9193334444|MC|123456789|T1234567890|1234567890|Testdoctor John|TestOrg|||

HOSP|General Hospital|000003345|Lastname_2|Firstname_2| Middlename_2|SR|19680101|F|300 22nd Street|Bldg 2|Raleigh|NC|27613|HP|9193335555|MC|234567890|T2345678901|2345678901|Testdoctor Jane|TestOrg|||

HOSP|General Hospital|M00556688|Lastname_3|Firstname_3| Middlename_3||19400101|M|PO Box 223|Raleigh|NC|27613|PO|9193336666|MC|345678901|T3456789012|3456789012|Testdoctor Lucy|TestOrg|||

4 Outbound Result File

4.1 Summary

An Outbound Result File will be generated for each NC*Notify Subscriber according to the schedule determined during enrollment. When a relevant ADT event occurs, a new row will be added to the Outbound Result File. Duplicate events will be removed if all fields are the same, resulting in one row per event.

4.2 File Format

The Outbound Result File will be named according to the following naming convention:

<Current Date>_EventNotifications-<OrganizationID>_results.csv

The file will be a flat text file and contain a header row and at least one row in the body. Each row in the file should contain fields delimited by a “|” pipe. The rows will end with the following ascii characters: carriage return (0x0D) and line feed (0x0A). All fields will be delimited, regardless of whether there is data in the field. The specific content of the body rows is depicted in the below table. The required fields are denoted by a ‘Y’ in the “Value Required” column.

Table 2: Outbound Result File Format

	Name	Required	Type	Max Length	Data Requirements
1	LocalPatientID	Y	TEXT	20	An ID that uniquely identifies the patient across all facilities or practice locations, such as an Enterprise ID, MRN, HICNO.
2	PatientLastName	Y	TEXT	30	No suffixes
3	PatientFirstName	Y	TEXT	30	No middle initials
4	PatientMiddleName	N	TEXT	50	
5	PatientNameSuffix	N	TEXT	5	
6	DateOfBirth	Y	TEXT	8	Format: YYYYMMDD
7	Gender	Y	TEXT	1	Supported Values: F = Female, M = Male, U = Unknown
8	AddressLine1	N	TEXT	50	
9	AddressLine2	N	TEXT	50	
10	City	Y	TEXT	50	
11	State	Y	TEXT	2	Standard 2-digit state code.
12	PostalCode	Y	TEXT	10	Only basic 5-digit code required (e.g. 27613)
13	AddressTypeCode	N	TEXT	2	HP=Primary Home, WP= Work
14	Phone	N	TEXT	10	Numbers with no spaces or special characters.
15	PhoneTypeCode	N	TEXT	2	HP=Primary Home, MC=Mobile Cell, WP=Work Place, PG= Pager
16	SSN	N	TEXT	11	Up to 11 characters, including dashes
17	DriversLicense	N	TEXT	20	The official driver’s license.
18	NPI	N	TEXT	20	NPI of the Patient’s Primary Care Provider (if known)
19	PCPName	N	TEXT	100	First and Last Name of the Patient’s PCP
20	SubProgram	N	TEXT	50	Alphanumeric code provided by NC HealthConnex
21	CustomField2	N	TEXT	50	For use by Subscriber
22	CustomField3	N	TEXT	50	For use by Subscriber
23	CustomField4	N	TEXT	50	For use by Subscriber

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24	CustomField5	N	TEXT	50	For use by Subscriber
25	EventDate	Y	TEXT	8	Date of Clinical Event. Format YYYYMMDDHHMM
26	ReceivedDate	Y	TEXT	8	Date Clinical Event Received by HIE. Format YYYYMMDD
27	EventType	Y	TEXT	1	Clinical Event Type A = Admit/Visit, D = Discharge
28	PatientClass	Y	TEXT	1	E = EMERGENCY, I = INPATIENT, O = OUTPATIENT, P = PREADMIT, R = RECURRING_PATIENT, B = OBSTETRICS, C = COMMERCIAL_ACCOUNT, N = NOT_APPLICABLE, U = UNKNOWN. UNKNOWN is used for any Patient Class not matching one of these values. (see Table 32, PV1 of NCQ Minimum Data Specifications)
29	ParticipantFeed	Y	TEXT	50	Source of the original message
30	FacilityName	Y	TEXT	50	Facility name that the visit took place
31	Diagnosis	N	TEXT	50	Encounter diagnosis. If encounter diagnosis is not available, chief complaint will be provided.
32	VisitNumber	N	TEXT	200	The visit number from the organization where the encounter occurred
33	DischargeDisposition	N	TEXT	3	Discharge Disposition Code
34	DischargeLocation	N	TEXT	50	Discharge Location
35	DeathIndicator	N	TEXT	3	Death Indicator. Yes or No
36	DeathDateTime	N	TEXT	14	Date of Death. Format: YYYYMMDDHHMMSS

4.3 Additional Information

4.3.1 Header Row

The header row will appear exactly as indicated below.

```
LocalPatientID|PatientLastName|PatientFirstName|PatientMiddleName|PatientNameSuffix|DateOfBirth|Gender|Address
Line1|AddressLine2|City|State|PostalCode|AddressTypeCode|Phone|PhoneTypeCode|SSN|DriversLicense|NPI|PCPName|
Subprogram|CustomField2|CustomField3|CustomField4|CustomField5|EventDate|ReceivedDate|EventType|PatientClass|P
articipantFeed|FacilityName|Diagnosis|VisitNumber|DischargeDisposition|DischargeLocation|DeathIndicator|DeathD
ateTime
```

4.3.2 Body Rows

Two example rows are provided below.

```
1234567890|Lastname_1|FirstName_1|MiddleName|JR|19961231|M|123 Main
Street|Apt2|Raleigh|NC|27613|HP|9193334444|MC|123456789|T1234567890|1234567890|Testdoctor
Jane|TestOrg|||||20171201|20171202|A|E|Some EMR|Some Hospital|DX-ABC|12345|02|North Hospital|No|
```

```
9876543210|Lastname_2|FirstName_2|MiddleName|||190070328|F|345 Elm
Street|Apt4|Cary|NC|27513|HP|9192223333|HP|345678901|||1234567890|Testdoctor
John|TestOrg|||||20171201|20171202|A|I|Some EMR|Some Hospital|DX-EFG|12345|20||Yes|20171202
```

5. Version History

V1.0	-	September 4, 2018
V2.0	-	May 30, 2019
V2.1	-	August 5, 2019
V2.1.1	-	August 19, 2019