NC Notify

Event Notifications Powered by
NC HealthConnex

V4.5.1+ Specifications

March 2024

Contents

1 Overview

1.1 Summary

NC*Notify is a subscription-based service that notifies providers as their patients receive services across the care continuum. Based on admission, discharge and transfer (ADT) data received from participating hospitals and on encounter data from ambulatory care settings, NC*Notify's real-time event notifications provide care teams with valuable information spanning geography and care settings and support state and federal efforts to focus on patient-centered care.

1.2 Service Options

NC*Notify provides two service options. NC*Notify v4.5.1, known as the base tier, is targeted at organizations that can generate a patient panel, that may wish to integrate notification files into their systems and that often have a high volume of patients for whom they would like to receive notifications. NC*Notify v4.5.1+, known as the plus tier, is suitable for organizations who want to leverage the enhanced features offered by the NC HealthConnex platform for automatically building patient panels and downstream processing and coordination of follow-up activities. The NC*Notify v4.5.1+ service option also has the capability to send alerts for additional events based on data in the NC HealthConnex patient longitudinal records.

2 Subscribing to NC*Notify

2.1 Enrollment

To subscribe to NC*Notify, an enrollment form must be completed. The enrollment form can be completed online at https://hiea.nc.gov/services/ncnotify/online-enrollment or as a downloaded form which is then submitted to hiea@nc.gov. Staff from the North Carolina Health Information Exchange Authority (NC HIEA) will validate the enrollment to make sure that the organization wishing to enroll is eligible to receive notifications. NC HIEA staff will reach out to the subscriber to review and confirm enrollment form selections.

Based on these selections, subscribers can enroll in NC*Notify v4.5.1 or NC*Notify v4.5.1+. NC HIEA staff will work with the NC HIEA's technical partner, SAS Institute, and the subscriber to establish a connection (if needed), create and submit patient panels and receive notifications.

2.2 Advanced Alerts

In version 4.0+ of the service, several new subscription options were introduced for advanced alert criteria. In addition to receiving alerts on admission, discharge and transfer (ADT) events, subscribers can receive the alert types described below. By default, these alerts can be triggered for the patients on the existing panel by simply enrolling for the additional use case. Alternatively, the subscribers can provide a panel for each additional use case. This will require coordination of the filenames with NC HealthConnex to ensure the panels are processed to the correct use case.

2.2.1 COVID Labs

Subscribers to NC*Notify v4.5.1+ can receive notifications of any qualifying COVID-19 lab results, including positive, negative and other. These lab results are reported to the North Carolina Division of Public Health (NC DPH) and routed to NC HealthConnex for distribution. The result will indicate the type of test and the result, in addition to other details provided in Appendix F.

This alert is available on the NC*Notify Dashboard, as well as via flat-files and HL7 v2.5 ORU messages. Details of these formats can be found in Appendix E and Appendix F.

2.2.2 Emergency Department Reutilizer

This alert is triggered when a patient registers at an emergency department (ED) within 30 days from a previous ED visit. The alert can be sent to either the original ED or the one the patient is currently visiting. These alerts do not require a panel but are limited to subscribers who have a qualifying ED within their organization.

This alert is available on the NC*Notify Dashboard, as well as via flat-files and HL7 v2.5 ADT messages. Details of these formats can be found in Appendix E and Appendix F.

2.2.3 High Utilizer

This notification will help providers identify frequent visitors to the ED and patients that are at high risk for readmission due to recurring inpatient visits. Subscribers to this alert will receive notifications when their patients have two or more visits to the ED in 90 days or less. They will also receive notifications for patients with four or more admissions in 12 months.

This alert is available on the NC*Notify Dashboard, as well as via flat-files and HL7 v2.5 ADT messages. Details of these formats can be found in Appendix E and Appendix F.

2.2.4 Dental Alert

This notification is triggered when the primary diagnosis for an ED visit is dental related.

This alert is available on the NC*Notify Dashboard, as well as via flat-files and HL7 v2.5 ORU messages. Details of these formats can be found in Appendix E and Appendix F.

2.3 Clinical Intelligence Engine (CIE) Alerts

This series of alerts is triggered from changes in data that are stored in the NC HealthConnex database. These alerts can each be subscribed to independently.

2.3.1 Potential Diabetes Registry Addition

Subscribers to this alert are notified when one of their patients has a new diagnosis of diabetes. The diagnosis must be the first instance of the disease received by NC HealthConnex for the patient and have a diagnosis date within the last 30 days. This alert indicates a patient who is potentially eligible for the NC HealthConnex Diabetes Registry, which is used by NC DPH. Subscribers will only be alerted once for this use case.

This alert is available on the NC*Notify Dashboard.

2.3.2 Pre-Diabetes Alert

Subscribers to this alert are notified when one of their patients has a new diagnosis of pre-diabetes or a glycated hemoglobin (HbA1c) value in the pre-diabetic range (5.7 – 6.4). The diagnosis must be the first instance of the disease received by NC HealthConnex for the patient and have a diagnosis date within the last 30 days. The HbA1C result must be within the last 30 days. Patients with a diabetes diagnosis will not trigger this alert. Subscribers will only be alerted once for this use case.

This alert is available on the NC*Notify Dashboard.

2.3.3 Chronic Care Management (CCM)

Subscribers will receive an alert when a patient has two or more conditions from the Centers for Medicare and Medicaid Services (CMS) Chronic Care Management (CCM) list. At least one of the qualifying diagnoses must have a diagnosis date within the last 30 days. Subscribers will only be alerted once for this use case.

This alert is available on the NC*Notify Dashboard.

3 NC*Notify v4.5.1+

3.1 Patient Panels

Subscribers enrolled in NC*Notify v4.5.1+ have several options for subscribing to patients. These options include:

- Sending a patient panel via secure file transfer protocol (sFTP) or direct secure messaging (DSM) Details about these connections are provided in Appendix A.
- Uploading a patient panel via a web-based Self-Service Panel Loader (SSPL).
- Auto-attribution of patients based on encounter information sent to NC HealthConnex. Please note that to use auto-attribution, the subscriber must be live and sending encounter data to NC HealthConnex.

NOTE: Subscribers who enroll to receive advanced alerting notifications, in addition to the basic ADT notifications, will receive all alerts from the same panel by default. To subscribe to a different patient cohort for the advanced notifications, please contact the NC*Notify team at hiea@nc.gov.

3.1.1 Patient Panels Sent via sFTP or Direct Secure Messaging (DSM)

Patient panels may be updated no more than once per week. Patient panels must be updated at a minimum of once every 90 days to ensure that subscribers are receiving notifications for patients with whom they have a current relationship. Upon completion of the patient panel processing, the system generates a report of any errors encountered during processing. If there are a significant number of errors in the processing, the NC*Notify team will reach out to the subscriber for follow-up.

Subscribers to NC*Notify v4.5.1+ and sending patient panels via sFTP or DSM can choose to send a full replacement patient panel or a patient panel that updates an existing panel. When sending replacement panels, all patients will be marked for addition. When sending update panels, patients within the panel will be marked for deletion, addition or update. The processing of the patient panel and handling of each patient is determined based on the name of the file and the first column in the file. For details on naming the files and the required format and content for patient panels, see Appendix C.

3.1.2 Auto-attribution

Subscribers may choose to have NC*Notify generate a patient panel based on encounter information sent to NC HealthConnex by the subscriber. Once the subscriber is configured for auto-attribution, patients will be added to the panel after an encounter at the subscribing organization. Notifications sent back to the subscriber will include the demographics sourced from NC HealthConnex.

The attribution of patients to the subscriber's panel begins once the enrollment is complete. Since the construction of this panel could take time, the subscriber may choose to send an initial panel can be sent via SFTP or DSM according to the details in Appendix D, which will be added to the auto-attributed patients. Similarly, if there are specific patients the subscriber would like to add to a panel once auto-attribution is in effect, an incremental panel can be sent via SFTP or DSM according to the details in Appendix D. This will allow patients to be added to the panel without impacting the auto-attribution process.

Please note that to use auto-attribution, the subscriber must be live and sending encounter data, typically found in ADT messages or continuity of care documents (CCD), to NC HealthConnex.

3.1.3 Self-Service Panel Loader

Subscribers to NC*Notify v4.5.1+ can choose to provide patient panels via the Self-Service Panel Loader (SSPL). SSPL is a web-based panel management tool which allows users to upload a patient panel for their designated organization. SSPL provides an easy, fast, and convenient method for submitting panels for subscribers and an immediate response when panels are loaded successfully or incorrectly. SSPL can only accept patient panels that are full replacements. SSPL cannot accept updates and deletions to the patient panel.

3.2 Notifications

Subscribers to the NC*Notify v4.5.1+ have several options for receiving alerts. These options include:

- Notifications via the NC*Notify Dashboard, a web portal accessed via the NC HealthConnex clinical portal
- Notification flat files that can be delivered as batches of alerts, at a frequency mutually agreed upon during onboarding
- Notifications delivered via DSM as individual messages with the full alert details
- HL7 v2 messages that can be delivered as soon as they are processed by NC HealthConnex
- Direct integration with some electronic health records (EHR) using XDR encoded messages

3.2.1 NC*Notify Dashboard

The NC*Notify Dashboard is a web-based, user-friendly tool used by health care professionals to view event notifications and for care coordination providing a dashboard-like view of patient event notification activity. Past notifications will be removed from the dashboard after six months. The dashboard allows health care professionals to:

- View notifications
- Mark and view workflow history
- Filter and search notifications
- Download a notification summary (1,000 row limit)
- View prior events for a patient

3.2.2 Notification Flat File

A notification flat file will be generated for each NC*Notify v4.5.1+ subscriber according to the schedule determined during enrollment. When a relevant event occurs, a new row will be added to the notification file. Each row of the notification file will consist of the values from the patient panel or gathered during auto-attribution and additional information generated by NC*Notify. The demographics for patients in the notification files are taken from the subscriber's patient panel or gathered during auto-attribution. This ensures better matching at the subscriber system because there is consistency between the demographics on the patient panel and in the notification. Duplicate events will be removed if all fields are the same, resulting in one row per event. See Appendix C for details on the notification flat file.

3.2.3 HL7 Notifications

Subscribers to NC*Notify v4.5.1+ who would like to receive notifications as HL7 v2 will require a transport layer security (TLS) or sFTP connection to NC HealthConnex and the ability to ingest the data into their system. Details of the HL7 method and message content can be found in Appendix F.

3.2.4 Direct Electronic Health Records Integration

NC*Notify is working with some EHR systems to deliver notifications directly into the EHR workflow. These alerts are delivered by formatting the data according to the HL7 v3 Clinical Document Architecture (CDA) standard. This format is consumable by some EHR systems with minimal development. Specific details of the integration will vary by EHR. Please contact the HIEA to discuss additional details for connecting.

3.2.5 Direct Secure Messaging Notifications

Full notification details are formatted as individual DSM messages and sent to a pre-defined DSM address for the subscriber.

4 Version History

Version 1.0 September 4, 2018

Version 2.0 May 30, 2019

Version 2.1 August 5, 2019

Version 2.1.1 August 19, 2019

Version 3 June 4, 2020

Version 3.1 July 23, 2020

Version 4.0 January 22, 2020

- Updated “v3” references to “v4”
- Updated section 1 to include additional event triggers
- Added advanced alerting to section 2
- Added place of service fields to table 4 (outbound notification file details)
- Added place of service fields to Table 1 (HL7 segments in notification messages)
- Replaced VPN with TLS references

Version 4.5 September 16, 2021

- Added direct integrations with EHR
- Added DSM notification delivery
- Changed required fields in the patient panel
- Added four new fields to the outbound flat-file notification table

Version 4.5.1 March 25, 2024

- Updated “v4.5” references to “v4.5.1”
- Updated details in section 3.2.1
- Updated DSM details in Appendix A

Appendix A: Secure Exchange of Patient Panels

For sending patient panels, 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 by NC HIEA. Please note there is a file size limit of 25MB for DSM attachments. Details on the sFTP connection are provided below.

Appendix A.1 Secure File Transfer (sFTP)

Setup

Exchanging files via sFTP with NC HealthConnex requires configuration within the SAS environments. This includes allowlisting of the sender's IP and port, as well as setup of an sFTP account for the subscriber.

Connecting

There are several methods for connecting to the sFTP server. One method is via the web portal managed by SAS. 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 if the connection is originating from the IP configured during the setup process. The same account information is used in either scenario.

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 the subscriber to SAS.

Appendix B: Secure Exchange of Notification Flat Files

To receive notification flat files, subscribers can receive flat files via sFTP.

Appendix B.1 Secure File Transfer (sFTP)

Setup

Exchanging files via sFTP with NC HealthConnex require configuration within the SAS environments. This includes allowlisting of the sender's IP and port, as well as setup of an sFTP account for the subscriber.

Connecting

There are several methods for connecting to the sFTP server. One method is via the web portal managed by SAS. 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 if the connection is originating from the IP configured during the setup process. The same account information is used in either scenario.

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 outgoing directory is the location for notification files sent to the subscriber from SAS.

Appendix C: Secure Exchange of HL7 v2 Messages

To receive HL7 messages, subscribers can choose either sFTP or TLS. Details on the sFTP and TLS connections are below.

HL7 messages sent over sFTP will be batched at a frequency mutually agreed upon during the onboarding setup. HL7 messages sent over TLS connection will be processed immediately by NC*Notify and sent to subscribers.

Appendix C.1 Secure File Transfer (sFTP)

Setup

Exchanging files via sFTP with NC HealthConnex requires configuration within the SAS environments. This includes allowlisting of the IP and port of the sender, as well as setup of an sFTP account for the subscriber.

Connecting

There are several methods for connecting to the sFTP server. One method is via the web portal managed by SAS. 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 if the connection is originating from the IP configured during the setup process. The same account information is used in either scenario.

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 outgoing directory is the location for files sent from SAS to the subscriber. These directories are where notification files will be placed.

Appendix C.2 Transport Layer Security (TLS)

Setup

To allow sending HL7 messages to a subscriber via TLS, the NC HealthConnex team will engage with the networking team at SAS. The subscriber networking team will need to be available to apply certificates, test connectivity, and troubleshoot any issues. The following parameters will be needed for configuration:

- IP Address
- TLS Certificate

Appendix D: Patient panel specifications

Appendix D.1 Patient Panel File Name

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

- <ORGCODE>-1-<LOADTYPE>-<DATE>-PLUS.csv

Where

- <ORGCODE> will be provided by SAS.
- <LOADTYPE> will be either "Z" for overwrite (most common) or "D" incremental changes, including additions, deletions, and updates.
- <DATE> will be formatted as YYYYMMDD.

Example: PRACTICE2-1-Z-20200415-PLUS.csv

Appendix D.2 Replacement Patient Panel Content

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 will contain fields delimited by a "," comma. The rows will 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 table below. The required fields are denoted by a 'Y' in the "Value Required" column. CustomFields 2 through 5 can be used by the subscriber to track information about a patient that a subscriber would like to see in the notification file. For example, if the patient is part of a special project or initiative, a CustomField could be used to indicate that.

Note: Only commas used to delimit fields will be included. Other commas should be removed before sending.

Replacement Patient Panel File Details

Field Name	Value Required	Max Length	Data Requirements
MemberStatus	Y	6	ADD. For panels that are to be overwritten the value will be "ADD" on every row.
OrganizationID	Y	50	Alphanumeric code. Provided by NC HealthConnex.
OrganizationName	Y	None	Full legal name of Organization. Provided by NC HealthConnex.
Practice	N	None	Practice within the organization
NPI	N	50	NPI of the Patient's Primary Care Provider (if known)
PCPName	N	None	First and Last Name of the Patient's PCP
LocalPatientID	Y	50	An ID that uniquely identifies the patient across the organization such as an Enterprise ID, MRN, HICNO.
PatientLastName	Y	80	No suffixes
PatientFirstName	Y	60	No middle initials
PatientMiddleName	N	60	
PatientNameSuffix	N	60	
DateOfBirth	Y	50	Format: YYYYMMDD
Gender	Y	50	Supported Values: F = Female, M = Male, U = Unknown

Address	Y	220	
City	Y	50	
State	Y	50	Standard 2-digit state code.
PostalCode	Y	5	Only basic 5-digit code required (e.g. 27613)
HomePhone	Y*	50	Numbers with no spaces or special characters. E.g. 9193334444
CellPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
WorkPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
SSN	Y*	50	Up to 11 characters, including dashes; can be last 4 only
DriversLicense	N	50	The official driver's license number
Subprogram	N	220	Alphanumeric code provided by NC HealthConnex
CustomField2	N	None	For use by Subscriber
CustomField3	N	None	For use by Subscriber
CustomField4	N	None	For use by Subscriber
CustomField5	N	None	For use by Subscriber

Y — Panels are required to have either a phone number or a SSN for each record to be accepted.*

Example Header Row

The header row should appear exactly as indicated below.

MemberStatus,OrganizationID,OrganizationName,Practice,NPI,PCPName,LocalPatientID,PatientLastName,PatientFirstName,PatientMiddleName,PatientNameSuffix,DateOfBirth,Gender,Address,City,State,PostalCode,HomePhone,CellPhone,WorkPhone,SSN,DriversLicense,Subprogram,CustomField2,CustomField3,CustomField4,CustomField5

Example Body Rows

Three example rows are provided below.

ADD,HOSP1,General Hospital,City Obstetrics,1234567890,,4567890,Smith,Sally,Anne,,19901231,F,123 Main Street,Greensboro,NC,23456,9193334444,9191234567,5134567890,,,,program1,,,

ADD,HOSP1,General Hospital,City Family Practice,9876543219,Dr. Jones,654321,Madison,Michael,R,Jr,19520720,M,12 Elm St.Apt.2,Raleigh,NC,27506,9198765432,9198765432,4135556666,111223333,123456,,program2,,,

ADD,PRACTICE1,Salem Pediatrics,,,,567890,Adams,Aaron,David,,20020805,M,456 Hwy 64,Holly Springs,NC,23207,9096543214,,,777889999,,,,,,

Appendix D.3 Update Patient Panel Content

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 will contain fields delimited by a "," comma. The rows will 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 table below. The required fields are denoted by a 'Y' in the "Value Required" column. CustomFields 2 through 5 can be used by the subscriber to track information about a patient that a subscriber would like to see in the notification file. For example, if the patient is part of a special project or initiative, a CustomField could be used to indicate that.

Note: Only commas used to delimit fields should be included. Other commas should be removed before sending.

Incremental Patient Panel File Details

Field Name	Value Required	Max Length	Data Requirements
MemberStatus	Y	6	Supported Values: ADD, UPDATE, DELETE
OrganizationID	Y	50	Alphanumeric code. Provided by NC HealthConnex.
OrganizationName	Y	None	Full legal name of Organization. Provided by NC HealthConnex.
Practice	N	None	Practice within the organization
NPI	N	50	NPI of the Patient's Primary Care Provider (if known)
PCPName	N	None	First and Last Name of the Patient's PCP
LocalPatientID	Y	50	An ID that uniquely identifies the patient across the organization such as an Enterprise ID, MRN, HICNO.
PatientLastName	Y	80	No suffixes
PatientFirstName	Y	60	No middle initials
PatientMiddleName	N	60	
PatientNameSuffix	N	60	
DateOfBirth	Y	50	Format: YYYYMMDD
Gender	Y	50	Supported Values: F = Female, M = Male, U = Unknown
Address	Y	220	
City	Y	50	
State	Y	50	Standard 2-digit state code.
PostalCode	Y	5	Only basic 5-digit code required (e.g. 27613)
HomePhone	Y*	50	Numbers with no spaces or special characters. E.g. 9193334444
CellPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
WorkPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
SSN	Y*	50	Up to 11 characters, including dashes; can be last 4 only
DriversLicense	N	50	The official driver's license number
Subprogram	N	220	Alphanumeric code provided by NC HealthConnex
CustomField2	N	None	For use by Subscriber

CustomField3	N	None	For use by Subscriber
CustomField4	N	None	For use by Subscriber
CustomField5	N	None	For use by Subscriber

Y - Panels are required to have either phone number or SSN for each record to be accepted*

Example Header Row

The header row should appear exactly as indicated below.

MemberStatus,OrganizationID,OrganizationName,Practice,NPI,PCPName,LocalPatientID,
PatientLastName,PatientFirstName,PatientMiddleName,PatientNameSuffix,DateOfBirth,G
ender,Address,City,State,PostalCode,HomePhone,CellPhone,WorkPhone,SSN,DriversLice
nse,Subprogram,CustomField2,CustomField3,CustomField4,CustomField5

Example Body Rows

Three example rows are provided below.

ADD,HOSP1,General Hospital,City
Obstetrics,1234567890,,4567890,Smith,Sally,Anne,,19901231,F,123 Main
Street,Greensboro,NC,23456,9193334444,9191234567,5134567890,,,,program1,,,

UPDATE,HOSP1,General Hospital,City Family Practice,9876543219,Dr.
Jones,654321,Madison,Michael,R,Jr,19520720,M,12 Elm St.
Apt.2,Raleigh,NC,27506,9198765432,9198765432,4135556666,111223333,123456,,progra m2,,,

DELETE,PRACTICE1,Salem Pediatrics,,,,567890,Adams,Aaron,David,,20020805,M,456 Hwy
64,Holly Springs,NC,23207,9096543214,,,777889999,,,,,,

Appendix E: Notification Flat File Specifications

Appendix E.1 File Name

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

- <DATETIME>_EventNotification-<ORGCODE>_PLUS_results.csv

Where:

- <ORGCODE> will be provided by SAS
- <DATETIME> will be formatted as YYYYMMDDHHMMSSmmm

Example: 20200410052525222_EventNotification-PRACTICE2_PLUS_results.csv

The demographics for a patient in the notification are echoed from the panel. For subscribers using auto-attribution for panels, the demographics will be pulled from the HIE's enterprise master patient index (eMPI).

Outbound Notification File Details (shaded rows indicate data provided by NC*Notify)

Name	Required	Max Length	Data Requirements
OrganizationID	Y	50	Alphanumeric code. Provided by NC HealthConnex.
OrganizationName	Y	None	Full legal name of Organization. Provided by NC HealthConnex.
Practice	N	None	Practice within the organization
NPI	N	50	NPI of the Patient's Primary Care Provider (if known)
PCPName	N	None	First and Last Name of the Patient's PCP
LocalPatientID	Y	50	An ID that uniquely identifies the patient across the organization such as an Enterprise ID, MRN, HICNO.
PatientLastName	Y	80	No suffixes
PatientFirstName	Y	60	No middle initials
PatientMiddleName	N	60	
PatientNameSuffix	N	60	
DateOfBirth	Y	50	Format: YYYYMMDD
Gender	Y	50	Supported Values: F = Female, M = Male, U = Unknown
Address	Y	220	
City	Y	50	
State	Y	50	Standard 2-digit state code.
PostalCode	Y	5	Only basic 5-digit code required (e.g. 27613)
HomePhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
CellPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
WorkPhone	N	50	Numbers with no spaces or special characters. E.g. 9193334444
SSN	N	50	Up to 11 characters, including dashes
DriversLicense	N	50	The official driver's license number

Subprogram	N	220	Alphanumeric code provided by NC HealthConnex
CustomField2	N	None	For use by Subscriber
CustomField3	N	None	For use by Subscriber
CustomField4	N	None	For use by Subscriber
CustomField5	N	None	For use by Subscriber
SourceFeed	Y	None	Source of the original message
SourceOrganization	Y	None	Organization where the visit took place
SourceFacility	Y	None	Facility where the visit took place
SourceDepartment	Y	None	Department or unit where the visit took place
SourceMRN	Y	None	Patient MRN associated with source organization
EventDate	Y	12	Date the event was sent to NC*Notify for processing. Format YYYYMMDDHHMM
PatientClass	Y	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)
EventType	Y	1	Clinical Event Type A = Admit/Visit, D = Discharge
AdmitDate	N	8	Format: YYYYMMDD
AdmitTime	N	8	Format: HHMMSS
AdmitReasonCode	N	None	
AdmitReasonDescription	N	None	
AdmitTypeCode	N	None	
AdmitTypeDescription	N	None	
ReferralInfo	N	200	Referrer First Name Last Name
DischargeDate	N	8	Format: YYYYMMDD
DischargeTime	N	8	Format: DDHHMMSS
DeathIndicator	N	3	Death Indicator. Yes or No
DeathDateTime	N	14	Format: YYYYMMDDHHMMSS
DiagnosisCode	N	None	Encounter diagnosis code. If encounter diagnosis is not available, chief complaint will be provided.
DiagnosisDescription		None	Encounter diagnosis description. If encounter diagnosis is not available, chief complaint will be provided.
VisitNumber	N	None	The visit number from the organization where the encounter occurred
DischargeDispositionCode		3	Discharge Disposition Code
DischargeDispositionDescription	N	50	Discharge Disposition Description
DischargeLocationCode	N	50	Discharge Location
DischargeLocationDescription	N	None	

AttendingPhysician	N	None	
AdmittingPhysician	N	None	
ReferringPhysician	N	None	
ConsultingPhysician	N	None	
ObservationStatus	N	None	

Example Header Row

The header row will appear exactly as indicated below.

MemberStatus,OrganizationID,OrganizationName,Practice,NPI,PCPName,LocalPatientID,PatientLa
st
Name,PatientFirstName,PatientMiddleName,PatientNameSuffix,DateOfBirth,Gender,Address,City,
St ate,PostalCode,HomePhone,CellPhone
,WorkPhone,SSN,DriversLicense,Subprogram,CustomField2,
CustomField3,CustomField4,CustomField5,SourceFeed,SourceOrganization,SourceFacility,Sourc
eD
epartment,SourceMRN,EventDate,PatientClass,EventType,AdmitDate,AdmitTime,AdmitReasonCo
d
e,AdmitReasonDescription,AdmitTypeCode,AdmitTypeDescription,ReferralInfo,DischargeDate,Di
sc
hargeTime,DeathIndicator,DeathDateTime,DiagnosisCode,DiagnosisDescription,VisitNumber,Disc
ha
rgeDispositionCode,DischargeDispositionDescription,DischargeLocationCode,DischargeLocation
De
scription,AttendingPhysician,AdmittingPhysician,ReferringPhysician,ConsultingPhysician,Observa
tionStatus

Example Body Rows

Example rows are provided below.

HOSP1,General Hospital,City Obstetrics,1234567890,,4567890,Smith,Sally,Anne,,19901231,F,123
Main
Street,Greensboro,NC,23456,9193334444,9191234567,5134567890,,,,program1,,,,EMR,Country
Family,Country Family Practice Greensboro,,345678,20200530,O,A,20200530,101521,R21,Skin
Rash,3,Elective,Smith,,,,,DX-123,Cond1,33334455,7,Home,,,House

PRACTICE1,Salem Pediatrics,,,,567890,Adams,Aaron,David,,20020805,M,456 Hwy 64,Holly
Springs,NC,23207,9096543214,,,777889999,,,,,,,HOSPSYSTEM2,NC Hospital System,Raleigh
Hospital,3West, 135793575,20200530,E,D,,,A91,Dengue
Suspect,2,Urgent,,20200530,123000,Yes,20200530,,,98765,2,,,,Jones

HOSP1,General Hospital,City Family Practice,987654321,Dr.
Jones,654321,Madison,Michael,R,Jr,19520720,M,12 Elm St.,Apt.
2,Raleigh,NC,27506,9198765432,MC,999998888,123456,,,,,,HOSPSYSTEM,NC
HospitalSystem,Hillside Orthopedics,,8642,20200530,O,A,20200530,113000,R52,Body
aches,3,Elective,Clark,,,No,,DX-345,Problem2,66778899,2,,,,Wallace,Smith,Jones,Taylor,OBS

Appendix F: HL7 Message Specifications

HL7 Messages received as part of NC*Notify will be HL7 v2.5.1 messages. They can be received as a flat file batch or as individual real-time messages over a standard HL7 interface. Data sent to a subscriber is dependent on the data being sent by the organization where the event takes place. Demographics for the patients in the HL7 notifications will come from the event source.

Appendix F.1 ADT Notifications

Several use cases utilize the HL7 2.5.1 ADT message type. These use cases include encounter notifications, dental alerts, ED reutilizer, and high utilizer. ADT events for these use cases include:

- ADT^A01
- ADT^A02
- ADT^A03
- ADT^A04
- ADT^A06
- ADT^A07

ADT messages that are sent as flat-files will have the following naming convention:

- <DATETIME>_EventNotification-<ORGCODE>_PLUS_results.adt

Where:

- <ORGCODE> will be provided by SAS
- <DATETIME> will be formatted as YYYYMMDDHHMMSSmmm

Example: 20200410052525222_EventNotification-PRACTICE2_PLUS_results.adt

HL7 Segments in ADT Notification Messages

MSH		
MSH	MSH.1.1	Field Separator
MSH	MSH.2.1	Encoding Characters
MSH	MSH.3.1	Sending Application
MSH	MSH.4.1	Source Code (Sending Organization)
MSH	MSH.7.1	Message Date Time
MSH	MSH.9.1	Message Type
MSH	MSH.9.2	Event Trigger
MSH	MSH.9.3	Message Structure
MSH	MSH.10.1	Message Control ID
MSH	MSH.11.1	Processing ID
MSH	MSH.12.1	Version ID
EVN		
EVN	EVN.1.1	Event Type
EVN	EVN.2.1	Event Recorded Date Time
EVN	EVN.7.1	Event Organization
PID		

PID	PID.1.1	Set ID
PID	PID.3.1	Patient Identifier NOTE: The first repetition will contain the patient identifier present in NC HealthConnex for the visit specified in the alert. The second repetition will
PID	PID.3.4	Patient Identifier - Assigning Authority
PID	PID.3.5	Patient Identifier – ID Type Code NOTE: In the first repetition ID Type Code will = MR. In the secon ID Type Code will = PI.
PID	PID.3.6	Patient Identifier – Assigning Facility
PID	PID.5.1	Patient Family Name
PID	PID.5.2	Patient Given Name
PID	PID.5.3	Patient Middle Name
PID	PID.5.4	Patient Name Suffix
PID	PID.5.5	Patient Name Prefix
PID	PID.5.7	Patient Name Type Code
PID	PID.5.14	Patient Name Professional Suffix
PID	PID.7.1	Patient DOB
PID	PID.8.1	Patient Gender
PID	PID.9.1	Patient Alias Family Name
PID	PID.9.2	Patient Alias Given Name
PID	PID.9.3	Patient Alias Middle Name
PID	PID.9.4	Patient Alias Suffix
PID	PID.10.1	Patient Race ID
PID	PID.10.2	Patient Race Text
PID	PID.10.3	Patient Race Coding System
PID	PID.11.1	Patient Address Street 1
PID	PID.11.2	Patient Address Street 2
PID	PID.11.3	Patient Address City
PID	PID.11.4	Patient Address State
PID	PID.11.5	Patient Address Zip
PID	PID.11.6	Patient Address Country
PID	PID.11.9	Patient Address County Code
PID	PID.13.1	Patient Telephone Home
PID	PID.13.2	Patient Telephone Use Code
PID	PID.13.3	Patient Telephone Equipment Type
PID	PID.13.4	Patient Telephone Email Address
PID	PID.13.5	Patient Telephone Country Code
PID	PID.13.6	Patient Telephone Area Code
PID	PID.13.7	Patient Telephone Number
PID	PID.13.8	Patient Telephone Extension
PID	PID.13.9	Patient Telephone Any Text
PID	PID.14.1	Patient Telephone Business
PID	PID.14.2	Patient Telephone Use Code

PID	PID.14.3	Patient Telephone Equipment Type
PID	PID.14.5	Patient Telephone Country Code
PID	PID.14.6	Patient Telephone Area Code
PID	PID.14.7	Patient Telephone Number
PID	PID.14.8	Patient Telephone Extension
PID	PID.14.9	Patient Telephone Any Text
PID	PID.15.1	Patient Primary Language ID
PID	PID.15.2	Patient Primary Language Text
PID	PID.15.3	Patient Primary Language Coding System
PID	PID.16.1	Patient Marital Status ID
PID	PID.16.2	Patient Marital Status Text
PID	PID.16.3	Patient Marital Status Coding System
PID	PID.17.1	Patient Religion ID
PID	PID.17.2	Patient Religion Text
PID	PID.17.3	Patient Religion Coding System
PID	PID.19.1	Patient SSN
PID	PID.22.1	Patient Ethnicity Group ID
PID	PID.22.2	Patient Ethnicity Group Text
PID	PID.22.3	Patient Ethnicity Group Coding System
PID	PID.29.1	Patient Death Date and Time
PID	PID.30.1	Patient Death Indicator
PID	PID.33.1	Patient Last Update Date and Time
PID	PID.34.1	Patient Last Update Facility Text
PID	PID.34.2	Patient Last Update Facility ID
PID	PID.34.3	Patient Last Update Facility ID Type
PV1		
PV1	PV1.1.1	Visit Set ID
PV1	PV1.2.1	Visit Patient Class
PV1	PV1.3.1	Visit Department
PV1	PV1.3.4	Visit Facility
PV1	PV1.4.1	Visit Admit Type
PV1	PV1.7.1	Visit Doctor Attending ID
PV1	PV1.7.2	Visit Doctor Attending Family Name
PV1	PV1.7.3	Visit Doctor Attending Given Name
PV1	PV1.7.9	Visit Doctor Attending Assigning Authority
PV1	PV1.8.1	Visit Doctor Referring ID
PV1	PV1.8.2	Visit Doctor Referring Family Name
PV1	PV1.8.3	Visit Doctor Referring Given Name
PV1	PV1.8.9	Visit Doctor Referring Assigning Authority
PV1	PV1.9.1	Visit Doctor Consulting ID
PV1	PV1.9.2	Visit Doctor Consulting Family Name
PV1	PV1.9.3	Visit Doctor Consulting Given Name

PV1	PV1.9.9	Visit Doctor Consulting Assigning Authority
PV1	PV1.10.1	Visit Hospital Service
PV1	PV1.14.1	Visit Admit Source
PV1	PV1.17.1	Visit Doctor Admitting ID
PV1	PV1.17.2	Visit Doctor Admitting Family Name
PV1	PV1.17.3	Visit Doctor Admitting Given Name
PV1	PV1.17.9	Visit Doctor Admitting Assigning Authority
PV1	PV1.19.1	Visit Number (Unique Encounter Code)
PV1	PV1.36.1	Visit Discharge Disposition
PV1	PV1.44.1	Visit Admit Date Time
PV1	PV1.45.1	Visit Discharge Date Time
PV2		
PV2	PV2.1.1	Set ID - PV2
PV2	PV2.3.1	Visit Admit Reason Code
PV2	PV2.3.2	Visit Admit Reason Description
PV2	PV2.3.3	Visit Admit Reason Coding System
DG1		
DG1	DG1.1.1	Diagnosis Set ID
DG1	DG1.3.1	Diagnosis Code
DG1	DG1.3.2	Diagnosis Code Description
DG1	DG1.3.3	Diagnosis Code Coding System
IN1		
IN1	IN1.1.1	Insurance Set ID
IN1	IN1.2.1	Insurance Plan ID
IN1	IN1.4.1	Insurance Company - Name
IN1	IN1.8.1	Insurance Group Number
IN1	IN1.12.1	Insurance Plan Date Effective
IN1	IN1.36.1	Policy Number

Example HL7 Messages

A01:

MSH|^~\&|EPIC^1.2.840.114350.374^ISO|UNC^2.16.840.1.113883.3.2629.125^ISO|||20201117120429|
HHI|ADT^A0 1|449277|T|2.5.1

EVN|A01|20201117120429||REG_UPDATE
PID|1||1000005433333^^^UNCHCS&2.16.840.1.113883.3.2629.1&ISO^MR||
FAKLUGJLWRVDFAKE^JANAYE||2008071 9|F||2106-3|18 PRAIRIE ROSE

PASS^^MEMPHIS^TN^38143^US^P||||ENG|||2000925555^^^^HAR|999-99-9999|||N||N||||||N
PV1|1|E|UNCHH^^^1071999^^^^^UNC HOME HEALTH

SERVICES^^DEPID|||||||||||||||2000925555^^^^HAR|COMM|||||||||||||||STILL
PATIENT|||||||20200918|||1200

PV2|||||||20200918|||||||||||||N DG1|1|I10|K03.2^Erosion of teeth|Erosion of teeth||^W
DG1|1|I10|K03.89^Cracked tooth|Cracked tooth||^W

DG1|1|I10|K04.1^Necrosis of pulp|Necrosis of pulp||^W

A03:

MSH|^~\&|EPIC^1.2.840.114350.374^ISO|UNC^2.16.840.1.113883.3.2629.125^ISO|||20201117120429|
HHI|ADT^A0 3|449277|T|2.5.1

EVN|A03|20201117120429||REG_UPDATE
PID|1||1000005433333^^^UNCHCS&2.16.840.1.113883.3.2629.1&ISO^MR||
FAKLUGJLWRVDFAKE^JANAYE||2008071 9|F||2106-3|18 PRAIRIE ROSE

PASS^^MEMPHIS^TN^38143^US^P||||ENG|||2000925555^^^^HAR|999-99-9999|||N||N||||||N
PV1|1|E|UNCHH^^^1071999^^^^^UNC HOME HEALTH

SERVICES^^DEPID|||||||||||||||2000925555^^^^HAR|COMM|||||||||||||||STILL
PATIENT|||||||20200918|||1200

PV2|||||||20200918|||||||||||||N DG1|1|I10|K03.2^Erosion of teeth|Erosion of teeth||^W
DG1|1|I10|K03.89^Cracked tooth|Cracked tooth||^W

DG1|1|I10|K04.1^Necrosis of pulp|Necrosis of pulp||^W

A04:

MSH|^~\&|EPIC^1.2.840.114350.374^ISO|UNC^2.16.840.1.113883.3.2629.125^ISO|||20201118110429|
HHI|ADT^A0 4|449277|T|2.5.1

EVN|A04|20201118110429||REG_UPDATE
PID|1||10000334443^^^UNCHCS&2.16.840.1.113883.3.2629.1&ISO^MR||
FAKEHZIAYBFUFFAKE^ANTONIO||2006010 2|M||2106-3|31 EGGENDART

LANE^^NASHVILLE^TN^37240^US^P||||ENG|||20009277755^^^^HAR|407-52-2715|||N||N||||||N
PV1|1|E|UNCHH^^^1071999^^^^^UNC HOME HEALTH

SERVICES^^DEPID|||||||||||||||20009277755^^^^HAR|COMM|||||||||||||||TEST
PATIENT|||||||20200918|||1200

DG1|1|I10|K03.89^Cracked tooth|Cracked tooth||^W

IN1|1|20807^BCBS JONATHAN TESTING|208|BCBS OTHER JONATHAN TESTING|PO BOX
35^^DURHAM^TN^27702|||||||||1|FAKEHZIAYBFUFFAKE^ANTONIO|Self|19651117|31 EGGENDART

LANE^^NASHVILLE^TN^37240^US^P|||1**1*1|||YES|||||||||225|2496789456|||||||F||||BOTH

Appendix F.2 ORU Notifications

Several use cases, including the COVID-19 test results and the clinical intelligence engine (CIE) alerts, utilize the HL7 2.5.1 ORU message type. They have the following naming convention:

- <DATETIME>_EventNotification-<ORGCODE>_PLUS_results.oru

Where:

- <ORGCODE> will be provided by SAS
- <DATETIME> will be formatted as YYYYMMDDHHMMSSmmm

Example: 20200410052525222_EventNotification-PRACTICE2_PLUS_results.oru

HL7 Segments in ORU Messages

MSH		
	MSH.1.1	Field Separator
	MSH.2.1	Encoding Characters
	MSH.3.1	Sending Application
	MSH.4.1	Source Code (Sending Facility)
	MSH.7.1	Message Date Time
	MSH.9.1	Message Type
	MSH.9.2	Event Trigger
	MSH.9.3	Message Structure
	MSH.10.1	Message Control ID
	MSH.11.1	Processing ID
	MSH.12.1	Version ID
PID		
	PID.1.1	Set ID
	PID.3.1	Patient Identifier
	PID.3.4	Patient Identifier - Assigning Authority
	PID.3.5	Patient Identifier – ID Type Code
	PID.3.6	Patient Identifier – Assigning Facility
	PID.5.1	Patient Family Name
	PID.5.2	Patient Given Name
	PID.5.3	Patient Middle Name
	PID.5.4	Patient Name Suffix
	PID.5.5	Patient Name Prefix
	PID.5.7	Patient Name Type Code
	PID.5.14	Patient Name Professional Suffix
	PID.7.1	Patient DOB
	PID.8.1	Patient Gender
	PID.9.1	Patient Alias Family Name
	PID.9.2	Patient Alias Given Name
	PID.9.3	Patient Alias Middle Name
	PID.9.4	Patient Alias Suffix

	PID.10.1	Patient Race ID
	PID.10.2	Patient Race Text
	PID.10.3	Patient Race Coding System
	PID.11.1	Patient Address Street 1
	PID.11.2	Patient Address Street 2
	PID.11.3	Patient Address City
	PID.11.4	Patient Address State
	PID.11.5	Patient Address Zip
	PID.11.6	Patient Address Country
	PID.11.9	Patient Address County Code
	PID.13.1	Patient Telephone Home
	PID.13.2	Patient Telephone Use Code
	PID.13.3	Patient Telephone Equipment Type
	PID.13.4	Patient Telephone Email Address
	PID.13.5	Patient Telephone Country Code
	PID.13.6	Patient Telephone Area Code
	PID.13.7	Patient Telephone Number
	PID.13.8	Patient Telephone Extension
	PID.13.9	Patient Telephone Any Text
	PID.14.1	Patient Telephone Business
	PID.14.2	Patient Telephone Use Code
	PID.14.3	Patient Telephone Equipment Type
	PID.14.5	Patient Telephone Country Code
	PID.14.6	Patient Telephone Area Code
	PID.14.7	Patient Telephone Number
	PID.14.8	Patient Telephone Extension
	PID.14.9	Patient Telephone Any Text
	PID.15.1	Patient Primary Language ID
	PID.15.2	Patient Primary Language Text
	PID.15.3	Patient Primary Language Coding System
	PID.16.1	Patient Marital Status ID
	PID.16.2	Patient Marital Status Text
	PID.16.3	Patient Marital Status Coding System
	PID.17.1	Patient Religion ID
	PID.17.2	Patient Religion Text
	PID.17.3	Patient Religion Coding System
	PID.19.1	Patient SSN
	PID.22.1	Patient Ethnicity Group ID
	PID.22.2	Patient Ethnicity Group Text
	PID.22.3	Patient Ethnicity Group Coding System
	PID.29.1	Patient Death Date and Time
	PID.30.1	Patient Death Indicator
	PID.33.1	Patient Last Update Date and Time

	PID.34.1	Patient Last Update Facility Text
	PID.34.2	Patient Last Update Facility ID
	PID.34.3	Patient Last Update Facility ID Type
PV1		
	PV1.1.1	Visit Set ID
	PV1.2.1	Visit Patient Class
	PV1.4.1	Visit Admit Type
	PV1.7.1	Visit Doctor Attending ID
	PV1.7.2	Visit Doctor Attending Family Name
	PV1.7.3	Visit Doctor Attending Given Name
	PV1.7.9	Visit Doctor Attending Assigning Authority
	PV1.8.1	Visit Doctor Referring ID
	PV1.8.2	Visit Doctor Referring Family Name
	PV1.8.3	Visit Doctor Referring Given Name
	PV1.8.9	Visit Doctor Referring Assigning Authority
	PV1.9.1	Visit Doctor Consulting ID
	PV1.9.2	Visit Doctor Consulting Family Name
	PV1.9.3	Visit Doctor Consulting Given Name
	PV1.9.9	Visit Doctor Consulting Assigning Authority
	PV1.10.1	Visit Hospital Service
	PV1.14.1	Visit Admit Source
	PV1.17.1	Visit Doctor Admitting ID
	PV1.17.2	Visit Doctor Admitting Family Name
	PV1.17.3	Visit Doctor Admitting Given Name
	PV1.17.9	Visit Doctor Admitting Assigning Authority
	PV1.19.1	Visit Number (Unique Encounter Code)
	PV1.36.1	Visit Discharge Disposition
	PV1.44.1	Visit Admit Date Time
	PV1.45.1	Visit Discharge Date Time
ORC		
	ORC.2.1	Placer Order Number
	ORC.3.1	Filler Order Number
	ORC.12.1	Ordering Provider ID
	ORC.12.2	Ordering Provider Family Name
	ORC.12.3	Ordering Provider Given Name
	ORC.12.4	Ordering Provider Middle Name
	ORC.12.5	Ordering Provider Suffix
	ORC.12.6	Ordering Provider Prefix
	ORC.12.9	Ordering Provider Assigning Authority
	ORC.14.1	Phone Number
	ORC.14.2	Phone Use Code
	ORC.14.3	Phone Type
	ORC.21.1	Ordering Facility

	ORC.21.2	Ordering Facility Type
	ORC.21.10	Ordering Facility Description
	ORC.22.1	Ordering Facility Address - Street
	ORC.22.3	Ordering Facility Address - City
	ORC.22.4	Ordering Facility Address - State
	ORC.22.5	Ordering Facility Address - Zip
	ORC.23.1	Ordering Facility Phone Number
	ORC.29.1	Order Type
OBR		
	OBR.1.1	OBR Set ID
	OBR.2.1	Placer Order Number
	OBR.3.1	Filler Order Number
	OBR.4.1	Order Code
	OBR.4.2	Order Description
	OBR.4.3	Order Coding System
	OBR.4.4	Prior Code
	OBR.4.5	Prior Description
	OBR.4.6	Prior Coding System
	OBR.7.1	Observation Date Time
	OBR.13.1	Relevant Clinical Information
	OBR.14.1	Specimen Received Date Time
	OBR.15.1	Specimen Source
	OBR.16.1	Ordering Provider ID
	OBR.16.2	Ordering Provider Family Name
	OBR.16.3	Ordering Provider Given Name
	OBR.16.4	Ordering Provider Middle Name
	OBR.16.5	Ordering Provider Suffix
	OBR.16.6	Ordering Provider Prefix
	OBR.16.9	Ordering Provider Assigning Authority
	OBR.17.1	Order Call Back Number
	OBR.17.2	Order Call Back Number Use Code
	OBR.17.3	Order Call Back Number Type
	OBR.22.1	Result Report Status Change Date Time
	OBR.24.1	Diagnostic ID
	OBR.25.1	Result Status
	OBR.26.1.1	Parent Result Code
	OBR.26.1.2	Parent Result Description
	OBR.26.1.3	Parent Result Coding System
	OBR.26.1.4	Parent Result Prior Code
	OBR.26.1.5	Parent Result Prior Description
	OBR.26.1.6	Parent Result Code
	OBR.26.2	Parent Observation Sub ID
	OBR.26.3	Parent Observation Description

	OBR.31.1	Reason For Study Code
	OBR.31.2	Reason For Study Description
	OBR.31.3	Reason For Study Coding System
	OBR.31.4	Reason For Study Prior Code
	OBR.31.5	Reason For Study Prior Description
	OBR.31.6	Reason For Study Prior Coding System
	OBR.32.1.1	Verified By Code
	OBR.32.1.2	Verified By Family Name
	OBR.32.1.3	Verified By Given Name
	OBR.32.1.4	Verified By Middle Name
	OBR.32.1.5	Verified By Suffix
	OBR.32.1.6	Verified By Prefix
	OBR.32.1.7	Verified By Professional Suffix
	OBR.32.1.9	Verified By Coding System
OBX		
	OBX.1	OBX Set ID
	OBX.2	Observation Value Type
	OBX.3.1	Observation Identifier Code
	OBX.3.2	Observation Identifier Description
	OBX.3.3	Observation Identifier Coding System
	OBX.5	Observation Value
	OBX.11	Observation Result Status
	OBX.14	Observation Date Time
	OBX.23	Performing Organization Name
	OBX.24.1	Performing Organization Street
	OBX.24.3	Performing Organization City
	OBX.24.4	Performing Organization State
	OBX.24.5	Performing Organization Zip
	OBX.24.6	Performing Organization Country
	OBX.24.9	Performing Organization County
SPM		
	SPM.2	Specimen ID
	SPM.4.1	Specimen Type Code
	SPM.4.2	Specimen Type Description
	SPM.4.3	Specimen Type Coding System
	SPM.17	Specimen Collection Date Time
	SPM.18	Specimen Received Date Time

Example ORU Messages

COVID LAB ORU:

MSH|^~\&||NCDPHEDS|NCHealthConnex||20201204113724||ORU^R01|20201204113724||2.5
PID|1||AI79923759^^^TST1^MRN^NCDPHEDS||FAKEMLBLEUHBBFAKE^Merna^S^||19690415|F|

Redd^Codner^P^II|2054-5^2054-5x^NCDPHEDS_Race|9160 School Alley^Suite 302^Memphis^TN^38188||(510) 9942265^^^^^^^NET^Internet^11@ainq.com~(901) 8811193|(213) 8154290|SPA^SPAx^NCDPHEDS_Language|R^Rx^NCDPHEDS_MaritalStatus| BUD^BUDx^NCDPHEDS_Religion|799237 59AI|456-06-7878|||H^Hx^NCDPHEDS_Ethnicity|||||||| N|||202012031617932|NCDPHEDS^NCDPHEDS.OID^ISO PV1||S|||||||||||||||||102571193 ORC|||18002111790^NCDPHEDS||V|||||||CARLYLE_ LISA MARSHALL^CARLYLE^LISAMARSHALL| CVS STORE # 3694|7045363663^WPN^PH|||||||CVS STORE # 3694|2325 Village Lake

Dr^^Charlotte^NC^28227|7045363663^WPN^PH|2325 Village Lake Dr^^Charlotte^NC^28227||||| LAB

OBR|||18002111790^NCDPHEDS|94500-6^SARS-CoV-2 RNA Resp Ql NAA+probe

^LN|||20200627|||||||202006290000|Specimen of unknown material|||||||202007020000||LAB|F OBX|1|TS|94500-6^SARS-CoV-2 RNA Resp Ql NAA+probe ^LN||Detected||||||F|||||||||||Laboratory Corporation of America (LabCorp)^CLIA^34D0655059|1447 York Court, Burlington, NC 27215 SPM||^18002111790||119324002^Specimen of unknown material^SCT|RESPIRATORY||||||||||||20200627|202006290000

CIE — Chronic Care Management:

MSH|^~\&|NCHealthConnex^2.16.840.1.113883.3.4234.2^ISO| NCHealthConnex^2.16.840.1.113883.3.4234.2^ISO|||20201217091845||ORU^R01|20201217091845|P| 2.5.1

PID|1||100268426^^^NCHealthConnex^MRN^NCHealthConnex||FAKEXMAAMJBLRFAKE^SAM||| M^M||2054-

5^2054-5^Race & Ethnicity - CDC|82 Manley Trail^^Knoxville^TN^37919^USA||||||^^||||| NTE|1||Added to Chronic Care Management Registry 12/04/2020 due to physician diagnosis|GR PV1|1|N

DG1|1||N18.4^Chronic kidney disease, stage 4 (severe)^I10||20201204085131|W|||||||||^^^^^^^^ DG1|1||I10^Essential (primary) hypertension^I10||20190805113058|W|||||||||^^^^^^^^

ZCI|CIE|CCR^Chronic Care Registry

CIE — Diabetes Registry:

MSH|^~\&|NCHealthConnex^2.16.840.1.113883.3.4234.2^ISO|
NCHealthConnex^2.16.840.1.113883.3.4234.2^ISO|||20201208210808||ORU^R01|20201208210808|
P|2.5.1

PID|1||100268478^^^NCHealthConnex^MRN^NCHealthConnex||
FAKEEIWHZUHNCFAKE^Fairleigh^N||19391003|M| |^^|0 Grayhawk Trail^^Memphis^TN^38161^^^^||

(434) 1946898^^^|(612) 1295859|^^|^^|^^||638981326|||^^ NTE|1||Added to Diabetes Registry
11/11/2020 due to physician diagnosis|GR

PV1|1|N

OBR|1|||28562-7^Vital Signs^LN

OBX|1|ST|8462-4^BP Diastolic^LN||72|mm[Hg]|||||||20201111164000 OBX|2|ST|8480-6^BP
Systolic^LN||139|mm[Hg]|||||||20201111164000 OBX|3|ST|39156-5^BMI (Body Mass
Index)^LN||30.1|kg/m2|||||||20201111150900

ORC|1|2019-12-20T00:00:00Z Hemoglobin A1c (LabCorp)|94B318B6-13C0-11EB-9413-

005056A6D918||E||^^^20191220000000^20191220000000^N^^||||^^|^^|Dayspring Family
Medicine

OBR|1|||Hemoglobin A1c (LabCorp)^Hemoglobin A1c
(LabCorp)^DSFM_LabOrderOrderItem||||||||||||||||||20191220000000||LAB|F OBX|1||17856-
6^Hemoglobin A1c^LN||8.7|4.8-5.6|Normal|F|||||||||||||^ DG1|1||44054006^Type 2 diabetes
mellitus^SCT||||||||||||^^^^^^^^ ZCI|CIE|DBR^Diabetes Registry

Note: CIE Pre-Diabetes follows same format as above.