DOQ-IT

HL7 Data Element Technical Specification

Implementation Guide for Trial Use

Version 2.0

♦ **Disclaimer: No decision has been made at this time on the continuation of the current DOQ-IT (Doctor's Office Quality – Information Technology) Project or the availability of an EHR-based data submission mechanism for PQRI (Physician Quality Reporting Initiative) in 2008. Therefore, it should not be assumed or concluded based on this posting that either DOQ-IT or PQRI EHR data submission mechanism(s) will be available in 2008. However, insofar as these five measures would be used in either DOQ-IT or for EHR reporting for PQRI for 2008, these are the final updated measure and technical specifications for 2008, subject only to minor technical corrections. See accompanying Vendor Notification.**

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Revision History

File Name	Date	Purpose
DOQ-IT Data Element Tech Spec.doc	June 21, 2004	Technical specification for software vendors to transmit data into the DOQ-IT transactional warehouse.
Modified document to include: 1. Vaccinations and Allergy requirements 2. Deletion and cancel messages 3. Pharmacy Order message 4. Consolidate all messages into one output file	Dec, 2004	Author: Mark A. Hennessey
Modified to include addendum – Section 8	April, 2005	Author: Kyle Hansen
Modified to include warehouse edits on length of fields. ZCR and RXO segment fields updated based on current measure requirements.	October, 2005	Author: Rhonda Bruxvoort
Removed data elements: FHS-11; ORC-21. Optionality changed from conditional to required on DG1-3.	November, 2005	Author: Chris Pound
The following segment fields have had the word UPIN changed to ID in the element name (ZCR-1, ZPP-1, ZPT-1, OBX-16, ORC-12, and DG1-16) The description has been updated as well to now require the NPI number be sent. The Primary_Clinic_EIN field has been added to the ZCR segment for a clinics federal tax ID. The www.qualitynet.org web links have all been updated. All segment tables have been reformatted to be a similar structure. The REQ'D column in the segment tables has been changed to OPT and the values in these columns have been updated to HL7 2.4 standard values.	July, 2007	Authors: Kyle Hansen and Shauna Kerby

Revision History (cont.)

File Name	Date	Purpose
DG1-21 confidential indicator has been removed from the spec as it is not used. The sample transactions have been updated to reflect the NPI and EIN changes. The DM-3 measure has been updated to BP < 140/80 from BP < 140/90. The DM-5 measure has been updated to LDL cholesterol < 100 from LDL cholesterol < 130 Added capability to capture observation id modifier code in OBX-3.4 component <alternate identifier> for codes with modifiers (e.g. CPT Category II codes with modifiers).	July, 2007	Authors: Kyle Hansen and Shauna Kerby

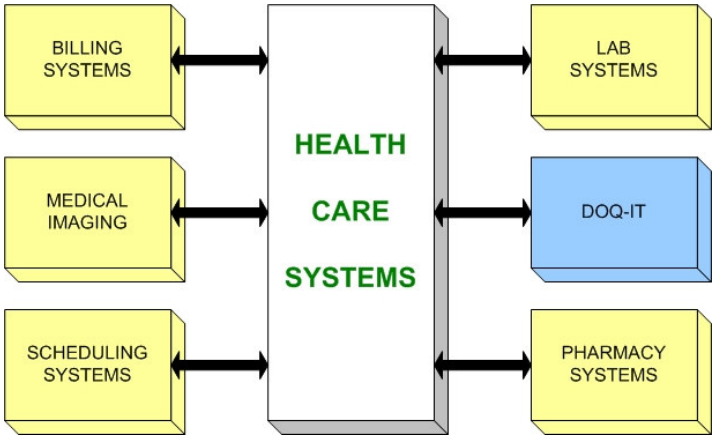
1. Introduction

1.1 PURPOSE

This document describes the data element technical specifications required for reporting the information necessary to report quality measures for the DOQ-IT initiative. The data consists primarily of patient Observational data related to a physician's practice. From this information, Coronary Artery Disease (CAD), Heart Failure (HF), Diabetes (DM), Hypertension (HTN) and Preventive Care (PC) measures are computed.

The purpose of this specification is to communicate the data requirements necessary for Electronic Health Record (eHR) vendors to incorporate into their applications. It is intended to serve as the roadmap for software vendors to use on behalf of physician offices submitting data into the DOQ-IT warehouse.

The exchange of data and interoperability between health care systems (eHR) and ancillary systems, such as Lab, Billing, Scheduling, pharmacy and others, has been extended by the use of Health Level Seven (HL7). By leveraging the existing HL7 standard, DOQ-IT becomes another ancillary system that health care systems can exchange information with. In order to transmit data into DOQ-IT, the eHR system must transmit data pursuant to the Health Level Seven (HL7) Version 2.4 standard.



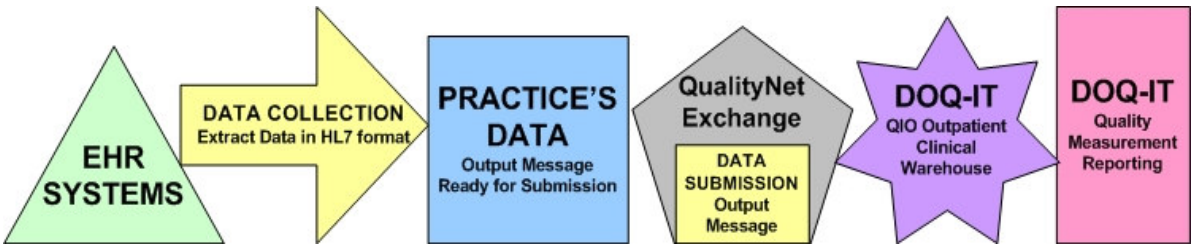
The Consolidated Health Informatics (CHI) is fostering the adoption of federal health information interoperability standards for health data segments. For example, vocabulary that includes specific health data models and communication standards; alignment with HIPPA administration transaction records and code sets; and data registry functionality are objectives that CHI hopes to achieve. This specification requires the use of a standard coding system(s) to identify diagnoses, medical exclusions, vital signs, drug history, observations, and lab test results. Standard coding systems such as ICD-9, CPT4, NDC, LOINC and SNOMED will be used for recording patient activities.

1.2 CONCEPTUAL APPROACH

1.2.1 Background

The QIO Outpatient Clinical Warehouse will accept Observational records originating from the EHR system. Upon transmission of data to the warehouse, DOQ-IT will validate the record per the edit requirements and insert it into the QIO Outpatient Clinical Warehouse. Subsequently, DOQ-IT will evaluate the Observational data to determine if the measurement criteria has been satisfied for a given patient. If this occurs, DOQ-IT will process the Observational data and calculate measurements in accordance with the analytical specifications approved by CMS.

The eHR system must generate an output message which can consist of multiple patient records and transactions. As the diagram below shows, data is extracted from the eHR system and is written to an output file. The physician office logs onto QualityNet Exchange and transfers the output message to the DOQ-IT system.



1.3 QNET EXCHANGE OVERVIEW

QualityNet Exchange provides secure, interactive applications for the exchange and input of privacy data between healthcare providers and the Quality Improvement Organization (QIO) responsible for their state. Healthcare providers participating in this program have the capability to receive data feedback on the submissions. For additional information on QualityNet Exchange, refer to www.qualitynet.org.

Before a physician practice can begin submitting data, the practice must complete the QualityNet registration process by completing the necessary forms and approvals. Upon creation of the QualityNet user account, the practice must complete the online DOQ-IT registration process to setup their practice. This consists of enrolling the practice into the topic(s) they wish, and registering clinics including the designation of the primary clinic who will be responsible for submitting patient data.

1.4 DOQ-IT QUALITY MEASURES

This list represents the approved measures as of June, 2004. Additional measures may be adopted as deemed appropriate. The patient registration messages and observational data messages will be used to determine if the patient has meet the measurement criteria and the accompanying results.

1.4.1 Coronary Artery Disease (CAD)

1.4.1.0 CAD-1: Antiplatelet Therapy

Description: Percentage of patients with CAD who were prescribed antiplatelet therapy

Source of Measure: CMS/AMA Physician Consortium/ACC/AHA

1.4.1.1 CAD-2: Drug Therapy for Lowering LDL Cholesterol

Description: Percentage of patients with CAD who were prescribed a lipid-lowering therapy (based on current ATP III guidelines)

Source of Measure: CMS/AMA Physician Consortium/ACC/AHA

1.4.1.2 CAD-3: Beta-Blocker Therapy-Prior Myocardial Infarction (MI)

Description: Percentage of CAD patients with prior MI who were prescribed beta-blocker therapy

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.1.3 CAD-4: Blood Pressure

Description: Percentage of patients who had a blood pressure measurement during the last office visit

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.1.4 CAD-5: Lipid Profile

Description: Percentage of patients receiving at least one lipid profile during the reporting year

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.1.5 CAD-6: LDL Cholesterol Level

Description: Percentage of patients with most recent LDL cholesterol < 130 mg/dl

Source of Measure: CMS

1.4.1.6 CAD-7: ACE Inhibitor Therapy

Description: Percentage of patients with CAD who also have diabetes and/or LVSD who were prescribed ACE inhibitor therapy

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.2 Hypertension (HTN)

1.4.2.1 HTN-1: Blood Pressure Screening

Description: Percentage of patient visits with blood pressure (BP) measurement recorded

Source of Measure: CMS/AMA Physician Consortium/ACC/AHA

1.4.2.2 HTN-2: Blood Pressure Control

Description: Percentage of patients with last BP < 140/90 mm Hg

Source of Measure: CMS/NCQA

1.4.2.3 HTN-3: Plan of Care

Description: Percentage of patient visits with either systolic blood pressure $\geq$ 140 mm Hg *or* diastolic blood pressure $\geq$ 90 mm Hg with documented plan of care for hypertension

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.3 Heart Failure (HF)

1.4.3.1 HF-1: Left Ventricular Function (LVF) Assessment

Description: Percentage of patients with HF, who have quantitative or qualitative results of LVF assessment recorded

Source of Measure: AMA Physician Consortium/ACC/AHA (NQF endorsed)

1.4.3.2 HF-2: Left Ventricular Function (LVF) Testing

Description: Left ventricular ejection fraction testing during the current year for patients hospitalized with a principal diagnosis of HF during the current year

Source of Measure: CMS

1.4.3.3 HF-3: Weight Measurement

Description: Percentage of HF patient visits with weight measurement recorded

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.3.4 HF-4: Blood Pressure Screening

Description: Percentage of patient visits with blood pressure (BP) measurement recorded

Source of Measure: CMS/AMA Physician Consortium/ACC/AHA

1.4.3.5 HF-5: Patient Education

Description: Percentage of patients with HF who were provided with patient education on disease management and health behavior changes during one or more visit(s) within a six-month period

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.3.6 HF-6: Beta-Blocker Therapy

Description: Percentage of patients with HF who also have LVSD who were prescribed beta-blocker therapy

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.3.7 HF-7: ACE Inhibitor or ARB Therapy for LVSD

Description: Percentage of patients with HF who also have Left Ventricular Systolic Dysfunction (LVSD) who were either prescribed Angiotensin-Converting Enzyme (ACE) inhibitor or Angiontensin Receptor Blocker (ARB) therapy

Source of Measure: AMA Physician Consortium/ACC/AHA (NQF endorsed)

1.4.3.8 HF-8: Warfarin Therapy for Patients with Atrial Fibrillation

Description: Percentage of patients with HF who also have paroxysmal or chronic atrial fibrillation who were prescribed warfarin therapy

Source of Measure: AMA Physician Consortium/ACC/AHA

1.4.4 Diabetes Mellitus (DM)

1.4.4.1 DM-1: HbA1c management

Description: Percentage of patients with one or more A1c test(s)

Source of Measure: NDQIA (NQF endorsed)

1.4.4.2 DM-2: HbA1c management control

Description: Percentage of patients with most recent A1c level > 9.0% (poor control)

Source of Measure: NDQIA (NQF endorsed)

1.4.4.3 DM-3: Blood Pressure Management

Description: Percentage of patients with most recent BP < 140/80 mm Hg

Source of Measure: NDQIA (NQF endorsed)

1.4.4.4 DM-4: Lipid Measurement

Description: Percentage of patients with at least one low-density lipoprotein (LDL) cholesterol test

Source of Measure: NDQIA (NQF endorsed)

1.4.4.5 DM-5: LDL Cholesterol Level

Description: Percentage of patients with most recent LDL cholesterol < 100 mg/dl

Source of Measure: NDQIA (NQF endorsed)

1.4.4.6 DM-6: Urine protein testing

Description: Percentage of patients with at least one test for microalbumin during the measurement year, or who had evidence of medical attention for existing nephropathy (diagnosis of nephropathy or documentation of microalbuminuria or albuminuria)

Source of Measure: NDQIA (NQF endorsed)

1.4.4.7 DM-7: Eye exam

Description: Percentage of patients who received a dilated eye exam or evaluation of retinal photographs by an optometrist or ophthalmologist during the reporting year, or during the prior year if patient is at low risk for retinopathy. A patient is considered low risk if all three of the following criteria are met: (1) the patient is not taking insulin; (2) has an A1c < 8%; and (3) has no evidence of retinopathy in the prior year

Source of Measure: NDQIA (NQF endorsed)

1.4.4.8 DM-8: Foot exam

Description: Percentage of eligible patients receiving at least one complete foot exam (visual inspection, sensory exam with monofilament, and pulse exam)

Source of Measure: NDQIA (NQF endorsed)

1.4.5 Preventive Care (PC)

1.4.5.0 PC-1: Blood Pressure Measurement

Description: Percentage of patient visits with blood pressure (BP) measurement recorded

Source of Measure: CMS/AMA Physician Consortium

1.4.5.1 PC-5: Breast Cancer Screening Measurement

Description: Percentage of women 50-69 years who had a mammogram during the measurement time period (24 months)

Source of Measure: CMS/AMA Physician Consortium

1.4.5.2 PC-6: Colorectal Cancer Screening

Description: Percentage of patients screened for colorectal cancer during the one-year measurement period

Source of Measure: AMA Physician Consortium

1.4.5.3 PC-7: Influenza Vaccination

Description: The percentage of patients 50 years and older who received an influenza vaccination from September through February of the year prior to the measurement year

Source of Measure: NCQA/CMS (NQF endorsed)

1.4.5.4 PC-8: Pneumonia Vaccination

Description: The percentage of patients 65 years and older who ever received a pneumococcal vaccination

Source of Measure: NCQA/CMS (NQF endorsed)

1.4.5.5 PC-9: Lipid Measurement

Description: Percentage of patients with at least one low-density lipoprotein (LDL) cholesterol test

Source of Measure: NDQIA

1.4.5.6 PC-10: LDL Cholesterol Level

Description: Percentage of patients with most recent LDL cholesterol < 130 mg/dL

Source of Measure: NDQIA

1.4.5.7 PC-11: Tobacco Use

Description: Percentage of patients who were queried about tobacco use one or more times during the two-year measurement period

Source of Measure: AMA Physician Consortium

1.4.5.8 PC-12: Tobacco Cessation

Description: Percentage of patients identified as tobacco users who received cessation intervention during the two-year measurement period

Source of Measure: AMA Physician Consortium (NQF endorsed)

1.5 STANDARDS

The use of standards, both clinical and systems integration, is a prerequisite for data submission to the DOQ-IT QIO Outpatient Clinical Warehouse. This specification will adopt future standards as they evolve and are approved by CMS.

1.5.1 Logical Observation Identifier Names and Codes (LOINC®)

The HL7 encoding makes extensive use of the code set, *Logical Observation Identifier Names and Codes (LOINC).* LOINC codes are available for commercial use without charge, subject to the terms of a license that assures the integrity and ownership of the codes.

The LOINC database provides sets of universal names and ID codes for identifying laboratory and clinical observations and other units of information meaningful in cancer registry records.

Each LOINC record corresponds to a single observation. The LOINC codes are not intended to transmit all possible information about a test or observation. They are only intended to *identify* the observations. The LOINC code for a name is unique and permanent. LOINC codes must always be transmitted with a hyphen before the check digit (e.g., "10154-3"). The numeric code is transmitted as a variable length number, without leading zeros.

LOINC codes are copyrighted by Regenstrief Institute and the Logical Observation Identifier Names and Codes (LOINC®) Consortium.

The LOINC database can be obtained from Regenstrief Institute, 1001 West 10th Street RG-5, Indianapolis, IN 46202, (317) 630-7433.

1.5.2 SNOMED Clinical Terms (SNOMED-CT®)

SNOMED Clinical Terms® (SNOMED CT®) contains over 357,000 health care concepts with unique meanings and formal logic-based definitions organized into hierarchies. The fully populated table with unique descriptions for each concept contains more than 957,000 descriptions. Approximately 1.37 million semantic relationships exist to enable reliability and consistency of data retrieval.

SNOMED International maintains the SNOMED CT technical design, the core content architecture, and the SNOMED CT Core content. SNOMED CT Core content includes the technical specification of SNOMED CT and fully integrated multi-specialty clinical content. The Core content includes the concepts table, description table, relationships table, history table, an ICD-9-CM mapping, and the Technical Reference Guide.

Each SNOMED record corresponds to a single observation. The SNOMED codes are not intended to transmit all possible information about an observation, or procedure. They are only intended to *identify* the observation or procedure. The SNOMED code for a name is unique and permanent.

SNOMED CT combines the content and structure of the SNOMED Reference Terminology (SNOMED RT) with the United Kingdom's Clinical Terms Version 3 (formerly known as the Read Codes). For information on obtaining the standard, contact:

SNOMED International
College of American Pathologists
325 Waukegan Rd
Northfield, IL 60093-2750
(800) 323-4040 Ext 7700
www.snomed.org

1.5.3 CURRENT PROCEDURAL TERMINOLOGY, Fourth Edition (CPT4®)

Current Procedural Terminology, Fourth Edition (CPT®) is a listing of descriptive terms and identifying codes for reporting medical services and procedures performed by physicians. The purpose of the terminology is to provide a uniform language that will accurately describe medical, surgical, and diagnostic services, and will thereby provide an effective means for reliable nationwide communication among physicians, patients, and third parties.

Each CPT4 record corresponds to a single observation or diagnosis. The CPT4 codes are not intended to transmit all possible information about an observation, or diagnosis. They are only intended to *identify* the observation or diagnosis. The CPT4 code for a name is unique and permanent.

Current Procedural Terminology, Fourth Edition (CPT®) is copyrighted by the American Medical Association, Washington DC: Public Health Service, US Department of Health and Human Services. All Rights Reserved. CPT is a registered trademark of the American Medical Association. For questions regarding the use of CPT codes, contact the American Medical Association CPT Information and Education Services at 800 634-6922 or via the web at http://www.ama-assn.org/ama/pub/category/3113.html.

1.5.4 INTERNATIONAL CLASSIFICATION OF DISEASES, Ninth Edition, CLINICAL MODIFICATION ICD9 (CM)

The International Classification of Diseases, Ninth Revision, Clinical Modification ICD9 (CM) is based on the U.S. modification of the World Health Organization's Ninth Revision, International Classification of Diseases ICD9 (CM). ICD9 (CM) classifies morbidity data for indexing medical records, medical care review, ambulatory and other medical care programs, as well as for basic health statistics.

Each ICD9 (CM) record corresponds to a single diagnosis. The ICD9 (CM) codes are not intended to transmit all possible information about a diagnosis. They are only intended to *identify* the diagnosis. The ICD9 (CM) code for a name is unique and permanent.

For questions regarding ICD9 (CM) codes, contact the American Medical Association, International Classification of Diseases, Ninth Revision, Clinical Modification ICD9 (CM). Washington DC: Public Health Service, US Department of Health and Human Services. Copyright © Ingenix, Inc.

1.5.5 National Drug Code (NDC)

The NDC System was originally established as an essential part of an out-of-hospital drug reimbursement program under Medicare. The NDC serves as a universal product identifier for human drugs. The current edition of the National Drug Code Directory is limited to prescription drugs and a few selected OTC products.

Each RXO or RXA record corresponds to a single NDC activity. The NDC codes are not intended to transmit all possible information about a pharmacy order. They are only intended to *identify* the drug or vaccination. The NDC code for a name is unique and permanent.

Each drug product listed under Section 510 of the Federal Food, Drug, and Cosmetic Act is assigned a unique 10-digit, 3-segment number. This number, known as the National Drug Code (NDC), identifies the labeler/vendor, product, and trade package size. The first segment, the labeler code, is assigned by the FDA. A labeler is any firm that manufactures, repacks or distributes a drug product. The second segment, the product code, identifies a specific strength, dosage form, and formulation for a particular firm. The third segment, the package code identifies package sizes. Both the product and package codes are assigned by the firm.

Requests for more specific information should be submitted in writing or directed to FDA's Freedom of Information Staff at:

Food and Drug Administration
Freedom of Information Office, HFI-35
5600 Fishers Lane
Rockville, MD 20857
Telephone: (301)827-6500 FAX: (301)443-1726

1.6 INTRODUCTION TO HL7

1.6.1 Health Level Seven – HL7 Standard, Version 2.4

HL7 Version 2.4 is the adopted standard for submission of data into the QIO Outpatient Clinical Warehouse. If there are any omissions or when this document is silent, HL7 Version 2.4 will apply. The mission of HL7 is to provide standards for the exchange, management and integration of data that support clinical patient care and the management, delivery, and evaluation of health care services. Founded in 1987, HL7 is a not-for-profit Standards Developing Organization (SDO) that specializes in developing standards for the exchange of clinical data among disparate health care computer applications. The American National Standards Institute accredits it. For information on membership and obtaining the standard, contact:

Health Level Seven
3300 Washtenaw Ave., Suite 227
Ann Arbor, MI 48104-4261
Phone: (734) 677-7777
http://www.hl7.org

1.6.2 HL7 Messages

A **message** is the unit of data transferred between information systems. It is composed of a group of segments in a defined sequence. Each message has a **message type** that defines its purpose. For example, the *Observational Result Unsolicited* message type is used to transmit clinical data about a patient from one system to another. A three-character code contained within each message identifies its type. The three-character code for the *Observational Result Unsolicited* message is ORU.

1.6.2.0 Trigger Event(s)

The real-world event that initiates an exchange of messages is called a **trigger event**. Examples of trigger events include “a laboratory measurement has been completed and has met the criteria for release to users.” The trigger event that stimulates a message is identified in a message by a code. There is a one-to-many relationship between message types and trigger event codes. The same trigger event code may not be associated with more than one message type; however, a message type may be associated with more than one trigger event. Figure 1 shows a sample HL7 Observation Result Unsolicited (ORU) message sent for the trigger event “unsolicited transmission of an observation message” (R01). The message ID and trigger event code are highlighted. The characters “|”, “^”, “\”, “&” and the carriage return character (shown as “<cr>”) are reserved for special functions as described in 1.6.5.

```
MSH|^~\&|||||19981105131523||ORU^R01|A12349282|P|2.4|||NE|NE<cr>
PID|||100928782^9^M11||Smith^John^J<cr>
OBX||CE|3141-9||147|LB^^ANS+<cr>
```

Figure 1. Sample HL7 message with message ID and trigger event code highlighted.

1.6.3 Segments

Messages are composed of segments.

A **segment** is a logical grouping of **data fields**. Segments of a message may be required or optional. They may occur only once in a message or they may be allowed to repeat. Each segment is identified by a name and a unique three-character code known as the Segment ID.

Segments are sent within messages as the Segment ID followed by a sequence of data fields. The last field ends with the end-of-segment character, a carriage return. For example, the ORU message in Figure 1 contains the following segments: Message Header (MSH), Patient ID (PID) and observation/result (OBX).

1.6.4 Fields

Data fields are transmitted as character strings separated by characters that are data field separators.

This recommendation includes segment attribute tables. These tables list and describe the data fields in the segment and characteristics of their usage. Listed below is an example of the attribute table that describes the MSH segment.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM #	Element Name
1	1	ST	R			00001	Field Separator
2	4	ST	R			00002	Encoding Characters
3	180	HD	O			00003	Sending Application
4	180	HD	B			00004	Sending Facility
5	180	HD	B			00005	Receiving Application
6	180	HD	B			00006	Receiving Facility
7	26	TS	B			00007	Date/Time Of Message
8	40	ST	B			00008	Security
9	7	CM	R			00009	Message Type
10	20	ST	R			00010	Message Control ID
11	3	PT	R			00011	Processing ID
12	8	ID	R		0104	00012	Version ID
13	15	NM	B			00013	Sequence Number
14	180	ST	B			00014	Continuation Pointer
15	2	ID	B		0155	00015	Accept Acknowledgment Type
16	2	ID	B		0155	00016	Application Acknowledgment Type
17	2	ID	B			00017	Country Code
18	6	ID	B	Y/3	0211	00692	Character Set
19	60	CE	B			00693	Principal Language Of Message
20	20	ID	B		0356	01317	Alternate Character Set Handling Scheme
21	427	EI	B	Y		01598	Message Profile Identifier

Figure 2. Sample Segment Attribute Table.

1.6.4.0 SEQ--Position (sequence within the segment)

Ordinal position of the data field within the segment. This number is used to refer to the data field in the text comments that follow the segment definition table.

1.6.4.1 LEN—Maximum length

Maximum number of characters that one occurrence of the data field may occupy. The maximum length is not of conceptual importance in the abstract message or the HL7 coding rules. The length of a field is normative. However, in general practice it is often negotiated on a site-specific basis. It is calculated to include the component and subcomponent separators that are defined below. Because the maximum length is that of a single occurrence, the repetition separator is not included in calculating the maximum length.

1.6.4.2 DT—Data type

Restrictions on the contents and specification of the format of the data field. There are a number of data types defined by HL7. These are explained in Section 1.6.7.

Many data types break a data field into multiple components. For example, the HL7 Person Name (PN) data type has six components: Family name, Given name, Middle initial or name, Suffix, Prefix, Degree.

1.6.4.3 OPT—Optionality

Whether the field is required, optional, or conditional in a segment. The designations are:

R - Required

O - Optional

C - conditional on the trigger event or on some other field(s).

X - not used with this trigger event

B - left in for backward compatibility with previous versions of HL7.

In the segment attribute tables this information is in a column labeled **OPT**.

1.6.4.4 RP#—Repetition

Whether the field may repeat. The designations are:

N - no repetition

Y - the field may repeat an indefinite or site-determined number of times

(integer) - the field may repeat up to the number of times specified in the integer

DOQ-IT will not accept any repeating fields. Instead, a separate segment must be created to capture the repeating field(s).

1.6.4.5 TBL#—Table

HL7 defines a table of values for this field. An entry in the table number column means that the table name and the element name are equivalent.

The manner in which HL7 defines the valid values for tables will vary. Certain fields, like Patient Location, will have values that vary from institution to institution. Such tables are designated user- or site-defined. Even though these tables are not defined in the Standard, they are given a user-defined table number to facilitate implementations. The IS data type is often used to encode values for these tables. Note that some of these tables (e.g., location) may reference common master files.

Others, like Event Type (*HL7 table 0003*), are a part of the HL7 Standard because they affect the interpretation of the messages that contain them. They are limited to the values established by the HL7 Standard.

Still other tables contain values that are encoded by reference to other standards documents. The CE data type is used to encode values for these tables.

1.6.4.6 Item Number

Small integer that uniquely identifies the data field throughout the Standard.

1.6.4.7 Element Name

Descriptive name for the field.

1.6.5 Use of HL7 in EBCDIC Environments

HL7 messages are always represented as sequences of text characters, rather than as binary. The standard "wire format" for HL7 version requires that the messages be composed of characters from one of these character sets: ANSI X3.4:1986, ASCII character set; ISO 646:1990, Information Processing - ISO 7-bit coded character set for information interchange; and certain other code sets that are derived from the ISO standard and support specific European and Asian requirements.

This specification does not preclude the use of HL7 in computing environments based on the EBCDIC character set. Indeed, many systems built on these technologies use HL7. Such systems must have a means to translate between their internal EBCDIC data and ASCII in the network. Some get the translation as a feature of an interface engine. Others use features of the IBM Operating Systems that will allow EBCDIC characters to be translated automatically to and from ASCII during input-output.

1.6.6 Message Delimiters

In constructing a message, certain special characters are used. They are the segment terminator, the field separator, the component separator, subcomponent separator, repetition separator, and escape character. The segment terminator is always a carriage return (in ASCII, a hex 0D). The other delimiters are defined in the MSH segment, with the field delimiter in the 4th character position, and the other delimiters occurring as in the field called Encoding Characters, which is the first field after the segment ID. The delimiter values used in the MSH segment are the delimiter values used throughout the entire message. **DOQ-IT only permits the use of message delimiters and the values found in Figure 3.**

Delimiter	Value	Encoding Character Position	Usage
Segment Terminator	<cr> hex 0D (**this value required**)	-	Terminates a segment record. This value cannot be changed by implementers.
Field Separator	|	-	Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.
Component Separator	^	1	Separates adjacent components of data fields, where allowed.
Subcomponent Separator	&	4	Separates adjacent subcomponents of data fields, where allowed. If there are no subcomponents, this character may be omitted.
Repetition Separator	~	2	Separates multiple occurrences of a field, where allowed.

Delimiter	Value	Encoding Character Position	Usage
Escape Character	\	3	Escape character for use with any field represented by an ST, TX or FT data type, or for use with the data (fourth) component of the ED data type. If no escape characters are used in a message, this character may be omitted. However, it must be present if subcomponents are used in the message.

Figure 3. HL7 Delimiters.

1.6.7 Data Types

As described in 1.6.4.2, when a field is described in a segment attribute table, one of the characteristics that is given is the data type. The data type declaration describes the format of the data. Many data types are compound. That means that a single occurrence of a data field that conforms to the data type may have multiple components. Components may be declared to have subcomponents. For a complete description of all data types, refer to the HL7 standard for a description. Those data types used by DOQ-IT include the following:

Data Type Category/ Data type	Data Type Name	Comment
Alphanumeric		
ST	String	Commonly used in messages
Numerical		
CQ	Composite quantity with units	
NM	Numeric	Commonly used in messages
SI	Sequence ID	
Identifier		
ID	Coded values for HL7 tables	Commonly used in messages
EI	Entity identifier	
Date/Time		
TS	Time stamp	Commonly used in messages
Code Values		
CE	Coded element	Extensively used in messages
CX	Extended composite ID with check digit	
XCN	Extended composite ID number and name	
Demographics		
XPN	Extended person name	
XON	Extended composite name and ID number for organizations	

Figure 4. HL7 Data Types.

The following HL7 Data Types are used for DOQ-IT records:

1.6.7.0 CE - coded element

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ ^^

Example:

|2148-5^CREATININE^LN|

This data type transmits codes and the text associated with the code. Alternative identifiers and alternate coding systems will not be permitted.

1.6.7.0.1 Identifier (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

1.6.7.0.2 Text (ST)

Name or description of the item in question. For example, myocardial infarction or X-ray impression. Its data type is string (ST).

1.6.7.0.3 Name of coding system (ST)

Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4, “Coding schemes,” of HL7 version 2.3.1.

The majority of DOQ-IT Data Items are transmitted as HL7 OBX - observation/result, and DG1 – diagnosis segments. The 3rd field of each OBX segment (OBX-3) identifies the observation being transmitted in the segment, and is of data type CE. For example, all DOQ-IT Data Items that have a LOINC code, the ***identifier*** component of OBX-3 is the corresponding LOINC code; the ***text*** component is the name of the DOQ-IT Data Item; and the ***name of coding system*** component is “LN” (LOINC).

1.6.7.1 EI - entity identifier

Components: <entity identifier (ST)> ^ <namespace ID (IS)> ^ <universal ID (ST)> ^ < universal ID type (ID)>

The entity identifier defines a given entity within a specified series of identifiers.

The specified series, the *assigning authority*, is defined by components 2 through 4. The assigning authority is of the hierarchic designator data type, but it is defined as three separate components in the EI data type, rather than as a single component as would normally be the case. This is in order to maintain backward compatibility with the EI’s use as a component in several existing data fields. Otherwise, the components 2 through 4 are as defined in Section 1.6.7.2, “HD - hierarchic designator.” Hierarchic designators are unique across a given HL7 implementation.

1.6.7.1.1 Entity identifier (ST)

The first component, *entity identifier,* is usually defined to be unique within the series of identifiers created by the *assigning authority,* defined by a hierarchic designator, represented by components 2 through 4. (See Section 1.6.7.2, “HD - hierarchic designator”.)

1.6.7.1.2 Namespace ID (IS)

Refer to *user-defined table 0300 - Namespace ID* for suggested values.

1.6.7.1.3 Universal ID (ST)

The HD's second component, universal ID (UID), is a string formatted according to the scheme defined by the third component, universal ID type (UID type). The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UID's (defined by the UID type). The UID (second component) must follow the syntactic rules of the particular universal identifier scheme (defined by the third component).

1.6.7.1.4 Universal ID type (ID)

Refer to *HL7 table 0301 - Universal ID type* for valid values. See Section 1.6.7.2, "HD - hierarchic designator," for definition.

1.6.7.2 HD - hierarchic designator

Components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

The HD is designed to be a more powerful application identifier than a simple code It is also designed to be used either as a local version of a site-defined application identifier or a publicly-assigned UID. Syntactically, the HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components.

The HD allows any site to act as an assigning authority (on a local or user-defined basis), even if it technically does not have the right to issue new IDs within an identification scheme. HDs which have defined third components (defined UID types) must be unique within the series of ID's defined by that component.

1.6.7.2.1 Namespace ID (IS)

Refer to *user-defined table 0300 - Namespace ID* for suggested values.

1.6.7.2.2 Universal ID (ST)

The HD's second component, Universal ID (UID), is a string formatted according to the scheme defined by the third component, Universal ID type (UID type). The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UID's (defined by the UID type). The UID (second component) must follow the syntactic rules of the particular universal identifier scheme (defined by the third component).

1.6.7.2.3 Universal ID type (ID)

The third component governs the interpretation of the second component of the HD. If the third component is a known UID refer to *HL7 table 0301 - Universal ID type* for valid values, then the second component is a universal ID of that type.

Examples:

1.2.34.4.1.5.1.5.1,1.13143143.131.3131.1^ISO

14344.14144321.4122344.14434.654^GUID

falcon.iupui.edu^DNS

40C983F09183B0295822009258A3290582^RANDOM

1.6.7.3 ID - coded value for HL7 defined tables

The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. Examples of ID fields include religion and sex. This data type should be used only for HL7 tables (see Section 1.6.4.6). The reverse is not true, since in some circumstances it is more appropriate to use the CE data type for HL7 tables.

1.6.7.4 NM - numeric

A number represented as a series of text numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point, the number is assumed to be an integer. Examples:

|999|

|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, “01.20” and “1.2”, are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric text characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

1.6.7.5 SI - sequence ID

A non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters

1.6.7.6 ST - string data

String data is left justified with trailing blanks optional. Any displayable (printable) ASCII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. Example:

|almost any data at all|

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence (see Section 1.6.8).

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

1.6.7.7 TS - time stamp

Format: YYYY[MM[DD[HHMM[SS]]]][+/-ZZZZ]^<degree of precision>

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

YYYY is used to specify a precision of “year,” YYYYMM specifies a precision of “month,” YYYYMMDD specifies a precision of “day,” YYYYMMDDHH is used to specify a precision of “hour,” YYYYMMDDHHMM is used to specify a precision of “minute,” YYYYMMDDHHMMSS is used to specify a precision of seconds, and YYYYMMDDHHMMSS. Maximum length of the time stamp is 26. Examples:

|198807050000|	Midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the sender.

DOQ-IT does not require the time zone offset suggested in the HL7 standard rather use the local system application time. One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation.

1.6.7.8 XCN - extended composite ID number and name for persons

Components: <ID number (ST)> ^ <family name (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <source table (IS)> ^ <assigning authority (HD)> ^ <name type code(ID)> ^ <identifier check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ <identifier type code (IS)> ^ <assigning facility (HD)>

Subcomponents of assigning authority: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

Example:

|1234567^Smith^John^J^III^DR^PHD^ADT01^^L^4^M11^MR|

1.6.7.8.1 ID number (ST)

1.6.7.8.2 Family name (ST)

1.6.7.8.3 Given name (ST)

1.6.7.8.4 Middle initial or name (ST)

1.6.7.8.5 Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

1.6.7.8.6 Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

1.6.7.8.7 Degree (ST)

Used to specify an educational degree (e.g., MD).

1.6.7.8.8 Source table (IS)

Refer to *user-defined table 0297 - Composite Number ID source* for suggested values. Used to delineate the first component.

1.6.7.8.9 Assigning authority (HD)

1.6.7.8.10 Name type code (ID)

A code that represents the type of name. Refer to *HL7 table 0200 - Name type* for valid values (see Section, “XPN - extended person name”).

1.6.7.8.11 Identifier check digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

1.6.7.8.12 Code identifying the check digit scheme employed (ID)

Refer to HL7 table 0061- Check digit scheme for valid values.

1.6.7.8.13 Identifier type code (IS)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the “Assigning authority” component. Refer *to user-defined table 0203 - Identifier type* for suggested values.

1.6.7.8.14 Assigning facility (HD)

The place or location identifier where the identifier was first assigned to the person. This component is not an inherent part of the identifier but rather part of the history of the identifier: as part of this data type, its existence is a convenience for certain intercommunicating systems.

1.6.7.9 XPN - extended person name

Components: <family name (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <name type code (ID) > ^ <name representation code (ID)>

Example:

|Smith^John^J^III^DR^PHD^L|

1.6.7.9.1 Family name (ST)

1.6.7.9.2 Given name (ST)

1.6.7.9.3 Middle initial or name (ST)

1.6.7.9.4 Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

1.6.7.9.5 Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

1.6.7.9.6 Degree (ST)

Used to specify an educational degree (e.g., MD).

1.6.7.9.7 Name type code (ID)

1.6.7.9.8 A code that represents the type of name.

1.6.7.9.9 Name representation code (ID)

1.6.8 Use of Escape Sequences in Text Fields

1.6.8.0 Formatting codes

When a field of type ST is being encoded, the escape character may be used to signal certain special characteristics of portions of the text field. The escape character is whatever display ASCII character is specified in the Escape Character component of MSH-2-encoding characters. For purposes of this

section, the character \ will be used to represent the character so designated in a message. An escape sequence consists of the escape character followed by an escape code ID of one character, zero (0) or more data characters, and another occurrence of the escape character. The following escape sequences are defined:

\F\	field separator enumerated as '|'
\S\	component separator enumerated as '^'
\T\	subcomponent separator enumerated as '&'
\R\	repetition separator enumerated as '~'
\E\	escape character enumerated as '\'

The escape sequences for field separator, component separator, subcomponent separator, repetition separator, and escape character are also valid within an ST data field.

No escape sequence may contain a nested escape sequence.

1.6.8.1 Escape sequences supporting multiple character sets for XPN data types

The following HL7 escape sequences are defined to support multiple character sets for fields of the XPN data types. They allow HL7 parsers to use escape codes (defined in the standards used below), without breaking, and without being non-conformant, to the HL7 escape paradigm defined in this section.

1.6.8.2 Special character

The special character escape sequences (\F\, \S\, \R\, \T\, and \E\) allow the corresponding characters to be included in the data in a text field, though the actual characters are reserved. Refer to section 1.6.6 Message Delimiters. For example, the message fragment:

```
DSP|    TOTAL CHOLESTEROL    180  \F\90 - 200\F\
DSP|    \S\----------------\S\
```

would cause the following information to be displayed, given suitable assignment of separators:

```
TOTAL CHOLESTEROL    180  |90 - 200|
^----------------^
```

1.6.9 Message Construction Rules

1.6.9.0 Creating Messages

Step 1 Construct the segments in the order defined for the message. Each segment is constructed as follows:

a) the first three characters are the segment ID code

b) each data field in sequence is inserted in the segment in the following manner:

1) a field separator is placed in the segment

2) if the value is not present, no further characters are required

3) if the value is present, but null, the characters "" (two consecutive double quotation marks) are placed in the field

4) otherwise, place the characters of the value in the segment. As many characters can be included as the maximum defined for the data field. It is not necessary, and is undesirable, to pad fields to fixed lengths. Encode the individual data fields as shown in Section 1.6.7.

5) if the field definition calls for a field to be broken into components, the following rules are used:

   i) if more than one component is included they are separated by the component separator

   ii) components that are present but null are represented by the characters ""

   iii) components that are not present are sent by including no characters in the component

   iv) components that are not present at the end of a field need not be represented by component separators. For example, the two data fields are equivalent:

   |ABC^DEF^^| and |ABC^DEF|.

6) if the component definition calls for a component to be broken into subcomponents, the following rules are used:

   i) if more than one subcomponent is included, they are separated by the subcomponent separator

   ii) subcomponents that are present but null are represented by the characters ""

   iii) subcomponents that are not present are sent by including no characters in the subcomponent

   iv) subcomponents that are not present at the end of a component need not be represented by subcomponent separators. For example, the two data components are equivalent:

   ^XXX&YYY&&^ and ^XXX&YYY^.

c) repeat Step 1b while there are any fields present to be sent. If all the data fields remaining in the segment definition will be sent as "not present" there is no requirement to include any more delimiters.

d) end each segment with an ASCII carriage return character

Step 2 Repeat Step 1 until all segments have been generated.

2. Batch Construction Rules

2.1 PURPOSE AND MESSAGE OVERVIEW

The DOQ-IT message layout permits the implementation of a batch of data to be transmitted to the QIO Outpatient Clinical Warehouse. There will be five types of messages: Patient Registration, Patient Visit, Observations, Pharmacy Orders and Vaccination. These messages are generated from the physician's office eHR system. Transmission of patient registration data is a prerequisite for any observational, pharmacy or vaccination data to be accepted into the warehouse. For example, a practice must register a patient and the respective topics for that patient in DOQ-IT before any observational data on that patient can be accepted into the warehouse. The message flow depicted in the following illustration presents the flow of message data from the physician's office into the DOQ-IT system.

For observational messages (ORU^R01), pharmacy order messages (OMP^O09), vaccination messages (VXU^V04), registration messages (ZRG^Z01), and visit messages (ADT^A04), multiple patient data can be collated into a file by using the batch approach. All messages and triggers must comply with the message layout structure described in this specification.

2.2 FILE STRUCTURE

Files sent to DOQ-IT must follow the standard HL7 batch protocol. The structure of an HL7 batch is given below, using HL7 abstract message syntax:

FHS	(file header segment)
{	--- BATCH begin (one to many batches in file)
BHS	(batch header segment)
{	--- MESSAGE begin
MSH	(one to many HL7 messages in batch)
....	
....	
}	--- MESSAGE end
BTS	(batch trailer segment)
}	--- Batch end
FTS	(file trailer segment)

Note: Items enclosed in { } may repeat. Items in [ ] are optional.

A detailed report will be available after a file is submitted which will show whether a file was processed successfully, processed with some errors, or completely rejected. If errors are detected in a file, the report will show precisely what the errors are and where they occur. The following points are DOQ-IT requirements for sending error/warning free files:

- A file may, and usually will, contain different types of messages. ZRG (DOQ-IT registration), ADT (patient visit), ORU (observation), OMP (pharmacy order), and VXU (vaccination) messages must be collated in the same file.

- All messages (ZRGs, ADTs, ORUs, OMPs, VXUs) that pertain to a patient, or set of patients, must be sent in one file.

- Send all data in one file, unless the file size reaches the 80MB boundary. In that case more than one file is sent.

- If two or more files are sent at one time: The set of individual patients in each file must be distinct. All messages (ZRGs, ADTs, ORUs, OMPs, VXUs) that pertain to patients in one file must be present in the same file.

- All batch files must begin with a file header segment (FHS), and end with a file trailer segment (FTS). An error message will be issued if the first segment in a file is not FHS, or if an FTS segment is not present at the end of the file.

- One FHS segment is permitted per file. If a second FHS segment is present in one file, nothing following it will be processed. An error message is issued in this case as the file violates HL7 batch protocol.

- Files should be split into one or more batches. All batches should begin with a batch header segment (BHS), and end with a batch trailer segment (BTS). It is acceptable for a file to contain one large batch, or multiple smaller batches. A warning will be issued if a BHS or BTS is not present in the file.

- Batches should contain at least one HL7 message. Empty batches will receive warning messages.

- Although a batch will usually consist of a single type of message, there is nothing in the definition that restricts a batch to only one message type.

- Each HL7 segment must appear on a separate line in the file. If a particular segment is too long for one line, it may wrap. Otherwise always place one segment per line.

- Registration messages (ZRGs) should precede other messages for a given patient in the file. For example, a new patient is being registered with DOQ-IT, and clinical observations are also being provided. The ZRG (registration) message should precede the ADT message(s) for this patient. DOQ-IT will not process visits or observations for a patient that is not yet registered in the DOQ-IT system – for this reason, ensure that the ZRGs precede other messages for a given patient.

- DOQ-IT will process files in the order that they are received from the participating healthcare provider.

- Batches in a file will be processed sequentially, beginning at the top of a file.

- Messages will be processed sequentially, starting from the top of a batch.
- Unless there is a change to an individual patient record, the practice need not send a ZRG message for a patient more than once. Examples of changes to a patient record would be:
    - Changing demographic information for a particular patient
    - Adding or removing a patient from a particular diagnosis topic, or removing a patient from DOQ-IT
    - Adding an allergy to the patient record

2.3 MESSAGE STRUCTURE

The DOQ-IT message layout structure requires that any repeating fields within a segment must be reported as a separate segment. For example, if a patient has two diagnoses for an encounter, each diagnosis must be reported in separate DG1 segments. For updating existing patient data, all required fields must be included and only the optional fields that have changed need to be transmitted.

2.3.1 DOQ-IT Registration Message (Chapter Three)

ZRG^Z01	**DOQ-IT registration message**
FHS	File Header Segment
BHS	Batch Header Segment
{	**MESSAGE BLOCK BEGIN**
MSH	Message Header
ZCR	Primary Practice Identification
{	**PATIENT BLOCK BEGIN**
ZPP	Practice patient
[{DG1}]	Patient Diagnosis Information
[{ZL1}]	Patient Allergen Information
[{ZPT}]	Practice patient topics
}	**PATIENT BLOCK END**
}	**MESSAGE BLOCK END**
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.2 Cancel DOQ-IT Registration Message (Chapter Three)

ZCA^Z02	DOQ-IT cancel registration
FHS	File Header Segment
BHS	Batch Header Segment
MSH	Message Header
ZCR	Primary Practice Identification
{	**PATIENT BLOCK BEGIN**
ZPP	Patient to remove from DOQ-IT
}	**PATIENT BLOCK END**
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.3 Patient Visit Message (Chapter Four)

ADT^A04	**ADT Message**
FHS	File Header Segment
BHS	Batch Header Segment
{	**MESSAGE BLOCK BEGIN**
MSH	Message Header
EVN	Event Type
ZCR	Primary Practice Identification
PID	Patient identification
PV1	Patient Visit
[{OBX}]	Patient examination room observations
[{DG1}]	Patient Diagnosis Information
[{ZL1}]	Patient Allergen Information
}	**MESSAGE BLOCK END**
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.4 Cancel Patient Visit Message (Chapter Four)

ADT^A11	Cancel admit / visit notification
FHS	File Header Segment
BHS	Batch Header Segment
MSH	Message Header
EVN	Event Type
ZCR	Primary Practice Identification
PID	Patient Identification
PV1	Patient Visit
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.5 Unsolicited Observation Message (Chapter Five)

ORU ^ R01	**Observation Results (Unsolicited)**
FHS	File Header Segment
BHS	Batch Header Segment
{	*Begin repeating message*
MSH	Message Header
ZCR	Primary Practice Identification
{	Begin Patient / Result Block
PID	Patient Identification
PV1	Patient Visit
{	Begin Order / Observation Block
[ORC]	Order common
OBR	Observations Request
[{OBX}]	Observation results
}	End Order / Observations Block
}	End Patient / Result Block
}	*End of repeating message*
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.6 Pharmacy/Treatment Order Message (Chapter Six)

OMP ^O09	Pharmacy / Treatment Order Message
FHS	File Header Segment
BHS	Batch Header Segment
MSH	Message Header
ZCR	Primary Practice Identification
PID	Patient Identification
PV1	Patient Visit
{	BEGIN ORDER BLOCK
ORC	Order Common Segment
RXO	Pharmacy Order
}	END ORDER BLOCK
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.7 Vaccination Message (Chapter Six)

VXU ^ V04	Unsolicited Vaccination Record Update
FHS	File Header Segment
BHS	Batch Header Segment
{	*Begin repeating message*
MSH	Message Header
ZCR	Primary Practice Identification
PID	Patient Identification
PV1	Patient Visit
[{	Begin Order Block
ORC	Order common
RXA	Vaccination
}]	End Order Block
}	*End of repeating message*
BTS	Batch Trailer Segment
FTS	File Trailer Segment

2.3.8 No Message Partner or Site-Specific Variations

The benefits of this implementation guide are obtained in part by creating a universal specification. To generate a message, all implementers must meet all HL7 requirements for a valid message. In addition, to be in compliance with this specification, implementers must be able to send all DOQ-IT Data Items as expressed in this document.

2.4 MESSAGE SEGMENTS

For a complete transmission using the File Header Segment and a group of batches, the following section describes the overall message segment structure and hierarchy.

2.4.1 FHS File Header Segment

The File Header Segment is required to transmit a group of batches. It will be more convenient to create a file of messages consisting of all transactions grouped by patients or primary practice.

FHS – FILE HEADER Segment HL7 Data Element – Cross Reference List

SEQ	ELEMENT NAME	ITEM #	DT	HL7 LEN	OPT	RP/#	TBL#	DOQ-IT LEN
1	File Field Separator	00067	ST	1	R	N		
2	File Encoding Characters	00068	ST	4	R	N		
9	File Name / ID	00075	ST	20	R	N		**14**
10	File Header Comment	00076	ST	20	R	N		**20**

2.4.1.0 FHS Segment field definitions

2.4.1.1 FHS-1 File Field Separator (ST) 00067

Definition: This field has the same definition as the corresponding field in the MSH segment

2.4.1.2 FHS-2 File Encoding Separator (ST) 00068

Definition: This field has the same definition as the corresponding field in the MSH segment

2.4.1.3 FHS-9 File Name/ID (ST) 00075

Definition: This field will be used to identify the provider or practice who is sending the file. This is a 20-byte maximum, alphanumeric field. Put Provider or Primary Practice NPI number in this field.

** also see addendum in section 8.1 for more details **

2.4.1.4 FHS-10 File Header Comment (ST) 00076

Definition: Field is used to indicate processing level of this file (test or production). The processing level applies to the entire file. Field is valued with “TEST” or “PROD”.

2.4.2 BHS Batch Header Segment

The Batch Header Segment is required to transmit a group of messages. All batches should contain at least one message, but will usually contain many messages. The BHS segment defines the start of a batch.

BHS – BATCH HEADER Segment HL7 Data Element – Cross Reference List

SEQ	ELEMENT NAME	ITEM #	DT	HL7 LEN	OPT	RP/#	TBL#	DOQIT LEN
1	Batch Field Separator	00081	ST	1	R	N		**1**
2	Batch Encoding Characters	00082	ST	4	R	N		**4**
11	Batch Control ID	00091	ST	20	R	N		**20**

2.4.2.0 BHS Segment field definitions

2.4.2.1 BHS-1 Batch Field Separator (ST) 00081

Definition: This field contains the separator between the segment ID and the first real field, *BHS-2-batch encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Recommended value is |,(ASCII 124).

2.4.2.2 BHS-2 Batch Encoding Separator (ST) 00082

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape characters, and subcomponent separator and should be 'BHS'.

2.4.2.3 BHS-11 Batch Control ID (ST) 00091

Definition: This field is used to uniquely identify a particular batch. It can be echoed back in *BHS-12-reference batch control ID* if an answering batch is needed.

2.4.3 MSH Message Header Segment

The Message Header Segment is required on all HL7 transactions. It defines the intent, source, destination, and some specifics of the syntax of a message.

MSH – MESSAGE HEADER Segment HL7 Data Element – Cross Reference List

SEQ	ELEMENT NAME	ITEM #	DT	HL7 LEN	OPT	RP/#	TBL#	DOQIT LEN
1	Field Separator	00001	ST	1	R	N		
2	Encoding Characters	00002	ST	4	R	N		
3	Sending Application	00003	HD	227	R	N	0361	
4	Sending Facility	00004	HD	227	O	N	0362	
5	Receiving Application	00005	HD	227	B	N	0361	
6	Receiving Facility	00006	HD	227	B	N	0362	
7	Date/Time Of Message	00007	TS	26	R	N		**14**
8	Security	00008	ST	40	B	N		
9	Message Type	00009	MSG	15	R	N		
10	Message Control ID	00010	ST	20	R	N		
11	Processing ID	00011	PT	3	R	N		
12	Version ID	00012	VID	60	R	N		**10**
13	Sequence Number	00013	NM	15	B	N		
14	Continuation Pointer	00014	ST	180	B	N		
15	Accept Acknowledgment Type	00015	ID	2	B	N	0155	
16	Application Acknowledgment Type	00016	ID	2	B	N	0155	
17	Country Code	00017	ID	3	B	N	0399	
18	Character Set	00692	ID	16	B	N	0211	
19	Principal Language Of Message	00693	CE	250	B	N		
20	Alternate Character Set Handling Scheme	01317	ID	20	B	N	0356	
21	Message Profile Identifier	01598	EI	427	B	N		

2.4.3.0 MSH field definitions

2.4.3.1 MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, *MSH-2-encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Value is |, (ASCII 124).

2.4.3.2 MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. DOQ-IT only permits values of ^~\& (ASCII 94, 126, 92, and 38, respectively). See Section 1.6.6 Message Delimiters .

2.4.3.3 MSH-3 Sending Application (HD) 00003

Components: <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined. *User-defined Table 0361- Application* is used as the user-defined table of values for the first component.

2.4.3.4 MSH-4 Sending Facility (HD) 00004

Components: <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field further describes the sending application, *MSH-3-sending application*. With the promotion of this field to an HD data type, the usage has been broadened to include not just the sending facility but other organizational entities such as a) the organizational entity responsible for sending application; b) the responsible unit; c) a product or practice's identifier, etc. Entirely site-defined. *User-defined Table 0362 - Facility* is used as the HL7 identifier for the user-defined table of values for the first component.

2.4.3.5 MSH-5 Receiving Application (HD) 00005

Components: <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined *User-defined Table 0361- Application* is used as the HL7 identifier for the user-defined table of values for the first component.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.6 MSH-6 Receiving Facility (HD) 00006

Components: <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field identifies the receiving application among multiple identical instances of the application running on behalf of different organizations. *User-defined Table 0362 - Facility* is used as the HL7 identifier for the user-defined table of values for the first component. Entirely site-defined.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.7 MSH-7 Date/Time Of Message (TS) 00007

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

Definition: This field contains the date/time that the sending system created the message. If the time zone is specified, it will be used throughout the message as the default time zone. **Note:** This field was made required in version 2.4.

2.4.3.8 MSH-8 Security (ST) 00008

Definition: In some applications of HL7, this field is used to implement security features. Its use is not yet further specified.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.9 MSH-9 Message Type (MSG) 00009

Components: <Message Code (ID)> ^ <Trigger Event (ID)> ^ <Message Structure (ID)>

Definition: This field contains the message type, trigger event, and the message structure ID for the message. For DOQ-IT, valid values for message codes are ZRG, ZCA, ADT, ORU, OMP and VXU.

Valid values for the trigger event are Z01, Z02, A04, A11, R01, O09 and V04.

2.4.3.10 MSH-10 Message Control ID (ST) 00010

Definition: This field contains a number or other identifier that uniquely identifies the message.

2.4.3.11 MSH-11 Processing ID (PT) 00011

Components: <Processing ID (ID)> ^ <Processing Mode (ID)>

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules.

2.4.3.12 MSH-12 Version ID (VID) 00012

Components: <Version ID (ID)> ^ <Internationalisation Code (CE)> ^ <International Version ID (CE)>

Subcomponents for Internationalization Code (CE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)>

Subcomponents for International Version ID (CE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)>

Definition: This field is matched by the receiving system to its own version to be sure the message will be interpreted correctly. The HL7 standard for DOQ-IT is Version 2.4

HL7 Table 0104 - Version ID

Value	Description	Comment (Date)
2.4	Release 2.4	November 2000

2.4.3.13 MSH-13 Sequence Number (NM) 00013

Definition: A non-null value in this field implies that the sequence number protocol is in use. This numeric field is incremented by one for each subsequent value.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.14 MSH-14 Continuation Pointer (ST) 00014

Definition: This field is used to define continuations in application-specific ways. Only the sender of a fragmented message values this field.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.15 MSH-15 Accept Acknowledgment Type (ID) 00015

Definition: This field identifies the conditions under which accept acknowledgments are required to be returned in response to this message. Required for enhanced acknowledgment mode. Refer to *HL7 Table 0155 - Accept/application acknowledgment conditions* for valid values.

Note: DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.16 MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field contains the conditions under which application acknowledgments are required to be returned in response to this message.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.17 MSH-17 Country Code (ID) 00017

Definition: This field contains the country of origin for the message. It will be used primarily to specify default elements, such as currency denominations.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.18 MSH-18 Character Set (ID) 00692

Definition: This field contains the character set for the entire message. Refer to *HL7 Table 0211 - Alternate character sets* for valid values.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.19 MSH-19 Principal Language of Message (CE) 00693

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

Definition: This field contains the principal language of the message. Codes come from ISO 639.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.20 MSH-20 Alternate Character Set Handling Scheme (ID) 01317

Definition: When any alternative character sets are used (as specified in the second or later iterations of *MSH-18 character sets*), and if any special handling scheme is needed, this component is to specify the scheme used.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.3.21 MSH-21 Message Profile Identifier (EI) 01598

Components: <Entity Identifier (ST)> ^ <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: Sites may use this field to assert adherence to, or reference, a message profile.

Note:	DOQ-IT is NOT interested in receiving this data. It only exists here as a reference to the HL7 standard.

2.4.4 BTS Batch Trailer Segment

The Batch Trailer Segment defines the end of a batch and is denoted as BTS in the output file.

HL7 Attribute Table - BTS – Batch Trailer

SEQ	ELEMENT NAME	ITEM #	DT	HL7 LEN	OPT	RP/#	TBL#
1	Batch Message Count	00093	ST	10	O	N	
2	Batch Comment	00090	ST	80	O	N	
3	Batch Totals	00095	NM	100	O	N	

2.4.4.0 BTS field definitions

2.4.4.1 BTS-1 Batch Message Count (ST) 00093

Definition: This field contains the count of the individual messages contained within the batch.

2.4.4.2 BTS-2 Batch Comment (ST) 00090

Definition: This field is a comment field that is not further defined in the HL7 protocol.

2.4.4.3 BTS-3 Batch Totals (NM) 00095

Definition: This field contains the batch total.

2.4.5 FTS File Trailer Segment

The File Header Segment defines the end of the output file.

HL7 Attribute Table - FTS - File Trailer

SEQ	ELEMENT NAME	ITEM #	DT	HL7 LEN	OPT	RP/#	TBL#
1	File Batch Count	00079	NM	10	O	N	
2	File Trailer Comment	00080	ST	80	O	N	

2.4.5.0 FTS field definitions

2.4.5.1 FTS-1 File Batch Count (NM) 00079

Definition: This field contains the number of batches contained in this file.

2.4.5.2 FTS-2 File Trailer Comment (ST) 00080

Definition: The use of this free text field is not further specified.

3.DOQ-IT Patient Registration

3.1 PURPOSE

The information contained in this chapter pertains to patient registration data requirements for DOQ-IT. Practices must complete the necessary forms and approvals to obtain security access through QualityNet exchange and complete the online setup process prior to any data being transmitted to the DOQ-IT system.

The main purpose of the DOQ-IT Patient Registration process is to register any patients who have a diagnosis of coronary artery disease, heart failure, diabetes, hypertension, or preventive care by a physician's practice. The patient registration data will include adding new patients, changing existing patient registration data, censoring (inactivating) patient registration data, and capturing diagnosis data to confirm the chronic disease.

A patient must be registered before any visit, observation, pharmacy, vaccination, or preventive care data for the patient will be accepted. These topics will be discussed in subsequent chapters of this document. This chapter deals with patient registration to DOQ-IT only.

3.2 TRIGGER EVENTS AND MESSAGE DEFINITIONS

Two messages are designed specifically for DOQ-IT patient registration. These are local extension messages:

- ZRG – DOQ-IT Patient Registration (Event Z01)
- ZCA – DOQ-IT Cancel Patient Registration (Event Z02)

These messages are normally sent one time only for a given patient. They are designed to carry data about patients that will participate in the DOQ-IT system. All messages in subsequent chapters of this specification document are standard HL7 messages. DOQ-IT will follow the HL7 2.4 standard carefully when interpreting messages in the following chapters.

3.2.1 ZRG – DOQ-IT Patient Registration (Event Z01)

MSH	Message header
ZCR	Primary practice identification
{	**PATIENT BLOCK BEGIN**
ZPP	Practice patient
[{DG1}]	Patient Diagnosis Information
[{ZL1}]	Patient allergen information
[{ZPT}]	Practice patient topics
}	**PATIENT BLOCK END**

This message literally means “register a patient to the DOQ-IT system”. To register a patient to DOQ-IT, send a ZRG message in the batch file. The practice should not send a ZRG message again for the same patient, unless they need to update registration data.

The DOQ-IT patient registration message allows you to register one or more patients to DOQ-IT at the same time. The practice may choose to register each patient in a separate ZRG message, or multiple patients can be registered in the same ZRG message.

The patient block, shown in the abstract message above, may repeat within one ZRG message. All segments in a patient block belong to one patient only. Include all data (diagnoses, allergies, patient topics) for one patient in one patient block. Each ZPP segment in the message represents a different patient. More than one patient block may be present in one message, as multiple (different) patients may be registered at once, together.

In order to successfully register a patient to a particular topic, one or more valid diagnosis segments pertaining to the patient topic must be included in the same patient block. Please refer to the downloadable resources for a list of diagnoses that are valid for each patient topic. Diagnoses that are not relevant to a patient topic will be discarded by the DOQ-IT batch interface and will not be persisted to the DOQ-IT warehouse. Please attempt to not send diagnoses that are not relevant to a particular patient topic.

If a set of patients is included on one ZRG message (multiple patient blocks), each patient will be handled as a separate request by DOQ-IT. This means that a patient block that is error-free will be accepted and processed even if another patient block in the same message fails to process. Patient blocks that fail to process have no bearing on other patient blocks in the same message that are free of errors.

If a patient registration message fails, then the cause of the failure will be made clear to the practice on the file submission report. The practice must correct the problem and resend the message. If the original ZRG message contained data for only one patient, then the practice will resend the message with corrections.

If the original ZRG message contained a set of patients, and some processed while others failed, the practice has a choice. The practice first must make corrections to the patient requests that failed. Practice may then resend the entire message, including patients that processed successfully on the original message. The practice may alternately resend only those patients that failed to process on the original ZRG message. Either way is acceptable. If patients that were originally processed successfully are resent, their data will be overwritten with the same data.

Once a practice has successfully registered a patient or set of patients, they should not send a ZRG message for the same patient(s) again, unless particular registration data needs to change. Practices may send ZRG messages for new DOQ-IT patients any time.

A DOQ-IT Register a Patient message contains the following important pieces of information:

- Identification of healthcare practice facility, including contact information
- Patient identifier, and general demographic information
- Chronic diagnosis data
- Patient allergen data
- DOQ-IT clinical measure selection for patient, including effective and censure dates

3.2.1.0 Patient Registration Update

Patient registration data can be updated at any time, though in general this data is not expected to change frequently. Data on the following patient registration segments is updatable:

- ZPP (practice patient data)
- DG1 (patient diagnosis data)
- ZL1 (patient allergen data)
- ZPT (patient topic data)

DOQ-IT will not accept changes to primary practice data (ZCR segment) sent in an HL7 batch file. Changes to primary practice data must be made through the QualityNet Exchange registration process.

There are four scenarios of updating Patient Registration data. All of these operations are performed on a single patient only:

- Update a non-key field on a previously-transmitted segment
- Delete a particular ZPT, DG1, or ZL1 segment
- Add another ZPT, DG1, or ZL1 to an existing set
- Delete all ZPT, DG1, or ZL1 segments

3.2.1.0.1 Update a non-key field on a previously-transmitted segment

This scenario occurs when you need to update one or more fields on a particular segment for a particular patient. The segment has been transmitted and processed some time in the past. The data items to update are non-key items. An example would be updating the Enroll Censor Date on a previously sent ZPT segment. In most cases, this type of update is used to correct errors that were sent on previous segments.

DOQ-IT uses HL7 “snapshot” mode for this type of update to patient registration data. In “snapshot” mode, segments on the current incoming message overwrite the corresponding segments that were sent on a previous message. This is equivalent to a deletion of the prior group followed by the addition of the new group of segments. Simply resend the same segment with the updated data fields. All required fields must be present on the incoming segment. Updatable fields in “snapshot mode” include:

ZPP segment:

- Patient Last Name, Middle Initial, First Name (ZPP-4, ZPP-5, ZPP-6)
- Primary Physician Identifier (ZPP-7)
- Birth date (ZPP-8)
- Ethnic group (ZPP-9)
- Administrative Sex (ZPP-10)

- Race (ZPP-11)
- Pay source (ZPP-12)
- HIC number (ZPP-13)
- SSN number (ZPP-14)
- Patient Home ZIP (ZPP-15)

DG1 segment:

- DX Date (DG1-5)
- Diagnosis type (DG1-6)
- Physician Identifier (DG1-16)

ZL1 segment:

- Allergen Type code (ZL1-2)
- Allergen Severity Code (ZL1-4)
- Allergen Reaction Code (ZL1-5)
- Identification Date (ZL1-6)

ZPT segment:

- Enroll Effective Date (ZPT-6)
- Enroll Censor Date (ZPT-7)

3.2.1.0.2 Delete a particular DG1, ZL1, or ZPT segment

In this scenario, several segments of a particular type have been sent previously. One or more of these segments now needs to be deleted entirely, while allowing the other segments to remain unchanged. For example: A patient is registered will three diagnoses, and three DG1 segments are sent on the ZRG-Z01 message. It is later determined that one of the three diagnoses should not have been sent. The other two are valid and should remain attached to the patient's file in DOQ-IT. In order to remove one diagnoses segment, and not touch the other two, follow this process:

- Determine which diagnosis is to be removed
- Resend this DG1 segment and specify D (delete) in the action code field – DG1-21
- Sending the other two DG1 segments is optional. If they are sent they will overwrite the existing segments in DOQ-IT with the same data

The same process is followed if you need to remove a ZL1 or ZPT segment. The only difference is the location of the action code field:

- DG1 – action code is field 21

- ZL1 – action code is field 7
- ZPT – action code is field 8

The DOQ-IT warehouse will only store diagnosis data that is relevant to one or more patient topics. Similarly, registration to a patient topic must be substantiated by one or more valid diagnoses pertaining to the patient topic. A delete action that would violate these rules will not be allowed to proceed, and this will be explained on the file submission report. In situations like this, a diagnosis and topic will need to be deleted together.

3.2.1.0.3 Add another DG1, ZL1, or ZPT segment to an existing set

This update scenario occurs when patient registration data has been previously transmitted to DOQ-IT. Additional information now needs to be added to a patient file in DOQ-IT. The existing data is to remain unchanged, but new data is to be added to the patient's file. For example, a patient is registered with Coronary Artery Disease and receives antiplatelet therapy, and drug therapy for lowering LDL cholesterol. After the patient is registered with DOQ-IT, it is then decided in the healthcare facility that the patient will also begin receiving Beta-blocker therapy-prior myocardial infarction. In this scenario the practice need only send one ZPT segment carrying the new beta-blocker therapy data. This ZPT segment will be added to the patient's file, which already has two other ZPT segments attached to it. The practice can send the new ZPT segment only, or the new segment and the two existing ZPT segments can be sent. If all three segments are sent, the two existing segments are overwritten with the same data, and the new segment is added to the patient's file in DOQ-IT. Either way the patient file will now have three ZPT segments attached to it.

3.2.1.0.4 Delete all DG1, ZL1, or ZPT segments for a given patient

There is a hierarchical relationship between the patient (ZPP) segment and the DG1, ZL1, and ZPT segments. The ZPP segment uniquely represents one patient in a particular healthcare practice. One patient may have the following data associated to it:

- 0 – many DG1 segments (diagnoses)
- 0 – many ZL1 segments (allergies)
- 0 – many ZPT segments (DOQ-IT topics)

Deletions occur at the segment level. If a patient has five associated ZPT segments for example, one or more of them can be deleted individually, or the whole set of five can be deleted in one shot. The same applies to ZL1 and DG1 segments. A ZPP segment can be updated, but can not be deleted. To delete a patient altogether requires transmission of an ADT-A11 message.

A "delete all" segment will remove all previously-transmitted data for the given segment type, associated to a single patient. (unless data was used in the calc of a measure)

DG1|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|""|D<cr>

This segment deletes all previously-transmitted diagnoses for a particular patient. The segment above marks fields 1-20 as null, and gives D (delete) in field 21. Field 21 on the DG1 segment is the optional action code field. This field is optional for inserts and updates, but must contain "D" if a delete operation is to take place. Valid values for the action code field are found on HL7 table 00206. In order for this operation to succeed, all ZPT segments must also be deleted.

ZL1|""|""|""|""|""|""|D<cr>

This segment deletes all previously-transmitted patient allergen data for a particular patient. This segment marks fields 1- 6 as null, and gives “D” (delete) in field 7. Field 7 on the ZL1 segment is the optional action code field. This field is optional for inserts and updates, but must contain “D” if a delete operation is to take place. Valid values for the action code are found on HL7 table 00206.

ZPT|””|””|””|””|””|””|””|D<cr>

This segment deletes all previously-transmitted patient topic data for a particular patient. This segment marks fields 1-7 as null, and gives “D” (delete) in field 8. Field 8 on the ZPT segment is the optional action code field. This field is optional for inserts and updates, but must contain “D” if a delete operation is to take place. Valid values for the action code field are found on HL7 table 00206. In order for this operation to succeed, all DG1 segment must also be deleted.

3.2.2 ZCA – DOQ-IT Cancel Patient Registration (Event Z02)

MSH	Message Header
ZCR	Primary Practice Identification
{	*Begin Patient’s set*
ZPP	Patient to remove from DOQ-IT
}	*End of Patient(s)*

This message literally means “cancel a DOQ-IT patient registration”. It allows a practice to remove a patient that was erroneously registered to the DOQ-IT system. The ZCA message is provided for this situation only. The effect of sending a ZCA^Z02 message is to remove the patient and all related records (visits, observations, pharmacy records, vaccination records, prevent care records) from the DOQ-IT system.

DOQ-IT will expire patients naturally as their censor dates are reached. Practices should never send a cancel patient registration message unless a patient was registered by mistake in the first place.

3.3 MESSAGE SEGMENTS

3.3.1 ZCR – Primary Practice Segment

Physician offices must complete the DOQ-IT enrollment process prior to submitting any patient data. While a practice may have multiple locations, only one of these locations can serve as the primary practice. The primary practice EIN serves the role of relating all patient activity, regardless of the provider or practice within an organization, into a collection of patient records that the practice is responsible for providing care. For example, a patient may be seen by multiple providers or at multiple practices within an organization.. While DOQ-IT captures the Individual NPI number of the practitioner who provided the care, and then reports the care at both the Individual NPI level and the primary practice EIN level. Any omission of the required data elements will result in failing the record.

The Primary Practice segment shown below includes a data element list and the HL7 data structure.

ZCR - PRIMARY PRACTICE Segment Data Element List

DOQIT DATA ELEMENT NAME	DESCRIPTION	DEFAULT VALUE	REQUIRED
PRIMARY_CLINIC_GROUP_ID	Primary clinic location with unique Group NPI number		Y
PRIMARY_CLINIC_NAME	Name of primary clinic		*
PRIMARY_CLINIC_ADDRESS	Address of primary clinic		*
PRIMARY_CLINIC_CITY	City of primary clinic		*
PRIMARY_CLINIC_STATE	State of primary clinic		*
PRIMARY_CLINIC_ZIP	Zip code of primary clinic		*
PRIMARY_CLINIC_PHONE	Phone number of primary clinic		*
PRIMARY_CLINIC_EMAIL	Email address of primary clinic		*
PRIMARY _CLINIC_EFFEC_DATE	The effective date in which the primary clinic begins participating in DOQ-IT	YYYYMMDD	*
PRIMARY _CLINIC_CLOSE_DATE	The end date in which the primary clinic stops participating in DOQ-IT	YYYYMMDD	*
PRIMARY_CLINIC_CONTACT	The contact person, or DOQ-IT data manager for the primary clinic.		*
PRIMARY_CLINIC_EIN	The employer identification number (EIN) for the primary clinic. The EIN is also known as the federal tax ID.		*

- **Deprecated fields. Fields are no longer needed on ZCR segment. Primary Practice demographic information is submitted via the online registration process on QualityNet Exchange.**

ZCR – PRIMARY PRACTICE HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	ITEM #	DT	DOQ IT LEN (MAX)	OPT	RP/#	TABLE
1	PRIMARY_CLINIC_GROUP_ID		ST	**14**	R	N	
12	PRIMARY_CLINIC_EIN		ST	**14**	O	N	

3.3.1.0 **ZCR – PRIMARY PRACTICE field definitions**

3.3.1.1 PRIMARY_CLINIC_GROUP_ID Unique Clinic Identifier (ST)

Definition: This field contains the unique Group NPI number issued to the physician's clinic.

3.3.1.2 PRIMARY_CLINIC_EIN Clinic Employer Identification Number (ST)

Definition: This field contains the employer identification number (EIN) for the clinic. The EIN is also known as the federal tax identification number.

3.3.2 ZPP – PRACTICE PATIENTS Segment

Upon designating the primary practice Group ID for a physician's office, a practice must register patients who have been diagnosed with any of the clinical measurement topics listed in section 1.4. In most cases, a practice will register only those patients with the conditions, but DOQ-IT does not preclude a practice from registering anyone they wish to enroll. Any patient care provided by the primary practice or it's additional practice locations will be rolled up, and consolidated under the primary practice.

The Practice Patients segment shown below includes a generic, non-HL7 data structure, and the explicit, HL7 data structure.

ZPP – PRACTICE PATIENTS Segment Data Element List

DOQIT DATA ELEMENT NAME	DESCRIPTION	DEFAULT VALUE	REQUIRED
PRIMARY_CLINIC_GROUP_ID	Primary clinic Group NPI number associated with the CLINIC_GROUP_ID	ZPP.Primary_Clinic_ID	Y
PATIENT_ID_LIST_CODE_SYS	The coding system to identify the patient.		Y
PATIENT_ID_LIST_CODE	The unique patient identifier corresponding to the coding system		Y
FIRST_NAME	Patient given name.		Y
INITIAL	Patient initial		N
LAST_NAME	Patient surname		Y
PRIMARY_PHYSICIAN_ID	The patient's primary care provider		Y
BIRTHDATE	The patient's date of birth	YYYYMMDD	Y
ETHNIC_GROUP	The patient's ethnic group.	Value from HL7 0189	N
ADMINISTRATIVE_SEX	The patient's sex	Value from HL7 0001	Y
RACE	The patient's race	Value from HL7 0005	N
PAYSOURCE	The patient's method of payment – Medicare, etc.	Value from HL7 0086	Y
HIC_NO	The patient's HIC number if applicable		C
SSN_NO	The patient's SSN number		N
BENEF_ADDRESS	The beneficiary address which may be the same as the patient's address		N
BENEF_CITY	The beneficiary city which may be the same as the patients city.		N
BENEF_STATE	The beneficiary state which may be the same as the patients state.		N
BENEF_ZIP	The beneficiary zip code which may be		N

	the same as the patients zip code		

ZPP - PRACTICE PATIENTS HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM #	DT	DOQIT LEN (MAX)	OPT	RP/#	TABLE
1	PRIMARY_CLINIC_GROUP_ID			ST	**14**	R	N	
2	PATIENT_ID_LIST_CODE_SYS			ST	**20**	R	N	0203
3	PATIENT_ID_LIST_CODE			ST	**20**	R	N	
4	FIRST_NAME			ST	**20**	R	N	
5	INITIAL			ST	**1**	O	N	
6	LAST_NAME			ST	**20**	R	N	
7	PRIMARY_PHYSICIAN_ID			ST	**14**	R	N	
8	BIRTHDATE			DT	**8**	R	N	
9	ETHNIC_GROUP	ETHNIC_GROUP		ST	**10**	O	N	0189
10	ADMINISTRATIVE_SEX	ADMINISTRATIVE_SEX		ST	**10**	R	N	0001
11	RACE	RACE		ST	**10**	O	N	0005
12	PAYSOURCE	PLAN_TYPE_CODE		ST	**10**	R	N	0086
13	HIC_NO			ST	**12**	C	N	
14	SSN_NO			ST	**9**	O	N	
15	BENE_ADDRESS			ST	**50**	O	N	
16	BENE_CITY			ST	**40**	O	N	
17	BENE_STATE			ST	**2**	O	N	
18	BENE_ZIP			ST	**10**	O	N	

3.3.2.0 ZPP – PRACTICE PATIENTS field definitions

3.3.2.1 PRIMARY_CLINIC_GROUP_ID Unique Clinic Identifier (ST)

Definition: This field contains the primary Group NPI number issued to the physician's clinic.

3.3.2.2 PATIENT_ID_LIST_CODE_SYS Coding system used to identify the patient (ST)

Definition This field contains the coding system used to identify the Patient. For example, "SSN" or others listed in the *User-defined Table 0203 - Identifier type* table.

3.3.2.3 PATIENT_ID_LIST_CODE The unique patient id used in the eHR system (ST)

Definition: This field contains the unique patient identifier the eHR system uses to record activity on a patient.

3.3.2.4 FIRST_NAME Given name of the patient (ST)

3.3.2.5 INITIAL Middle initial of the patient (ST)

3.3.2.6 LAST_NAME Patient surname (ST)

3.3.2.7 PHYSICIAN_ID - Ordering Provider (XCN) 00226

Components: <ID Number (ST)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ <Identifier Type Code (ID)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^

Definition: This field contains the NPI number of the clinician who is the primarily responsible for this patient.

3.3.2.8 BIRTHDATE Date/Time of Birth (DT)

Definition: This field contains the patient's date of birth expressed in YYYYMMDD format.

3.3.2.9 ETHNIC_GROUP Determine whether the patient has Hispanic ethnicity (ST)

Definition: This field further defines the patient's ancestry. Refer to *User-defined Table 0189 - Ethnic Group* for values. In the US, a current use is to report ethnicity in line with US federal standards for Hispanic origin.

User-defined Table 0189 - Ethnic Group

Value	Description
H	Hispanic or Latino
N	Not Hispanic or Latino
U	Unknown

3.3.2.10 ADMINISTRATIVE_SEX (IS)

Definition: This field contains the patient's sex. Refer to *User-defined Table 0001 - Administrative Sex*.

User-defined Table 0001 - Administrative Sex

Value	Description
F	Female
M	Male

3.3.2.11 RACE The patient's race (ST)

Definition: This field refers to the patient's race. Refer to *User-defined Table 0005 - Race* for values.

User-defined Table 0005 - Race

Value	Description
1002-5	American Indian or Alaska Native
2028-9	Asian
2054-5	Black or African American
2076-8	Native Hawaiian or Other Pacific Islander
2106-3	White
2131-1	Other Race

3.3.2.12 PAYSOURCE The patient's method of payment for services (ST)

Definition: This field refers to the patient's type of insurance or Medicare plan. Refer to *User-defined Table 0086 – Insurance_Plan_Type* for suggested values.

DOQ-IT allows patients with any type of paysource to be submitted. PQRI participants must submit all Medicare beneficiary data related to the (CAD-3, DM-2, DM-3, DM-5, HF-7) measures to ensure comparable data is available for potential bonus calculations.

3.3.2.13 HIC_NO The patient's HIC Number for Medicare patients (ST)

Definition: This field is required if the patient's pay source is Medicare.

3.3.2.14 SSN_NO The patient's Social Security Number (ST)

Definition: This field is the patient's Social Security Number.

3.3.2.15 BENE_ADDRESS The beneficiary's home address (ST)

Definition: This field is the beneficiary address which may be the same as the patient's address

3.3.2.16 BENE_CITY The beneficiary's home city (ST)

Definition: This field is the beneficiary city which may be the same as the patient's city

3.3.2.17 BENE_STATE The beneficiary's home state (ST)

Definition: This field is the beneficiary state which may be the same as the patient's state

3.3.2.18 BENE_ZIP The beneficiary's zip (ST)

Definition: This field is the beneficiary zip code which may be the same as the patient's zip code. The first five positions contain the primary zip code, while the last four positions may contain the four-digit extension if it is known.

3.3.3 ZPT – PRACTICE PATIENT TOPICS Segment

Upon designating the primary practice Group ID for a physician's office and registering patients under this practice, this segment relates the clinical measurement topics to the patient. Patients may be assigned to one or many clinical measures ~ depending upon their condition. Any patient care provided by any of the practice locations will be rolled up, and consolidated under the primary practice.

The Practice Patient Topics segment shown below includes a generic, non-HL7 data structure, and the explicit, HL7 data structure. Patients are registered individually to specific measures via the ZRG message. When registration is completed the patient data will appear in the appropriate DOQ-IT clinical measure(s). The measures are identified on the ZPT segment(s). The ZPT segment only appears on the ZRG message. If patient topic data needs to change at any time after being initially processed, the ZRG message must be sent again, carrying the changes in the ZPT segment(s).

ZPT – PRACTICE PATIENTS TOPICS Segment Data Element List

DOQIT DATA ELEMENT NAME	DESCRIPTION	DEFAULT VALUE	REQUIRED
PRIMARY_CLINIC_GROUP_ID	Primary clinic Group NPI number associated with the PRIMARY_CLINIC_GROUP_ID	ZPP.Primary_Clinic_Group_ID	Y
PATIENT_ID_LIST_CODE_SYS	The coding system with the patient.	ZPP.Patient_Id_List_Code_Sys	Y
PATIENT_ID_LIST_CODE	The unique patient identifier corresponding to the coding system	ZPP.Patient_Id_List_Code_Sys	Y
TOPIC_TYPE	Clinical topic CAD, HF, HTN, DM or PC	CAD, HF, HTN, DM or PC	Y

TOPIC_INDICATOR	For the clinical topic, the specific measure identifier for the measure	Depending upon the topic, the range could be 1 – 12.	Y
ENROLL_EFFEC_DATE	For the effective date to begin measuring care for this patient.	YYYYMMDD	Y
ENROLL_CENSOR_DATE	The date to stop measuring care for this patient (death, move, etc.)	YYYYMMDD	N
ACTION_CODE	Action Code	HL7 00206 table	N

ZPT - PRACTICE PATIENTS TOPICS HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	ITEM #	DT	DOQIT LEN (MAX)	OPT	RP/#	TABLE
1	PRIMARY_CLINIC_GROUP_ID		ST	**14**	R	N	
2	PATIENT_ID_LIST_CODE_SYS		ST	**20**	R	N	0203
3	PATIENT_ID_LIST_CODE		ST	**20**	R	N	
4	TOPIC_TYPE		ST	**10**	R	N	
5	TOPIC_INDICATOR		ST	**2**	R	N	
6	ENROLL_EFFEC_DATE		DT	**8**	R	N	
7	ENROLL_CENSOR_DATE		DT	**8**	O	N	
8	ACTION_CODE		ST	**1**	O	N	0206

3.3.3.0 ZPT – PRACTICE PATIENTS TOPICS field definitions

3.3.3.1 PRIMARY_CLINIC_GROUP_ID Unique Clinic Identifier (ST)

Definition: This field contains the primary Group NPI number issued to the physician's clinic.

3.3.3.2 PATIENT_ID_LIST_CODE_SYS Coding system used to identify the patient (ST)

Definition This field contains the coding system used to identify the Patient. For example, "SSN" or others listed in the *User-defined Table 0203 - Identifier type* table.

3.3.3.3 PATIENT_ID_LIST_CODE The unique patient used in the eHR system (ST)

Definition: This field contains the unique patient that the eHR system uses to record activity on a patient.

3.3.3.4 TOPIC_TYPE Topic category corresponding with the measure (ST)

Definition: This field contains the medical topic being reported. Valid values include Coronary Artery Disease "CAD", Heart Failure "HF", Hypertension "HTN", Diabetes "DM", and Preventive Care "PC".

3.3.3.5 TOPIC_INDICATOR Sub-Topic category corresponding with the TOPIC_TYPE (ST)

Definition: This field contains the specific measure number of medical topic being reported.

3.3.3.6 ENROLL_EFFEC_DATE Date the patient was enrolled for this measure (DT)

Definition: This field contains the date expressed in YYYYMMDD format.

3.3.3.7 ENROLL_CENSOR_DATE Date the patient was censored for this measure (DT)

Definition: This field contains the date expressed in YYYYMMDD format. The patient may have been censored due to death, relocation or other reasons.

3.3.3.8 ACTION_CODE (ID)

This field defines the action to be taken for this patient topic. Refer to HL7 Table 0206 – Segment Action Code in Chapter 2 for valid values. This field is required when delete patient registration data.

3.3.4 DG1 - Diagnosis Segment

The diagnosis segment carries one clinical diagnosis for a patient. If a patient is diagnosed with more than one disease, each diagnosis must be sent on a separate DG1 segment. One or more diagnosis segments can be present on two messages:

- ZRG – DOQ-IT Patient Registration Message (event Z01)
- ADT – Patient Visit Message (event A04)

Practices should indicate all patient diagnoses that are known at the time of registration. Do this by sending DG1 segment(s) on the ZRG message. Of course, a new diagnosis may occur after a patient has been registered to the DOQ-IT system. In this happens, the new diagnosis (DG1 segment) may be sent along with the patient visit (ADT) message. However, patient data will only appear in DOQ-IT clinical measures that are identified on the patient registration message (ZRG). If a patient is diagnosed with a new chronic condition after initial registration to DOQ-IT, practice may choose to transmit a ZRG message registering the patient to the new topic. Unless a patient is registered to a topic, the patient data will not be rolled into the clinical measure for the topic.

DG1 – DIAGNOSIS SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/ #	TBL #	DOQIT LEN
1	SEGMENT_NO	Set ID - DG1	00375	SI	4	R	N		
3	DX_CODE DX_CODE_SYS	Diagnosis Code - DG1	00377	CE	250	R	N		**20**
5	DX_DATE	Diagnosis Date/Time	00379	TS	26	R	N		**14**
6		Diagnosis Type	00380	IS	2	R	N	0052	
16	PHYSICIAN_ID	Diagnosing Clinician	00390	XCN	250	O	N		**14**
21		Diagnosis Action Code	01894	ID	1	O	N	0206	

3.3.4.0 DG1 – DIAGNOSIS field definitions

3.3.4.1 DG1-1 Set ID - DG1 (SI) 00375

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc.

3.3.4.2 DG1-3 Diagnosis Code - DG1 (CE) 00377

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

Definition: Use this field instead of *DG1-2 - Diagnosis Coding Method* and *DG1-4 - Diagnosis Description*, which have been retained, as of Version 2.3, for backward compatibility only. *DG1-3 - Diagnosis Code - DG1* contains the diagnosis code assigned to this diagnosis. Refer to *Downloadable Resources* for suggested values. This field is a CE data type for compatibility with clinical and ancillary systems.

Names of various diagnosis coding systems are listed in Chapter 2, Section 2.17.5, "Coding system table."

3.3.4.3 DG1-5 Diagnosis Date/Time (TS) 00379

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

Definition: This field contains the date/time that the diagnosis was determined.

3.3.4.4 DG1-6 Diagnosis Type (IS) 00380

Definition: This field contains a code that identifies the type of diagnosis being sent. Refer to *User-defined Table 0052 - Diagnosis Type* for suggested values. This field should no longer be used to indicate "DRG" because the DRG fields have moved to the new DRG segment.

User-defined Table 0052 - Diagnosis Type

Values	Description	Comment
A	Admitting	
W	Working	
F	Final	

3.3.4.5 DG1-16 Diagnosing Clinician (XCN) 00390

Components: <ID Number (ST)> ^ <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III) (ST)> ^ <Prefix (e.g., DR) (ST)> ^ <DEPRECATED-Degree (e.g., MD) (IS)> ^ <Source Table (IS)> ^ <Assigning Authority (HD)> ^ <Name Type Code (ID)> ^ <Identifier Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Name Representation Code (ID)> ^ <Name Context (CE)> ^ <DEPRECATED-Name Validity Range (DR)> ^ <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)> ^ <Professional Suffix (ST)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

Subcomponents for Family Name (FN): <Surname (ST)> & <Own Surname Prefix (ST)> & <Own Surname (ST)> & <Surname Prefix From Partner/Spouse (ST)> & <Surname From Partner/Spouse (ST)>

Subcomponents for Assigning Authority (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Name Context (CE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)>

Subcomponents for DEPRECATED-Name Validity Range (DR): <Range Start Date/Time (TS)> & <Range End Date/Time (TS)>

Note subcomponent contains sub-subcomponents

Subcomponents for Effective Date (TS): <Time (DTM)> & <DEPRECATED-Degree of Precision (ID)>

Subcomponents for Expiration Date (TS): <Time (DTM)> & <DEPRECATED-Degree of Precision (ID)>

Subcomponents for Assigning Jurisdiction (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Subcomponents for Assigning Agency or Department (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Definition: This field contains the individual's NPI number responsible for generating the diagnosis information. Multiple names and identifiers for the same person may be sent in this field, not multiple diagnosing clinicians. The legal name

is assumed to be in the first repetition. When the legal name is not sent, a repeat delimiter must be sent first for the first repetition.

3.3.4.6 DG1-21 Diagnosis Action Code (ID) 01894

Definition: This field defines the action to be taken for this diagnosis. Refer to *HL7 Table 0206 - Segment Action Code*

3.3.5 ZL1 - Patient Allergy Information Segment

The patient allergen segment carries one patient allergy. If a patient has more than one allergy, send each allergy on a separate ZL1 segment. One or more allergy segments can be present on two messages:

- ZRG – DOQ-IT Patient Registration Message (event Z01)
- ADT – Patient Visit Message (event A04)

Practices should indicate all patient allergies that are known at the time of registration to the DOQ-IT system. Do this by sending ZG1 segment(s) on the ZRG message. Of course, a new allergy may be detected after a patient has been registered to the DOQ-IT system. In this happens, the new allergy (ZL1 segment) may be sent along with the patient visit (ADT) message.

The Patient Allergy Information segment is used to send an allergy applicable to a patient from the eHR system which DOQ-IT uses for exclusionary criteria. This ZL1 segment is like a standard AL1 segment, but with an action code field positioned at the end of the segment. The downloadable resources found on www.qualitynet.org defines the SNOMED-CT codes relevant to each quality measure. DOQ-IT will only accept allergies relating to a measure specified in the downloadable resources. In the event that an allergy is submitted that is unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as "Not Applicable".

ZL1 – PATIENT ALLERGY INFORMATION SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	(AL1) HL7 LEN	OPT	RP/#	TBL #	DOQIT LEN
1	SEGMENT_NO	Set ID – ZL1	00203	CE	250	R	N		**4**
2	ALLERGEN_TYPE_CODE	Allergen Type Code	00204	CE	250	R	N		**2**
3	ALLERGEN_CODE_SYS ALLERGEN_CODE	Allergen Code Mnemonic/Description	00205	CE	250	R	N		**20** **20**
4		Allergy Severity Code	00206	CE	250	O	N	0128	
5		Allergy Reaction Code	00207	ST	15	O	N		
6	ALLERGEN_IDENTIFICATION_DATE	Identification Date	00208	DT	8	R	N		
7		Action Code		ID	N/A	O	N	0206	1

3.3.5.0 ZL1 PATIENT ALLERGY INFORMATION field definitions

3.3.5.1 ZL1-1 Set ID - ZL1 (CE) 00203

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (IS)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (IS)>

Definition: This field contains the number that identifies this transaction. DOQ-IT does NOT require this field, however it is included as a field due to the HL7 standard specifying this field as required with the AL1 segment.

3.3.5.2 ZL1-2 ALLERGEN_TYPE_CODE Allergen type code (CE) 00204

Definition: This field indicates a general allergy category (drug, food, pollen, etc.). Refer to *User-defined Table 0127 - Allergen type* for suggested values.

User-defined Table 0127 - Allergen type

Value	Description
DA	Drug allergy
FA	Food allergy
MA	Miscellaneous allergy
MC	Miscellaneous contraindication
EA	Environmental Allergy
AA	Animal Allergy
PA	Plant Allergy
LA	Pollen Allergy

3.3.5.3 ZL1-3 ALLERGEN_CODE, ALLERGEN_CODING_SYSTEM Allergen code/mnemonic/description (CE) 00205

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (IS)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (IS)>

Definition: This field uniquely identifies a particular allergen. This element must conform to a SNOMED-CT code specified in the downloadable resources.

3.3.5.4 ZL1-4 ALLERGY SEVERITY CODE (CE) 00206

Definition: This field indicates the general severity of the allergy. DOQ-IT does NOT require this field, however it is included as a field due to the HL7 standard specifying this field as required with the AL1 segment

3.3.5.5 ZL1-5 ALLERGY REACTION CODE (ST) 00207

Definition: This field identifies the specific allergic reaction that was documented. DOQ-IT does NOT require this field, however it is included as a field due to the HL7 standard specifying this field as required with the AL1 segment

3.3.5.6 ZL1-6 ALLERGEN_IDENTIFICATION_DATE (DT) 00208

Definition: This field contains the date that the allergy was identified.

3.3.5.7 ZL1-7 ACTION_CODE (ID) 01894

Definition: This field defines the action to be taken for this allergen. Refer to *HL7 Table 0206 - Segment Action Code* in Chapter 2 for valid values.

4. Patient Visits

The trigger event and message definitions in this chapter contain information about actual patient visits to the healthcare practice facility. eHR software applications will need to communicate this information using the ADT – Register a Patient, A04 trigger event. This is a standard HL7 message used to signal that a patient has arrived or checked in at healthcare practice facility. The A04 event is used for original transmission of patient visit information, and updates to this information.

4.1.1 ADT - Register a Patient Visit (Event A04)

An A04 event signals that the patient arrived at the healthcare practice, and visit/examination details were recorded.

MSH	Message Header
EVN	Event Type
ZCR	Primary practice identification
PID	Patient identification
PV1	Patient Visit
[{OBX}]	Patient examination room observations
[{DG1}]	Patient Diagnosis Information
[{ZL1}]	Patient Allergen Information

DOQ-IT expects to receive an ADT message for each visit that the DOQ-IT registered patient has to the healthcare practice.

Example:

- A patient is registered to the DOQ-IT system in September (practice sends one ZRG message to DOQ-IT)
- Patient has three examination room visits in the month of October (practice sends three ADT messages to DOQ-IT, one for each visit)

Practices have the ability to update information on the ADT message, if the original message sent to DOQ-IT contained errors or otherwise needs to change. Note that the DG1 and ZL1 segments are present on both the ZRG (DOQ-IT patient registration message) and ADT (patient visit) messages. This is because chronic disease diagnosis, and/or patient allergies can be indicated when a patient is registered with DOQ-IT, or can be recorded at a patient visit to the healthcare facility. Patient diagnosis and allergy information should be provided on the DOQ-IT registration message as it is known at the time. However if this information changes after DOQ-IT registration is completed, it can be done on either a ZRG or an ADT message. Only diagnoses that pertain to a topic to which the patient has been previously registered, will be accepted on the ADT message. If you wish to register the patient to a new topic as a result of this diagnosis, please use the ZRG^Z01 message. Example:

- A patient was registered to the DOQ-IT system with a ZRG message
- Two ZL1 segments were present on the ZRG message, indicating that the patient has two recorded allergies

- A third allergy is identified a month later at a patient visit to the healthcare facility
- The practice may communicate this allergy to DOQ-IT on the ADT message (patient visit)

If a change is required to a patient's diagnosis or allergen record(s), and this change is not something that resulted from a patient visit, then the ZRG (registration) message can be used to update the patient's records in DOQ-IT. See more information about this in Chapter three.

A Patient Visit message contains the following important pieces of information:

- Date/time the visit was recorded in the eHR administration system used by the practice
- Patient identifier
- Visit identifier
- Patient observation(s) that are recorded at the visit/examination
- Chronic diagnosis data
- Patient allergen data

Diagnosis and allergen data for the patient is carried on DG1 and ZL1 segments, respectively. If this information is provided on the DOQ-IT patient registration message (ZRG message in Chapter 3) then it should not be sent again on ADT patient visit messages. Only send DG1 or ZL1 segments on an ADT message if:

- New diagnosis or allergy is determined at a visit
- An update to a diagnosis or allergy is necessary as a result of the patient visit
- A previously sent diagnosis or allergy must be deleted, resulting from new information gathered at a patient visit

4.1.1.0 Patient Visit Update

Patient visit data can be updated by resending an ADT message. Update means that practice needs to change data that has already been sent for a particular patient visit. Data on the following patient registration segments is updatable:

- PV1 (patient visit segment)
- OBX (observation segment)
- DG1 (diagnosis segment)
- ZL1 (allergen segment)

The ADT message identifies the specific patient visit that is being updated. An ADT message can update data for the specified visit only. The exact visit is indicated in PV1-19 field. There are three scenarios for updating patient visit data:

- Update a non-key field on a previously-transmitted segment
- Delete a particular OBX, DG1, or ZL1 segment

- Add another OBX, DG1, or ZL1 to an existing set

4.1.1.0.1 Update a non-key field on a previously-transmitted segment

This scenario occurs when a change must to made to a segment that was transmitted on a previous message. The field(s) to change are non-key fields.

Note that the scope of segments on an ADT message can be different. For example, an OBX segment on an ADT message is visit specific. This observation is tied to a particular patient visit. A physician may take a blood pressure measurement for a patient on successive visits. Each measurement is valid at a point in time – the patient visit. In contrast, a chronic diagnosis or patient allergy would be consistent across many visits to the healthcare facility.

DOQ-IT uses HL7 “snapshot” mode for this type of update to patient visit data. In “snapshot” mode, segments on the current incoming message overwrite the corresponding segments that were sent on a previous message. This is equivalent to a deletion of the prior group followed by the addition of the new group of segments. Resend the same segment with the updated data fields. All required fields must be present on the incoming segment. Updatable fields in “snapshot mode” are:

PV1 segment:

- Admit date/time (PV1-44)

OBX segment:

- Observation value type (OBX-2)
- Observation value (OBX-5)
- Observation units (OBX-6)
- Reference Range (OBX-7)
- Abnormal Flags (OBX-8)
- Observation Result Status (OBX-11)
- Observation Date (OBX-14)
- Physician ID (OBX-16)

DG1 segment:

- DX Date (DG1-5)
- Diagnosis type (DG1-6)
- Physician ID (DG1-16)

ZL1 segment:

- Allergen Type code (ZL1-2)
- Allergen Severity Code (ZL1-4)
- Allergen Reaction Code (ZL1-5)

- Identification Date (ZL1-6)

4.1.1.0.2 Delete a particular OBX, DG1, or ZL1 segment

In this scenario, one or more OBR, DG1, or ZL1 segments have been transmitted previously for this visit. Imagine that a patient visit occurred and an ADT message was transmitted to the DOQ-IT system. The ADT message carried three observations that were recorded at the visit. It is subsequently determined that one of the observations was wrong and should be deleted, while the other two should remain. In order to remove the incorrect OBX segment, and not touch the other two, follow this process:

- Determine which observation (OBX) is to be removed
- Specify "D" (delete) in the observation result status field (OBX-11)
- Specify the correct patient visit code in PV1-19 field
- Sending the other two correct OBX segments is optional. If they are sent they will overwrite the existing segments in DOQ-IT with the same data
- Resend the ADT message to DOQ-IT

The same process is followed if you need to remove a ZL1 or DG1 segment. The only difference is the location of the field where the delete action is marked:

- DG1 – specify "D" (delete) in DG1-21
- ZL1 – specify "D" (delete) in ZL1-7

The DOQ-IT warehouse will only store diagnosis data that is relevant to one or more patient topics. Similarly, registration to a patient topic must be substantiated by one or more valid diagnoses pertaining to the patient topic. A delete action that would violate these rules will not be allowed to proceed, and this will be explained on the file submission report. In situations like this, a diagnosis and topic will need to be deleted together. A ZRG^Z01 message must be used in this situation.

4.1.1.0.3 Add another OBX, DG1,or ZL1 segment to an existing set

This scenario occurs when patient visit data has been transmitted to DOQ-IT on a previous ADT message. Additional information now needs to be added to the patient visit in DOQ-IT. The existing data is to remain unchanged, but new data is to be added to the patient visit.

In this scenario the practice need only send the new OBX, DG1, or ZL1 segment(s). This data will be added to the patient visit. The practice can send the new segments only, or the new segment and existing ZPT segments can all be sent together. If old and new segments are sent, the existing segments are overwritten with the same data, and the new segments are added to the patient visit in DOQ-IT. Note that a new DG1 segment may only be added (on an ADT message) if it is relevant to a patient topic to which the patient is already registered. If this is not the case, the DG1 data must be sent on a ZRG^Z01 (patient registration) message that also includes the patient topic(s) (ZPT segments) that the patient is being registered to.

4.1.2 ADT – Cancel a Patient Visit (Event A11)

The A11 event message allows a practice to remove a patient visit that was erroneously registered to the DOQ-IT system. This message is sent to cancel an A04 event (patient visit), either because of an erroneous entry of the A04 event, or because of a decision not to check the patient in for the visit after all. The specific visit to cancel must be identified on the ADT^A11 message. The effect of this message is to remove a particular patient visit from DOQ-IT altogether. This may be the only visit for a patient, or more than one visits may have already posted to DOQ-IT.

For example, three valid patient visits have been recorded in the DOQ-IT system for a particular patient. A forth visit is sent by mistake for the patient. The A11 event allows you to remove the invalid patient visit, while leaving data for the other three valid visits untouched.

If more than one patient visits are to be cancelled, each cancel must be sent on a separate ADT^A11 message.

HL7 abstract message syntax for the ADT^A11 message is shown here.

MSH	Message Header
EVN	Event Type
ZCR	Primary practice identification
PID	Patient Identification
PV1	Patient Visit

4.2 MESSAGE SEGMENTS

4.2.1 MSH Message Header Segment

The Message Header Segment is required on all HL7 transactions. It defines the intent, source, destination, and some specifics of the syntax of a message. Refer to section 2.4.3 MSH Message Header Segment for DOQ-IT's required elements.

4.2.2 EVN - Event Type Segment

The EVN – Event Type segment is required to communicate necessary trigger event information in DOQ-IT. Valid event types are contained in *HL7 Table 0003 - Event Type*.

EVN – EVENT TYPE Segment HL7 Data Element – Cross Reference List

SEQ	ELEMENT NAME	ITEM #	DT	LEN	OPT	RP/#	TBL#
1	Event Type Code	00099	ID	3	O	N	0003
2	Recorded Date/Time	00100	TS	26	O	N	

* The EVN-1 field has been retained for HL7 backward compatibility only. We recommend using the second component (trigger event) of MSH-9 - Message Type to transmit event type code information.

4.2.2.0 EVN Segment field definitions

4.2.2.1 EVN-1 Event Type Code (ID) 00099

Definition: This field contains the events corresponding to the trigger events. Refer to *HL7 Table 0003 - Event type* for valid values.

4.2.2.2 EVN-2 Recorded Date/Time (TS) 00100

Definition: This field contains the timestamp of when the transaction data file was created.

4.2.3 ZCR - PRIMARY PRACTICE Segment

As previously stated, the ZCR segment is required for the transmission of patient data. It must be included in the message to relate the patient data to the primary practice. Refer to Section 3.3.1 ZCR – Primary Practice Segment for details on this segment.

4.2.4 PID - Patient Identifier Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently. The PID segment must precede any PV1, ORC, OBR, or OBX segments. The patient identifier defined in the PID segment is applied to those transactions occurring in the PV1, ORC, OBR, and OBX segments until the next PID segment is encountered. Though the standard PID segment contains 39 fields, DOQ-IT only expects fields 1 and 3 to be present. Technically field 5 (patient name) is required to be present but DOQ-IT will not enforce this rule. The practice must use the same identifier in PID-3, as was given on ZPP-3, to identify the patient. DOQ-IT will not support repetition on the patient identifier (PID-3), so practice must choose only one identifier per patient and use it consistently over time. Which identifier the practice chooses to send is the responsibility of the practice. HL7 recommends using one of these options (recommendation only, not enforced):

- Master Patient Index (MPI) identifier of patient
- ID initially assigned by the patient registration system

PID – PATIENT IDENTIFIER Segment HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL #	DOQIT LEN
1	SEGMENT_NO	Set ID – PID	00104	SI	4	R	N		
3	PATIENT_ID_LIST_CODE PATIENT_ID_LIST_CODE_SYS	Patient Identifier List	00106	CX	250	R	N	0203	**20** **20**

4.2.4.0 PID PATIENT IDENTIFIER Segment field definitions

4.2.4.1 SEGMENT_NO – Set ID – PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc

4.2.4.2 PATIENT_ID_LIST_CODE, PATIENT_ID_LIST_CODE_SYS – Patient Identifier List (CX) 00106

Components: <ID Number (ST)> ^ ^ ^ ^ <Identifier Type Code (ID)> ^ ^ ^ ^ ^

Definition: This field contains the list of identifiers used by the practice to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.).

4.2.5 PV1 - Patient Visit Segment

The PV1 segment is used by administration and clinical areas to transmit core visit information for the patient. The PV1 segment is required to be present on ADT and ORU messages and is the means by which DOQ-IT associate clinical observations to a patient visit. The standard PV1 segment has 52 fields, but DOQ-IT expects values for fields 2, 19, and 44 only. Other fields that are present will be ignored.

The visit number field on this segment is particularly important. This field carries a unique number assigned to each patient visit in the eHR system.

HL7 Attribute Table - PV1 - Patient Visit

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/ #	TBL#	DOQIT LEN
2	PATIENT_CLASS_CD	Patient Class	00132	IS	1	R		0004	
19	VISIT_NUM	Visit Number	00149	CX	250	R			**50**
44	ADMIT_DATE	Admit Date/Time	00174	TS	26	R	N		**14**

4.2.5.0 PV1 field definitions

4.2.5.1 PV1-2 Patient Class (IS) 00132

Definition: This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to *User-defined Table 0004 - Patient Class* for suggested values.

User-defined Table 0004 - Patient Class

Value	Description	Comment
E	Emergency	
I	Inpatient	
O	Outpatient	
P	Preadmit	
R	Recurring patient	
B	Obstetrics	
C	Commercial Account	
N	Not Applicable	
U	Unknown	

“Commercial Account” is used by reference labs for specimen processing when the service is billed back to a third party. A registration is processed for the specimen to facilitate the subsequent billing. The identity of the patient may be known or unknown. In either case, for billing and statistical purposes, the patient class is considered a commercial account due to the third party billing responsibility.

“Not Applicable” is used only in cases where the PV1 segment itself is not applicable but is retained in the message definitions for backwards compatibility (for example when a managed care system sends A28, A29, or A31 messages to indicate the enrolment of a patient in the system and there is no scheduled "visit" or "encounter" and hence the entire PV1 segment is not applicable).

4.2.5.2 PV1-19 Visit Number (CX) 00149

Components: <ID Number (ST)> ^ <heck Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

Subcomponents for Assigning Authority (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Jurisdiction (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Subcomponents for Assigning Agency or Department (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Definition: For backward compatibility, a NM data type may be sent, but HL7 recommends that new implementations use the CX data type**.** This field contains the unique number assigned to each patient visit. The assigning authority and identifier type code are strongly recommended for all CX data types.

4.2.5.3 PV1-44 Admit Date/Time (TS) 00174

Components: <Time (DTM)> ^ <Degree of Precision (ID)>

Definition: This field contains the admit date/time. It is to be used if the event date/time is different than the admit date and time, i.e., a retroactive update. This field is also used to reflect the date/time of an outpatient/emergency patient registration.

For information on other PV1 data elements, please consult HL7 Standard, Version 2.4, chapter 3.

5. Clinical Observations

5.1 PURPOSE

The information contained in this chapter pertains to patient's clinical observations. It should be noted that practices must complete the necessary forms and approvals to obtain security access through QualityNet Exchange and complete the online setup process prior to any data being transmitted to the DOQ-IT system.

The main purpose of the DOQ-IT Observational message is to capture observational data relevant to patients who have been registered and diagnosed with coronary artery disease, heart failure, diabetes, hypertension, or preventive care by the physician's practice. This information is transmitted using the R01 trigger event and ORU message to convey observational data.

The patient registration process must be completed prior to transmitting any observational records. Refer to Chapter 3 DOQ-IT Patient Registration for explanation on the patient registration process.

5.2 TRIGGER EVENTS AND MESSAGE DEFINITIONS

The HL7 message used to transmit observational records will be the ORU- Unsolicited Transmission of an Observation Message, R01 trigger event. Many of the message segments contain optional fields not needed in the existing DOQ-IT standard. **These fields will be ignored.**

5.2.1 ORU - Unsolicited Transmission of an Observation Message (Event R01)

The ORU message is designed for transmitting laboratory results to other systems. With OBX and OBR segments, almost any clinical report can be constructed as a multi-level hierarchy. The PID represents the upper level of the hierarchy, an observation request (OBR) is at the next level, and observation records (OBX) at the lowest level.

One result segment (OBX) is transmitted for each component of a diagnostic report, which is specified in the OBR segment. As shown in the abstract message syntax below, an ORU-R01 message may contain one-to-many Patient Blocks. Each Patient Block that is present in one ORU-R01 message represents a distinct transaction. In order to be accepted and processed by DOQ-IT, all content in a Patient Block must be free of errors. A Patient Block will be processed even if other blocks fail on the same message. The abstract syntax for the ORU message allows practices to send multiple patients and their clinical results on one ORU message, or a single patient with their clinical results.

ORU^R01	Observational Results (Unsolicited)	Status	Chapter
MSH	Message Header		2
ZCR	Primary practice identification		
{	BEGIN PATIENT BLOCK		

ORU^R01	Observational Results (Unsolicited)	Status	Chapter
PID	Patient Identification		3
PV1	Patient Visit		
{	BEGIN ORDER / OBSERVATIONS BLOCK		
[ORC]	Order Common Segment		
OBR	Observations Request		
[{ OBX }]	Observation/Result Information		7
}	END ORDER / OBSERVATIONS BLOCK		
}	END PATIENT BLOCK		

DOQ-IT HL7 messages are restricted to separate records on a single patient. Since repeating fields are not permitted within a segment, the records following the PID segment are only related to the Patient Identifier contained in the PID segment. The majority of DOQ-IT data items will be reported in individual ORC, OBR, and OBX segments.

5.2.2 ORIGINAL TRANSMISSION OF OBSERVATIONS

The ORU message is the vehicle for transmitting clinical observations to DOQ-IT. DOQ-IT is interested in capturing final and completed observation results only. Please do not transmit results that are in a preliminary status, and subject to change. DOQ-IT expects the following on ORU messages:

- Result Status set to “F” (Final results; results stored and verified. Can only be changed with a corrected result) on OBR-25.
- Observation Result Status set to “F” (Final result. Can only be changed with corrected result) on OBX-11.
- Order Control set to “OK” (Order accepted) on ORC-1.

5.2.3 OBSERVATION UPDATES AND DELETIONS

Clinical observations may be updated after original transmission to DOQ-IT. In general, DOQ-IT requests that practices refrain from sending observation results until all results are final and completed. However circumstances may arise where observations are verified to be wrong, or observations need to be deleted.

Note: DOQ-IT will not update observations after they have been reflected in the warehouse reports.

As stated previously, ORU message is implemented as a three-level hierarchy. In order to identify an observation to be updated, DOQ-IT captures contextual information from all three levels of the hierarchy.

- Practice identifier (level one on ZCR segment)
- Patient identifier (level one on PID segment)
- Patient visit (level one on PV1 segment)
- Procedure Name (level two on OBR segment)
- Observation Identifier (level three on OBX segment)

To update or delete one or more clinical observations, follow this process:

a) Ensure that all required fields are present on all segments in the update request

b) Identify the Primary Practice on the ZCR segment

c) identify the patient on the PID segment (PID-3)

d) identify the visit on the PV1 segment (PV1-19, PV1-44)

e) identify the clinical procedure to be updated on Universal Service ID (OBR-4)

f) specify “C” (correction to results) on Result Status field (OBR-25)

g) identify the observation (OBX-3)

h) in Observation Result Status field (OBX-11), specify:

   a. C (correction, to replace a final result)

   b. D (deletes the OBX record)

   c. W (post original was wrong; should be followed up with correction)

5.3 MESSAGE SEGMENTS

5.3.1 MSH Message Header Segment

The Message Header Segment is required on all HL7 transactions. It defines the intent, source, destination, and some specifics of the syntax of a message. Refer to section 2.4.3 MSH Message Header Segment for DOQ-IT’s required elements.

5.3.2 ZCR - PRIMARY PRACTICE Segment

As previously stated, the ZCR segment is required for the transmission of patient data. It must be included in the message to relate the patient data to the primary practice. Refer to Section 3.3.1 ZCR – Primary Practice Segment for details on this segment.

5.3.3 OBX – Observation Result Segment

The observation result segment is used to send one or many lab test results, clinical observations, vital signs, patient reasons or physician reasons applicable to a patient from the eHR system. This

segment represents a single observation or observation fragment. It is the smallest indivisible unit of a report. The principle mission of an OBX segment is to carry information about observations in report messages. The downloadable resources found on www.qualitynet.org defines the IFMC, LOINC, CPT, and SNOMED-CT codes relevant to each quality measure. DOQ-IT will only accept observations relating to a measure specified in the downloadable resources. In the event that an observation is submitted that is unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as "Not Applicable".

OBX – OBSERVATION RESULTS SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL #	DOQIT LEN
1	SEGMENT_NO	Set ID – OBX	00569	SI	4	R	N		
2	OBSERVATION_VALUE_TYPE	Value Type	00570	ID	2	C	N	0125	**3**
3	OBSERVATION_ID_LIST_CODE OBSERVATION_ID_LIST_CODE_SYS OBSERVATION_ID_MOD_CODE	Observation Identifier	00571	CE	250	R	N	0396	**20** **20** **2**
5	OBSERVATION_VALUE	Observation Value	00573	Varies	999	C	N		**60**
6	OBSERVATION_UNITS	Units	00574	CE	250	C	N		**20**
11	OBX_RESULT_CD	Observation Result Status	00579	ID	1	R	N	0085	
14	OBSERVATION_DATE	Date/Time of observation	00582	TS	26	R	N		**14**
16	PHYSICIAN_ID	Responsible Observer	00584	XCN	250	O	N		**14**

5.3.3.0 OBX – OBSERVATION RESULTS field definitions

5.3.3.1 OBX-1 SEGMENT_NO – Set ID – OBX (SI) 00569

Definition: This field contains sequence number, beginning at 1. If multiple OBX segments are present on one message, they can be ordered with the SET ID value in the first field.

5.3.3.1.1 OBX-2 OBSERVATION VALUE TYPE – Value Type: Type of data string applicable to an observations. (ID) 00570

Definition: This field contains the format of the observation value in OBX.

The second field in the OBX segment expresses the format of the value that is carried in the fifth field. OBX-2 is of data type ID. Value of this field must be present on HL7 reference table #125.

NOTE: This field is declared as conditional. This field may be left empty **ONLY** if the observation identifier in OBX-3 is an IFMC identifier. IFMC codes are provided to indicate that an observation was declined by either the patient or physician. In this case, there is no observation value, or observation units, present in fields OBX-5, and OBX-6. Valid IFMC codes that may appear in OBX-3 are available in the downloadable resources.

5.3.3.2 OBX-3 OBSERVATION_ID_LIST_CODE, OBSERVATION_ID_LIST_CODE_SYS, OBSERVATION_ID_MOD_CODE – Observation Identifier (CE) 00571

Components: <Identifier (ST)> ^ ^ <Name of Coding System (ID)> ^<alternate Identifier (ST)> ^ ^

Definition: The Observation Identifier field contains three components embedded within the CE data type relevant to the reporting measures. The <Identifier> contains the observation code assigned to the lab test, vital sign, or physician reason, the <Name of Coding System> component contains the coding system used to reference the observation code, and the <alternate Identifier> contains the observation code's modifier code when applicable. Refer to the downloadable resource evaluation and exlusion tabs for valid observation code, coding system, and modifier code combinations.

5.3.3.3 OBX-5 OBSERVATION_VALUE – Observation Value (varies) 00573

Definition: This field contains the value of the observation. The length of the observation field is variable, depending upon OBSERVATION_VALUE_TYPE. Depending upon the observation, the data type may be a Number (e.g., a heart rate), or other result.

NOTE: This field is declared as conditional. This field may be left empty **ONLY** if the observation identifier in OBX-3 is an IFMC identifier. IFMC codes are provided to indicate that an observation was declined by either the patient or physician. In this case, there is no observation value to report in this field. Valid IFMC codes that may appear in OBX-3 are available in the downloadable resources.

5.3.3.4 OBX-6 OBSERVATION_UNITS - Units (CE) 00574

Components: <Identifier (ST)> ^ <Text (ST)> ^ ^ ^ ^

Definition: This field refers to the unit of measure associated with the OBSERVATION_VALUE. Refer to the HL7 standard which defines Common ISO derived units & ISO+ extensions.

NOTE: This field is declared as conditional. This field may be left empty **ONLY** if the observation identifier in OBX-3 is an IFMC identifier. IFMC codes are provided to indicate that an observation was declined by either the patient or physician. In this case, there are no observation units to report in this field. Valid IFMC codes that may appear in OBX-3 are available in the downloadable resources.

5.3.3.5 OBX-11 Observation Result Status (ID) 00579

Note: observations are not updatable after they have been used in the computation of a DOQ-IT clinical measure.

Definition: This field contains the observation result status. Refer to *HL7 table 0085 - Observation result status codes interpretation* for valid values. This field reflects the current completion status of the results for one Observation Identifier.

It is a required field. Previous versions of HL7 stated this implicitly by defining a default value of "F." Code **F** indicates that the result has been verified to be correct and final. Code **W** indicates that the result has been verified to be wrong (incorrect); a replacement (corrected) result may be transmitted later. Code **C** indicates that data contained in the *OBX-5-observation value* field are to replace previously transmitted (verified and) final result data with the same observation ID (including suffix, if applicable) and observation sub-ID usually because the previous results were wrong. Code **D** indicates that data previously transmitted in a result segment with the same observation ID (including suffix) and observation sub-ID should be deleted. When changing or deleting a result, multiple OBX segments with the same observation ID and observation sub-ID are replaced or deleted as a unit. Normal progression of results through intermediate (e.g., 'gram positive cocci') to final (e.g., 'staphylococcus aureus') should not be transmitted as **C** (correction); they should be transmitted as **P** or **S** (depending upon the specific case) until they are final.

HL7 Table 0085 - Observation result status codes interpretation

Value	Description	Comment
C	Record coming over is a correction and thus replaces a final result	
D	Deletes the OBX record	
F	Final results; Can only be changed with a corrected result.	
I	Specimen in lab; results pending	
N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought.	
O	Order detail description only (no result)	
P	Preliminary results	
R	Results entered -- not verified	
S	Partial results	
X	Results cannot be obtained for this observation	
U	Results status change to final without retransmitting results already sent as 'preliminary.' E.g., radiology changes status from preliminary to final	
W	Post original as wrong, e.g., transmitted for wrong patient	

5.3.3.6 OBX-14 OBSERVATION_DATE – Date/Time of observation (TS) 00582

Definition: This field contains the date/time that the observation was recorded.

5.3.3.7 OBX-16 PHYSICIAN_ID – Responsible Observer (XCN) 00584

Components: <ID Number (ST)> ^

Definition: This field contains the physician's NPI number that is responsible for the observation.

5.3.4 ORC – Common Order Segment

The common order segment is used to transmit fields that are common to all orders. An order is a request for a service, and this segment can be used for all varieties of service requests. When communicating with DOQ-IT, the ORC segment is used on two messages:

- ORU – representing an order for a clinical procedure and observations
- OMP – representing a general pharmacy order.

This chapter deals with the ORU message, so the ORC is discussed in the context ordering a clinical procedure. See chapter 5 for a discussion of the ORC in the context of a pharmacy order.

the ORC is required to relate drug history to a patient. The RXO Pharmacy Order segment is joined to the ORC segment using the PLACER_ORDER_NUMBER. The downloadable resources found on www.qualitynet.org define the NDC codes relevant to each quality measure. For a patient, DOQ-IT only need the drug history relating to the measures specified in the downloadable resources. In the event that a drug was submitted that in unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as "Not Applicable".

ORC – COMMON ORDER SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	LEN	OPT	RP/#	TBL #	DOQIT LEN
1	ORDER_CONTROL	Order Control	00215	ID	2	R	N	0119	
2	PLACER_ORDER_NUMBER	Placer_Order_Number	00216	EI	22	R	N		
12	PHYSICIAN_ID	Ordering Provider	00226	XCN	250	O	N	0203	**14**
15	ORDER_DATE	Order Effective Date/Time	00229	TS	26	R	N		**14**
21	CLINIC_ID	Ordering Facility Name	01311	XON	250	R	N		**14**

5.3.4.0 ORC – COMMON ORDER SEGMENT Field definitions

5.3.4.1 ORDER_CONTROL – Order Control – OBX (ID) 00215

Definition: This field determines the function of the order segment. Refer to *HL7 Table 0119 - Order Control Codes And Their Meaning* for valid entries. For the purposes of DOQ-IT, the ORDER_CONTROL should contain the value 'OK'. This indicates that the "Order/Service was accepted and OK".

This field may be considered the "trigger event" identifier for orders. The codes fall roughly into the following three categories:

a) event request

Codes like "NW" (new order) and "CA" (cancel order request) are used to initiate an event.

b) event acknowledgment

Codes like "OK" (order accepted) and "CR" (canceled as requested) are used to reply to the event request.

c) event notification

Codes like "OC" (order canceled) and "OD" (order discontinued) are used to notify other applications that an event has occurred. No application reply is necessary.

Event request codes are intended to initiate an event. Event acknowledgment codes are intended to reply to an application that requested an event. Event notification codes are intended to notify another application that, e.g., the filler has performed some action on an order that the other application, e.g., the placer, needs to know.

Fillers, placers, and other applications can use event requests, event acknowledgments, and event - notification-type trigger events interchangeably. However, certain order control codes can originate only from the filler (e.g., CR) and others can only originate from the placer (e.g., CA).

Refer to section 4.19.1 for the contents of *HL7 Table 0119 – Order Control Codes*.

DOQ-IT expects the ORDER CONTROL field to be used in the context of event acknowledgement on ORU and VXU message. On these messages, ORC-1 should be valued with “OK”.

For OMP messages (pharmacy/treatment order) ORDER CONTROL is used in the context of event request. On an OMP messages, ORC-1 should be valued with “NW” or “CA”.

5.3.4.2 PLACER_ORDER_NUMBER – Placer Order Number (EI) 00216

Components: <Entity Identifier (ST)> ^ <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field is the placer application's order number. This field is a case of the Entity Identifier data type where the first component is a string that identifies an individual order (e.g., OBR). A limit of fifteen (15) characters is suggested but not required. An implementation is HL7 compliant when the number of characters for this field is increased to accommodate applications that require a greater number of characters for the Placer order number. It is assigned by the placer (ordering application). It identifies an order uniquely among all orders from a particular ordering application.

5.3.4.3 PHYSICIAN_ID - Ordering Provider (XCN) 00226

Components: <ID Number (ST)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ <Identifier Type Code (ID)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^

Definition: This field contains the NPI number of the person who is responsible for creating the request (i.e., ordering physician).

5.3.4.4 ORDER_DATE – Order Date (TS) 00229

Definition: This field contains the date the order was placed.

5.3.4.5 CLINIC_ID – Ordering Facility Name (XON) 01311

Components: ^ ^ ^ ^ ^ ^ ^ ^ ^ <Organization Identifier (ST)>

Definition: This field contains the name of the facility placing the order.

5.3.5 OBR – Observation Request Segment

In the reporting of clinical data, the OBR serves as the report header. It identifies the observation set represented by the following atomic observations. It includes the relevant ordering information when that applies. It contains many of the attributes that usually apply to all of the included observations. When a set of observations is ordered, the order message contains an OBR segment. However, observations can be collected and reported without an antecedent order. When observations are reported, the report message also includes one or more OBR segments. So, the OBR segment is like a turn-around document. Some fields in the OBR segment apply only to the ordering message and some to the reporting message.

HL7 Attribute Table – OBR – Observation Request

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL #	DOQIT LEN
4	OBR_CODE OBR_CODE_SYS	Universal Service Identifier	00238	CE	250	R	N		**20** **20**
7	OBR_DATE	Observation Date/Time	00241	TS	26	R	N		**14**
22		Results Rpt/Status Chng – Date/TIme	00255	TS	26	O	N		**14**
25	OBR_RESULT_CD	Result Status	00258	ID	1	R	N	0123	

5.3.5.0 OBR-4 Universal Service Identifier (CE) 00238

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

Definition: This field contains the identifier code for the requested observation/test/battery being requested by the order placer. This can be based on local and/or "universal" codes. We recommend the "universal" procedure identifier. The structure of this CE data type is described in the control section.

OBR-4 allows the use of standard clinical lexicons for the transmission of order codes. It is recommended that published code sets be used whenever possible to maximize interoperability. The name and/or code for the procedure, service, or observation is given in this field. One or more OBX segments may follow an OBR segment. These OBX segments represent component observations of the procedure specified in OBR-4.

5.3.5.1 OBR-7 Observation Date/Time (TS) 00241

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

Definition: This field is the clinically relevant date/time of the observation. In the case of observations taken directly from a subject, it is the actual date and time the observation was obtained. In the case of a specimen-associated study, this field shall represent the date and time the specimen was collected or obtained. (This is a results-only field except when the placer or a third party has already drawn the specimen.) This field is required.

5.3.5.2 OBR-22 Results Rpt/Status Chng - Date/Time (TS) 00255

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

Definition: This field specifies the date/time results reported or status changed. This field is used to indicate the date and time that the results are composed into a report and released, or that a status, as defined in *ORC-5-order status*, is entered or changed. (This is a results field only.) When other applications (such as office or clinical database applications) query the laboratory application for non-transmitted results, the information in this field may be used to control processing on the communications link. Usually, the ordering service would want only those results for which the reporting date/time is greater than the date/time the inquiring application last received results.

5.3.5.3 OBR-25 Result Status (ID) 00258

Definition: This field is the status of results for this order. This field is required.

There are two methods of sending status information. If the status is that of the entire order, use *ORC-15-order effective date/time* and *ORC-5-order status*. If the status pertains to the order detail segment, use *OBR-25-result status* and *OBR-22-results report/status change - date/time*. If both are present, the OBR values override the ORC values.

This field would typically be used in a response to an order status query where the level of detail requested does not include the OBX segments. When the individual status of each result is necessary, *OBX-11-observ result status* may be used. Refer to Chapter 4, Section 4.5.3.25, *HL7 Table 0123 - Result status* for valid entries.

6. Pharmacy Orders and Vaccination Messages

6.1 PURPOSE

This chapter deals with medications and vaccinations administered to the patient. To compute the clinical measures, DOQ-IT will need to receive data pertaining to patient drug and vaccination history. Two separate messages are defined in this chapter. The Pharmacy/Treatment Administration message carries data about medication administered to a patient. The Unsolicited Vaccination Record Update message carries vaccination data for the patient. Both of these messages are sent only for patients registered to one of the five quality measures: Coronary Artery Disease, Heart Failure, Diabetes, Hypertension, or Preventive Care.

The Pharmacy/Treatment Order message is transmitted with trigger event O09 on an OMP message.

The Unsolicited Vaccination Record Update message is transmitted with trigger event V04 on a VXU message.

It should be noted that practices must complete the necessary forms and approvals to obtain security access through QualityNet Exchange and complete the online setup process prior to any data being transmitted to the DOQ-IT system.

The patient registration process must be completed prior to transmitting any medication or vaccination records. Refer to Chapter 3 DOQ-IT Patient Registration for explanation on the patient registration process.

6.2 TRIGGER EVENTS AND MESSAGE DEFINITIONS

The HL7 message used to transmit data about medication ordered for the patient is the OMP-Pharmacy/Treatment Order message, O09 trigger event. Many of the message segments contain optional fields not needed in the existing DOQ-IT standard. These fields are ignored if present.

The HL7 message used to transmit vaccination records will be the VXU- Unsolicited Vaccination Record Update Message, V04 trigger event. Many of the message segments contain optional fields not needed in the existing DOQ-IT standard. **These fields will be ignored.**

6.2.1 OMP – Pharmacy/Treatment Administration Message (Event O09)

This message carries data pertaining to pharmacy orders for treatment of a patient's condition.

OMP ^O09	Pharmacy / Treatment Order Message
FHS	File Header Segment
BHS	Batch Header Segment
MSH	Message Header
ZCR	Primary practice identification
PID	Patient Identification
PV1	Patient Visit
{	BEGIN ORDER BLOCK
ORC	Order Common Segment
RXO	Pharmacy Order
}	END ORDER BLOCK
BTS	Batch Trailer Segment
FTS	File Trailer Segment

6.2.2 VXU - Unsolicited Vaccination Record Update Message (Event V04)

The underlying structure of this message is a four-level hierarchy: practice, patient, activity(s), sub-activity(s). The practice is described in the ZCR segment. The patient is described in the PID and related segments. Any ordering activity is described in the ORC segments. The sub-activity is described in RXA which is related to the preceding ORC segment.

VXU^V04	Unsolicited Vaccination Record Update Message	Status	Chapter
MSH	Message Header		2
ZCR	Primary Practice Identification		
PID	Patient Identification		3
{	Begin Order Block		
ORC	Order Common		4
RXA	Pharmacy Administration		4
}	End Order Block		

Note: Many vaccinations may be sent beneath each patient segment with many separate pharmacy administration segments (RXA) beneath each ORC.

DOQ-IT HL7 messages are restricted to separate records on a single patient. Since repeating fields are not permitted within a segment, the records following the PID segment are only related to the Patient Identifier contained in the PID segment. The majority of DOQ-IT data items will be reported in individual ORC, OBR, and OBX segments.

6.3 MESSAGE SEGMENTS

6.3.1 MSH Message Header Segment

The Message Header Segment is required on all HL7 transactions. It defines the intent, source, destination, and some specifics of the syntax of a message. Refer to section 2.4.3 MSH Message Header Segment for DOQ-IT's required elements.

6.3.2 EVN - Event Type Segment

The EVN – Event Type segment is required to communicate necessary trigger event information in DOQ-IT. Refer to section 4.2.2 EVN - Event Type Segment for DOQ-IT's required elements.

6.3.3 ZCR - PRIMARY PRACTICE Segment

As previously stated, the ZCR segment is required for the transmission of patient vaccination data. It must be included in the message to relate the vaccination data to the primary practice. Refer to Section 3.3.1 ZCR – Primary Practice Segment for details on this segment.

6.3.4 PID - Patient Identifier Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently. The PID segment must precede the ORC and RXO segments. The patient identifier defined in the PID segment is applied to those transactions occurring in the ORC and RXA segment until the next PID segment is encountered.

PID – PATIENT IDENTIFIER Segment HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL#	DOQIT LEN
1	SEGMENT_NO	Set ID – PID	00104	SI	4	R	N		
3	PATIENT_ID_LIST_CODE PATIENT_ID_LIST_CODE_SYS	Patient Identifier List	00106	CX	250	R	N	0203	**20** **20**

6.3.4.0 PID PATIENT IDENTIFIER Segment field definitions

6.3.4.1 SEGMENT_NO – Set ID – PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc

6.3.4.2 PATIENT_ID_LIST_CODE, PATIENT_ID_LIST_CODE_SYS – Patient Identifier List (CX) 00106

Components: <ID Number (ST)> ^ ^ ^ ^ <Identifier Type Code (ID)> ^ ^ ^ ^ ^

Definition: This field contains the list of identifiers used by the practice to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.).

6.3.5 PV1 - Patient Visit Segment

The PV1 segment is used by administration and clinical areas to transmit core visit information for the patient. The PV1 segment is required to be present on ADT and ORU messages and is the means by which DOQ-IT associate clinical observations to a patient visit. The standard PV1 segment has 52 fields, but DOQ-IT expects values for fields 2, 19, and 44 only. Other fields that are present will be ignored.

The visit number field on this segment is particularly important. This field carries a unique number assigned to each patient visit in the eHR system.

HL7 Attribute Table - PV1 - Patient Visit

SEQ	ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/ #	TBL#	DOQIT LEN
2	Patient Class	00132	IS	1	R		0004	1
19	Visit Number	00149	CX	250	R			50
44	Admit Date/Time	00174	TS	26	R	N		14

6.3.5.0 PV1 field definitions

6.3.5.1 PV1-2 Patient Class (IS) 00132

Definition: This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to *User-defined Table 0004 - Patient Class* for suggested values.

User-defined Table 0004 - Patient Class

Value	Description	Comment
E	Emergency	
I	Inpatient	
O	Outpatient	
P	Preadmit	
R	Recurring patient	
B	Obstetrics	
C	Commercial Account	
N	Not Applicable	
U	Unknown	

“Commercial Account” is used by reference labs for specimen processing when the service is billed back to a third party. A registration is processed for the specimen to facilitate the subsequent billing. The identity of the patient may be known or unknown. In either case, for billing and statistical purposes, the patient class is considered a commercial account due to the third party billing responsibility.

“Not Applicable” is used only in cases where the PV1 segment itself is not applicable but is retained in the message definitions for backwards compatibility (for example when a managed care system sends A28, A29, or A31 messages to indicate the enrolment of a patient in the system and there is no scheduled "visit" or "encounter" and hence the entire PV1 segment is not applicable).

6.3.5.2 PV1-19 Visit Number (CX) 00149

Components: <ID Number (ST)> ^ <heck Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

Subcomponents for Assigning Authority (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Jurisdiction (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Subcomponents for Assigning Agency or Department (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

Definition: For backward compatibility, a NM data type may be sent, but HL7 recommends that new implementations use the CX data type**.** This field contains the unique number assigned to each patient visit. The assigning authority and identifier type code are strongly recommended for all CX data types.

6.3.5.3 PV1-44 Admit Date/Time (TS) 00174

Components: <Time (DTM)> ^ <Degree of Precision (ID)>

Definition: This field contains the admit date/time. It is to be used if the event date/time is different than the admit date and time, i.e., a retroactive update. This field is also used to reflect the date/time of an outpatient/emergency patient registration. For information on other PV1 data elements, please consult HL7 Standard, Version 2.4, chapter 3.

6.3.6 ORC – Common Order Segment

The Common Order Segment is required to relate immunizations to a patient. The RXA Pharmacy Administration Segment is joined to the ORC segment using the PLACER_ORDER_NUMBER. The downloadable resources found on www.qualitynet.org define the NDC codes relevant to each quality measure. For a patient, DOQ-IT only needs the immunizations relating to the measures specified in the downloadable resources. In the event that an immunization was submitted that is unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as “Not Applicable”.

ORC – COMMON ORDER SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL #	DOQIT LEN
1	ORDER_CONTROL	Order Control	00215	ID	2	R	N	0119	
2	PLACER_ORDER_NUMBER	Placer_Order_Number	00216	EI	22	R	N		
12	PHYSICIAN_ID	Ordering Provider	00226	XCN	250	O	N	0203	**14**
15	ORDER_DATE	Order Effective Date/Time	00229	TS	26	R	N		**14**

6.3.6.0 ORC – COMMON ORDER SEGMENT Field definitions

6.3.6.1 ORDER_CONTROL – Order Control – OBX (ID) 00215

Definition: This field determines the function of the order segment. Refer to *HL7 Table 0119 - Order Control Codes And Their Meaning* for valid entries. For the purposes of DOQ-IT, the ORDER_CONTROL should contain the value ‘OK’. This indicates that the “Order/Service was accepted and OK”.

6.3.6.2 PLACER_ORDER_NUMBER – Placer Order Number (EI) 00216

Components: <Entity Identifier (ST)> ^ <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: This field is the placer application's order number. This field is a case of the Entity Identifier data type where the first component is a string that identifies an individual order (e.g., OBR). A limit of fifteen (15) characters is suggested but not required. An implementation is HL7 compliant when the number of characters for this field is increased to accommodate applications that require a greater number of characters for the Placer order number. It is assigned by the placer (ordering application). It identifies an order uniquely among all orders from a particular ordering application.

6.3.6.3 PHYSICIAN_ID - Ordering Provider (XCN) 00226

Components: <ID Number (ST)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ <Identifier Type Code (ID)> ^ ^ ^ ^ ^ ^ ^ ^ ^ ^

Definition: This field contains the NPI number of the person who is responsible for creating the request (i.e., ordering physician).

6.3.6.4 ORDER_DATE – Order Date (TS) 00229

Definition: This field contains the date the order was placed.

6.3.7 RXA – Pharmacy Administration Segment

The Pharmacy Administration Segment is required in order to relate vaccinations to a patient. The RXA- Pharmacy Administration segment is joined to the ORC – Common Order Segment using the PLACER_ORDER_NUMBER. For a patient, DOQ-IT only needs vaccinations relating to the measures specified in the downloadable resources. When using the RXA segment for vaccine messages, *HL7 Table 0292- Vaccines Administered*, should be used for RXA-5- Administered code. In the event that a vaccination was submitted that is unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as “Not Applicable”.

RXA – PHARMACY ADMINISTRATION SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL#	DOQIT LEN
1		Give Sub ID Counter	00342	NM	4	R	N		
2		Admin. Sub ID Counter	00344	NM	4	R	N		
3	ADMINISTRATION_START_DATE	Date/Time Start of Administration	00345	TS	26	R	N		**14**
4		Date/Time End of Administration	00346	TS	26	R	N		**14**
5	ADMINISTERED_CODE ADMINISTERED_CODE_SYS	Administered Code	00347	CE	250	R	N		**20** **20**

6.3.7.0 RXA – PHARMACY ADMINISTRATION SEGMENT Field definitions

6.3.7.1 RXA-1 GIVE SUB-ID COUNTER (NM) 00342

Definition: Use this field if matching this RXA segment to its corresponding RXG segment. If the two applications are not matching RXG and RXA segments, this field’s value is zero (0).

6.3.7.2 RXA-2 ADMINISTRATION SUB-ID COUNTER (NM) 00344

Definition: This field starts with 1 the first time that medication/treatment is administered for this order. Increments by one with each additional administration the medication/treatment.

Note: More than one RXA segment can be “matched” to a single RXG segment, as is the case when recording a change of the rate of administration of an IV solution.

6.3.7.3 RXA-3 ADMINISTRATION_START_DATE – Date/Time Start of Administration 00345

Definition: This field identifies the date and time of administered the vaccination.

6.3.7.4 RXA-4 DATE/TIME END OF ADMINISTRATION (if applies) (TS) 00346

Definition: If null, the date/time of *RXA-3-date/time start of administration* is assumed.

6.3.7.5 RXA-5 ADMINISTERED_CODE, ADMINISTERED_CODE_SYS – Administered Code 00347

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System(ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

Definition: This field identifies the vaccination administered to the patient. CVX codes are used to code this field (see HL7 Table 0292 – Vaccines Administered). The codes listed in Table 0292 are used by immunization registries in the U.S. Entries will be added as needed to accommodate international requirements. The only acceptable CVX codes have been excerpted from Table 0292 for convenience and are found in the downloadable resources.

HL7 Table 0292 - Vaccines administered (coding system = CVX)

Code	Short Description	Full Vaccine Name
15	influenza, split (incl. purified surface antigen)	influenza virus vaccine, split virus (incl. purified surface antigen)
16	influenza, whole	influenza virus vaccine, whole virus
33	pneummococcal	pneummococcal
88	influenza, NOS	influenza virus vaccine, NOS
100	pneummococcal	pneummococcal conjugate
109	pneummococcal, NOS	pneummococcal NOS

The codes in *HL7 Table 0292* represent the first revision (January 14, 1998) of the initial content of the external code set CVX. When using this code system to identify vaccines, the coding system component of the CE field should be valued as "CVX", not as "HL70292."

6.3.8 RXO - Pharmacy Order Segment

The Pharmacy Order Segment is required in order to relate drug history to a patient. It is used for any type of pharmacy order, as well as other non-pharmacy treatments. The RXO- Pharmacy Order segment is joined to the ORC – Common Order Segment using the PLACER_ORDER_NUMBER. The downloadable resources found on www.qualitynet.org define the NDC codes relevant to each quality measure. For a patient, DOQ-IT only needs drug history relating to the measures specified in the downloadable resources. In the event that a drug was submitted that is unrelated to a topic/measure found in the downloadable resources, DOQ-IT will not accept it into the QIO Outpatient Clinical Warehouse and the transaction will be labeled as "Not Applicable".

RXO – PHARMACY ORDER SEGMENT - HL7 Data Element – Cross Reference List

SEQ	DOQIT DATA ELEMENT NAME	HL7 DATA ELEMENT NAME	ITEM#	DT	HL7 LEN	OPT	RP/#	TBL#	DOQIT LEN
1	REQUESTED_GIVE_CODE REQUESTED_GIVE_CODE_SYS	Requested Give Code	00292	CE	250	R	N	0396	**20** **20**
11	REQUESTED_DISPENSE_AMOUNT	Requested Dispense Amount	00302	EI	22	**O**	N		
12	REQUESTED_DISPENSE_UNITS REQUESTED_DISPENSE_UNITS_SYS	Requested Dispense Units	00303	CE	250	**O**	N		
13	NUMBER_OF_REFILLS	Number of Refills	00304	NM	3	**O**	N		
23	TOTAL_DAILY_DOSE_QTY	Total Daily Dose	00329	CQ	10	**O**	N		

***Fields 11-13 and field 23 are no longer required for the current measure set. Future measures may require these fields.**

6.3.8.0 RXO – PHARMACY ORDER SEGMENT Field definitions

6.3.8.1 RXO-1 REQUESTED_GIVE_CODE_SYS, REQUESTED_GIVE_CODE – Requested Give Code

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ ^ ^

Definition: This field identifies the treatment product or treatment ordered to be given to the patient; it is analogous to *OBR-4-universal service ID* in function. The Requested Give Code contains two elements embedded with the CE data type. The <Identifier> contains the Requested Give Code (Drug #) assigned to the drug, and the <Name of Coding System> field contains the coding system (most likely, NDC) used to reference the Requested Give Code Sys. Refer to *HL7 Table 0396 – Coding System Table* for valid entries

6.3.8.2 RXO-11 REQUESTED_DISPENSE_AMOUNT – Requested Dispense Amount 00302

Definition: This field specifies the amount to be dispensed

6.3.8.3 RXO-12 REQUESTED_DISPENSE_UNITS – Requested Dispense Units 00303

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ ^ ^

Definition: This field identifies the units for the dispense amount. It reflects the actual quantity of the substance to be dispensed. The Requested Dispense Units contain two elements embedded with the CE data type. The <Identifier> contains the Requested Dispense Units assigned to the drug, and the <Name of Coding System> field contains the coding system. See OBSERVATION_UNITS for valid unit of measures.

6.3.8.4 RXO-13 NUMBER_OF_REFILLS – Number of Refills 00304

Definition: This field defines the number of times the requested dispense amount can be given to the patient.

6.3.8.5 RXO-23 TOTAL_DAILY_DOSE_QTY – Total Daily Dose 00329

Components: <Quantity (NM)> ^ <Units (CE)>

Subcomponents for Units (CE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)>

Definition: This field contains the total daily dose for this drug as expressed in terms of actual dispense units.

7.SAMPLE TRANSACTION(s)

7.1.1 DOQ-IT Patient Registration (ZRG^Z01)

```
MSH|^~\&|REGSYS|MCM|IFENG||200505150900||ZRG^Z01|MSG00001|P|2.4

ZCR|1111199999|ACME MEDICAL CENTER|100 60TH STREET|WEST DES MOINES|IA|50266|515-555
5555|admin@acme.org|20050501||Mary Smith|999999999

ZPP|1111199999|MR|X40404021-AA|1991199999|19170405|H|M|2106-3|MC|999999999A|243988979|50265

DG1|1||25000^^I9||200002131100|F||||||||||1991199999

DG1|2||412^^I9||200101011530|F||||||||||1991199999
```

7.1.2 Patient Visit (ADT^A04)

```
MSH|^~\&|REGSYS|MCM|IFENG||200406121206||ADT^A04|MSG00003|P|2.4

EVN|A04|200406121202

ZCR|1111199999|ACME MEDICAL CENTER|100 60TH STREET|WEST DES MOINES|IA|50266|515-555
5555|admin@acme.org|20050501||Mary Smith|999999999

PID|1|X40404021-AA^^MR

PV1|O||||||||||||||||||VISIT00201||||||||||||||||||||||||200406121202

OBX|1|NM|271649006^^SMN||150|Hg^^ISO+|||||F|200406121209|1991199999

OBX|2|NM|271650006^^SMN||78|Hg^^ISO+||||F|200406121209|1991199999

OBX|3|NM|364075005^^SMN||65|Hg^^ISO+||||F|200406121209|1991199999
```

8.Addendum

8.1.1 Data Submission Vendor

A data submission vendor is a group that will be submitting patient information on behalf of providers or group practices. A data submission vendor will be registered in QualityNet Exchange and will be assigned a vendor ID by following the instructions in section 1.3 – QualityNet Exhange Overview. In order to start submitting patient information for a provider or group practice, the provider or group practice must also be registered in QualityNet Exchange and have granted the data submission vendor permission in QualityNet to submit on their behalf. A few examples of potential data submission vendors are; a Regional Health Information Organization (RHIO) or an Information Technology group who stores patient information for providers or group practices.

An addendum to the specification has been made to allow the ability for data submission vendors to submit DOQ-IT patient information on behalf of one or many providers or group practices within one file. The data submission vendors may also choose to submit one provider or group practice per file if they wish. The only section expanded within the specification to accommodate data submission vendors is section 2.4.1 – FHS File Header Segment, field 2.4.1.3 – FHS-9 File Name/ID. The definition of this field will also allow a data submission vendor to put their vendor ID in this field.

All other sections of the specification remain the same and should be followed accordingly.