Profiles for HL7 Messages from VistA to Commercial PACS (Radiology and Clinical Specialty Workflow)

Including Business and Functional Requirements

1 May 2013

Revision 1.2.16

Revision History

Date	Revision	Description	Author
11/14/2011	1.2.11	Initial Version	Peter Kuzmak
1/26/2012	1.2.12	Changes after first WPR	Peter Kuzmak
2/17/2011	1.2.13	Changes after second eWPR	Peter Kuzmak
2/21/2012	1.2.14	Reworked FORWARD code	Peter Kuzmak
3/1/2012	1.2.15	Reviewed ORU report messages	Peter Kuzmak
5/10/2013	1.2.16	Added PV1-11 Temporary Location	Peter Kuzmak

Table of Contents

Foreword ..... **xi**

Organization of This Document ..... **xii**

Changes for Version 1.2.8 ..... **xiii**

Introduction: Basic Data Sets ..... **xiv**

0.1 Basic Patient Data Set xiv
0.2 Basic Visit Data Set xv
0.3 Basic Order Data Set xvi
0.4 Basic Report Data Set xix

Terminology ..... **xxi**

1 Patient Registration Profile **1**

1.1 Use Case 1
1.1.1 Scope 1
1.1.2 Actors and Roles 1
1.2 Interactions 2
1.3 Dynamic Definition 2
1.3.1 Patient Registration Message (ADT) 2
1.3.1.1 ADT Message Received – MRN Not Found 3
1.3.1.2 ADT Received for Existing MRN (Non-Update, Non-Merge) 3
1.3.1.3 ADT Received for Sensitive/Employee Patient 3
1.3.1.4 ADT Received – More than 1 Value for Same Identifier 3
1.3.2 Acknowledgment Message (ACK) 3
1.3.2.1 Original Mode ACK To Be Returned 3
1.3.2.2 ERR Segment To Be Sent for AE and AR Conditions 4
1.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject 4
1.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error 4
1.4 Static Definition – Message Level 4
1.4.1 Patient Registration Message 4
1.4.2 Acknowledgment Message 5
1.5 Static Definition – Segment Level 5
1.5.1 MSH Segment 5
1.5.2 EVN Segment 6
1.5.3 PID Segment 6
1.5.4 PV1 Segment 7
1.5.5 ROL Segment 8
1.5.6 DG1 Segment 9
1.5.7 OBX Segment 9
1.5.8 AL1 Segment 10
1.5.9 MSA Segment 10
1.5.10 ERR Segment 11

1.6 Static Definition – Field Level 11
1.6.1 MSH Segment Fields 11
MSH-1-Field Separator 11
MSH-2-Encoding Characters 11
MSH-3-Sending Application 11
MSH-4-Sending Facility 11
MSH-5-Receiving Application 12
MSH-6-Receiving Facility 12
MSH-7-Date/Time of Message 12
MSH-9-Message Type 12
MSH-10-Message Control ID 13
MSH-11-Processing ID 13
MSH-12-Version ID 14
MSH-17-Country Code 14
1.6.2 EVN Segment Fields 14
EVN-1-Event Type Code 14
EVN-2-Recorded Date/Time 14
EVN-6-Event Occurred 15
1.6.3 PID Segment Fields 15
PID-2-Patient ID 15
PID-3-Patient Identifier List 16
PID-4-Alternate Patient ID 17
PID-5-Patient Name 17
PID-7-Date/Time of Birth 18
PID-8-Sex 18
PID-10-Race 18
PID-11-Patient Address 19
PID-13-Phone Number – Home 19
PID-14-Phone Number – Business 20
PID-19-SSN Number – Patient 21
PID-22-Ethnic Group 22
1.6.4 PV1 Segment Fields 23
PV1-2-Patient Class 23
PV1-3-Assigned Patient Location 23
PV1-7-Attending Doctor 23
PV1-8-Referring Doctor 24
PV1-10-Hospital Service 24
PV1-15-Ambulatory Status 25
PV1-16-VIP Indicator 25
PV1-19-Visit 25
PV1-44-Admit Date/Time 25
1.6.5 ROL Segment Fields 25
ROL-1-Role Instance ID 25
ROL-2-Action Code 26
ROL-3-Role 26
ROL-4-Role Person 26

ROL-12-Phone ... 26
1.6.6 DG1 Segment Fields ... 27
DG1-1-Set ID ... 27
DG1-3-Diagnosis Code ... 27
DG1-6-Diagnosis Type ... 27
1.6.7 OBX Segment Fields ... 28
OBX-1-Set ID ... 28
OBX-2-Value Type ... 28
OBX-3-Observation Identifier ... 28
OBX-5-Observation Value ... 28
OBX-6-Units ... 28
OBX-11-Observation Result Status ... 29
1.6.8 AL1 Segment Fields ... 29
AL1-1-Set ID ... 29
AL1-2-Allergy Type ... 29
AL1-3-Allergy Code/Mnemonic/Description ... 29
AL1-5-Allergy Reaction ... 29
AL1-6-Identification Date ... 30
1.6.9 MSA Segment Fields ... 30
MSA-1-Acknowledgment Code ... 30
MSA-2-Message Control ID ... 30
MSA-3-Text Message ... 30
MSA-6-Error Condition ... 30
1.6.10 ERR Segment Fields ... 31
ERR-1-Error Code and Location ... 31

2 Patient Update Profile ... 34

2.1 Use Case ... 34
2.1.1 Scope ... 34
2.1.2 Actors and Roles ... 34
2.2 Interactions ... 35
2.3 Dynamic Definition ... 35
2.3.1 Patient Update Message (ADT) ... 35
2.3.1.1 Update Received for Existing MRN (Non-Demo, Non-Merge) ... 36
2.3.1.2 Update Received for MRN Not on File (Non-Demo, Non-Merge) ... 36
2.3.1.3 Update Received for Existing MRN (Update Demographics) ... 36
2.3.1.4 Update Received for MRN Not on File (Update Demographics) ... 36
2.3.1.5 Update Received for Existing MRN (Merge) ... 36
2.3.1.6 Update Received for MRN Not on File (Merge) ... 37
2.3.1.7 Update Received for Existing MRN (Change ID) ... 37
2.3.1.8 Update Received for MRN Not on File (Change ID) ... 37
2.3.1.9 Update Received – More than 1 Value for Same Identifier ... 37
2.3.1.10 Update Received for Sensitive/Employee Patient ... 38
2.3.2 Acknowledgment Message (ACK) ... 38
2.3.2.1 Original Mode ACK To Be Returned ... 38
2.3.2.2 ERR Segment To Be Sent for AE and AR Conditions ... 38

2.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject ... 38
2.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error 38
2.4 Static Definition – Message Level ... 39
2.4.1 Patient Update Message: Transfer ... 39
2.4.2 Patient Update Message: Discharge ... 39
2.4.3 Patient Update Message: Update Patient Information ... 40
2.4.4 Patient Update Message: Merge Patient Identifier List ... 40
2.4.5 Patient Update Message: Change Patient Identifier List ... 41
2.4.6 Patient Update Message: Cancel Admit ... 41
2.4.7 Patient Update Message: Cancel Transfer ... 41
2.4.8 Patient Update Message: Cancel Discharge ... 42
2.4.9 Acknowledgment Message ... 42
2.5 Static Definition – Segment Level ... 43
2.5.1 MSH Segment ... 43
2.5.2 EVN Segment ... 43
2.5.3 PID Segment ... 44
2.5.4 MRG Segment ... 45
2.5.5 PV1 Segment ... 45
2.5.6 ROL Segment ... 46
2.5.7 DG1 Segment ... 47
2.5.8 OBX Segment ... 47
2.5.9 AL1 Segment ... 48
2.5.10 MSA Segment ... 48
2.5.11 ERR Segment ... 48
2.6 Static Definition – Field Level ... 49
2.6.1 MSH Segment Fields ... 49
MSH-1-Field Separator ... 49
MSH-2-Encoding Characters ... 49
MSH-3-Sending Application ... 49
MSH-4-Sending Facility ... 49
MSH-5-Receiving Application ... 49
MSH-6-Receiving Facility ... 50
MSH-7-Date/Time of Message ... 50
MSH-9-Message Type ... 50
MSH-10-Message Control ID ... 51
MSH-11-Processing ID ... 51
MSH-12-Version ID ... 52
MSH-17-Country Code ... 52
2.6.2 EVN Segment Fields ... 53
EVN-1-Event Type Code ... 53
EVN-2-Recorded Date/Time ... 53
EVN-6-Event Occurred ... 53
2.6.3 PID Segment Fields ... 53
PID-2-Patient ID ... 53
PID-3-Patient Identifier List ... 54

PID-4-Alternate Patient ID 55
PID-5-Patient Name 56
PID-7-Date/Time of Birth 56
PID-8-Sex 56
PID-10-Race 56
PID-11-Patient Address 57
PID-13-Phone Number – Home 57
PID-14-Phone Number – Business 58
PID-19-SSN Number – Patient 59
PID-22-Ethnic Group 60
2.6.4 MRG Segment Fields 61
MRG-1-Prior Patient Identifier List 61
2.6.5 PV1 Segment Fields 62
PV1-2-Patient Class 62
PV1-3-Assigned Patient Location 62
PV1-7-Attending Doctor 63
PV1-8-Referring Doctor 63
PV1-10-Hospital Service 64
PV1-15-Ambulatory Status 64
PV1-16-VIP Indicator 64
PV1-19-Visit 64
PV1-44-Admit Date/Time 65
PV1-45-Discharge Date/Time 65
2.6.6 ROL Segment Fields 65
ROL-1-Role Instance ID 65
ROL-2-Action Code 65
ROL-3-Role 65
ROL-4-Role Person 66
ROL-12-Phone 66
2.6.7 DG1 Segment Fields 67
DG1-1-Set ID 67
DG1-3-Diagnosis Code 67
DG1-6-Diagnosis Type 67
2.6.8 OBX Segment Fields 67
OBX-2-Value Type 67
OBX-3-Observation Identifier 67
OBX-5-Observation Value 68
OBX-6-Units 68
OBX-11-Observation Result Status 68
2.6.9 AL1 Segment Fields 68
AL1-1-Set ID 68
AL1-2-Allergy Type 68
AL1-3-Allergy Code/Mnemonic/Description 69
AL1-5-Allergy Reaction 69
AL1-6-Identification Date 69
2.6.10 MSA Segment Fields 69

MSA-1-Acknowledgment Code 69
MSA-2-Message Control ID 69
MSA-3-Text Message 70
MSA-6-Error Condition 70
2.6.11 ERR Segment Fields 70

3 Order Entry/Update Profile 71

3.1 Use Case 71
3.1.1 Scope 71
3.1.2 Actors and Roles 71
3.2 Interactions 71
3.3 Dynamic Definition 72
3.3.1 Order Message (ORM) 72
3.3.1.1 New Order – Case, Study Instance UID and MRN Not Found 72
3.3.1.2 New Order – Case and Study Instance UID Not Found, MRN Found. 73
3.3.1.3 New Order – Case and Study Instance UID Found, MRN Does Not Match 73
3.3.1.4 New Study for Existing Order – Case and MRN Found, Study Instance UID Does Not Match 73
3.3.1.5 New Order – Case, Study Instance UID and Matching MRN Found, Orderable Item Code Does Not Match 74
3.3.1.6 Order Cancellation – Case and Matching MRN Found 74
3.3.1.7 Order Cancellation – Case Found, MRN and/or Study Instance UID Do Not Match 74
3.3.1.8 Order Cancellation – Case Found, DOB, Sex or Name Do Not Match 75
3.3.1.9 Order Cancellation – Case and Matching MRN Not Found 75
3.3.1.10 Patient Examined – Case and Matching MRN Found 75
3.3.1.11 Patient Examined – Case Not Found 75
3.3.1.12 Patient Examined – Case Found, MRN and/or Study Instance UID Do Not Match 75
3.3.1.13 Patient Examined – Case Found, DOB, Sex or Name Do Not Match.. 76
3.3.1.14 Patient Examined – Case and Matching MRN Found, Orderable Item Code Does Not Match 76
3.3.1.15 New or Updated Order – Study Instance UID To Be Assigned from ZDS Segment 76
3.3.1.16 New Order –VistA Code To Be Stored, CPT Code May Be Stored 76
3.3.1.17 Order Received and Filed for Pregnant Patient 77
3.3.1.18 Order Received and Filed for Sensitive/Employee Patient 77
3.3.1.19 Order or Order Update Received – More than 1 Value for Same Identifier 77
3.3.2 Acknowledgment Message (ACK) 77
3.3.2.1 Original Mode ACK To Be Returned 77
3.3.2.2 ERR Segment To Be Sent for AE and AR Conditions 77
3.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject 77
3.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error 78
3.4 Static Definition – Message Level 78

3.4.1 Order Message ... 78
3.4.2 Acknowledgment Message ... 79
3.5 Static Definition – Segment Level ... 79
3.5.1 MSH Segment ... 79
3.5.2 PID Segment ... 79
3.5.3 PV1 Segment ... 80
3.5.4 ORC Segment ... 81
3.5.5 OBR Segment ... 82
3.5.6 ZDS Segment ... 83
3.5.7 OBX Segment ... 83
3.5.8 MSA Segment ... 84
3.5.9 ERR Segment ... 84
3.6 Static Definition – Field Level ... 84
3.6.1 MSH Segment Fields ... 84
MSH-1-Field Separator ... 84
MSH-2-Encoding Characters ... 84
MSH-3-Sending Application ... 85
MSH-4-Sending Facility ... 85
MSH-5-Receiving Application ... 85
MSH-6-Receiving Facility ... 85
MSH-7-Date/Time of Message ... 86
MSH-9-Message Type ... 86
MSH-10-Message Control ID ... 86
MSH-11-Processing ID ... 86
MSH-12-Version ID ... 87
MSH-17-Country Code ... 87
3.6.2 PID Segment Fields ... 88
PID-2-Patient ID ... 88
PID-3-Patient Identifier List ... 90
PID-4-Alternate Patient ID ... 90
PID-5-Patient Name ... 92
PID-7-Date/Time of Birth ... 93
PID-8-Sex ... 93
PID-10-Race ... 93
PID-11-Patient Address ... 94
PID-13-Phone Number – Home ... 94
PID-14-Phone Number – Business ... 95
PID-19-SSN Number – Patient ... 96
PID-22-Ethnic Group ... 97
3.6.3 PV1 Segment Fields ... 98
PV1-2-Patient Class ... 98
PV1-3-Assigned Patient Location ... 98
PV1-7-Attending Doctor ... 98
PV1-8-Referring Doctor ... 99
PV1-11-Temporary Location ... 99
PV1-10-Hospital Service ... 100

PV1-15-Ambulatory Status 100
PV1-16-VIP Indicator 100
PV1-19-Visit 101
3.6.4 ORC Segment Fields 101
ORC-1-Order Control 101
ORC-2-Placer Order Number 101
ORC-3-Filler Order Number 101
ORC-5-Order Status 102
ORC-7-Quantity/Timing 102
ORC-8-Parent 102
ORC-9-Date/Time of Transaction 103
ORC-10-Entered By 103
ORC-12-Ordering Provider 103
ORC-13-Enterer's Location 104
ORC-14-Call Back Phone Number 104
ORC-15-Order Effective Date/Time (Clinical Specialties only) 105
ORC-17-Entering Organization 105
3.6.5 OBR Segment Fields 106
OBR-1-Set ID 106
OBR-2-Placer Order Number 106
OBR-3-Filler Order Number 106
OBR-4-Universal Service Identifier 106
OBR-5-Priority 108
OBR-15-Specimen Source 108
OBR-16-Ordering Provider 108
OBR-17-Order Callback Phone Number 109
OBR-18-Placer Field 1 110
OBR-19-Placer Field 2 111
OBR-20-Filler Field 1 111
OBR-21-Filler Field 2 112
OBR-24-Diagnostic Service Section ID 112
OBR-27-Quantity/Timing 112
OBR-28-Result Copies To (Clinical Specialties only) 113
OBR-29-Parent 113
OBR-30-Transportation Mode 114
OBR-31-Reason for Study 114
OBR-36-Scheduled date/time (Clinical Specialties only) 114
3.6.6 ZDS Segment Fields 114
ZDS-1-Study Instance UID 114
3.6.7 OBX Segment Fields 115
OBX-2-Value Type 115
OBX-3-Observation Identifier 115
OBX-5-Observation Value 116
OBX-6-Units 116
OBX-11-Observation Result Status 117
3.6.8 MSA Segment Fields 117

3.6.9 ERR Segment Fields ... 117

4 Report Transmission & Storage Profile ... 118

4.1 Use Case ... 118
4.1.1 Scope ... 118
4.1.2 Actors and Roles ... 118
4.2 Interactions ... 118
4.3 Dynamic Definition ... 119
4.3.1 Report Message (ORU) ... 119
4.3.1.1 VistA Is System of Legal Record ... 119
4.3.1.2 Report Received by PACS – Case and MRN Found, No Previous Report on File ... 120
4.3.1.3 Report Received by PACS – Case and MRN Found, Previous Report Already on File ... 120
4.3.1.4 Report Received by PACS – Case and MRN Not Found ... 120
4.3.2 Acknowledgment Message (ACK) ... 120
4.3.2.1 Original Mode ACK To Be Returned ... 120
4.3.2.2 ERR Segment To Be Sent for AE and AR Conditions ... 121
4.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject ... 121
4.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error ... 121
4.4 Static Definition – Message Level ... 121
4.4.1 Report Message ... 121
4.4.2 Acknowledgment Message ... 122
4.5 Static Definition – Segment Level ... 122
4.5.1 MSH Segment ... 122
4.5.2 PID Segment ... 122
4.5.3 OBR Segment ... 122
4.5.4 OBX Segment ... 124
4.5.5 MSA Segment ... 124
4.5.6 ERR Segment ... 124
4.6 Static Definition – Field Level ... 124
4.6.1 MSH Segment Fields ... 124
MSH-1-Field Separator ... 124
MSH-2-Encoding Characters ... 124
MSH-3-Sending Application ... 124
MSH-4-Sending Facility ... 125
MSH-5-Receiving Application ... 125
MSH-6-Receiving Facility ... 125
MSH-7-Date/Time of Message ... 125
MSH-9-Message Type ... 125
MSH-10-Message Control ID ... 126
MSH-11-Processing ID ... 126
MSH-12-Version ID ... 127
MSH-17-Country Code ... 127

4.6.2 PID Segment Fields 127
4.6.3 OBR Segment Fields 127
OBR-1-Set ID 127
OBR-2-Placer Order Number 127
OBR-3-Filler Order Number 128
OBR-4-Universal Service Identifier 128
OBR-7-Observation Date/Time 129
OBR-15-Specimen Source 129
OBR-16-Ordering Provider 129
OBR-17-Order Callback Phone Number 130
OBR-18-Placer Field 1 131
OBR-19-Placer Field 2 131
OBR-20-Filler Field 1 131
OBR-21-Filler Field 2 132
OBR-22-Results Rpt/Status Chng – Date/Time 132
OBR-25-Status 132
OBR-28-Result Copies To (Clinical Specialties only) 132
OBR-29-Parent 133
OBR-32-Principal Result Interpreter 133
OBR-33-Assistant Result Interpreter 134
OBR-35-Transcriptionist 135
4.6.4 OBX Segment Fields 135
OBX-2-Value Type 135
OBX-3-Observation Identifier 136
OBX-5-Observation Value 136
OBX-6-Units 136
OBX-11-Observation Result Status 137
4.6.5 Fields Used in the MSA Segment 137
4.6.6 Fields Used in the ERR Segment 137

Foreword

The Health Level Seven (HL7) Standard has been used by the VA's Radiology Package for communicating order and report information for over two decades. Digital imaging became the standard of care in radiology over a decade ago.

Over the last decade there has been tremendous growth of digital imaging applications in the clinical specialties. The VA has played a major role in this advancement, with its DICOM interface to the CPRS Consult Request Tracking Package. Capabilities that were only a dream a decade ago are now mandatory. The following Integrating the Healthcare Enterprise (IHE) domains have come into existence: Anatomic Pathology, Dentistry, Eye Care, Endoscopy, Laboratory. Interfacing multiple systems in the clinical specialties, numerous modalities as well as PACS, is now a requirement. This HL7 message specification is to support the PACS in the clinical specialties.

This document is an enhancement of the existing ***Profiles for HL7 Messages from VistA to Commercial PACS (Radiology)*** specification to include the profiles for the clinical specialty messages that are sent from the VistA medical center system to commercial Picture Archiving and Communication Systems (PACS). This is an IHE-conformant HL7 interface that provides order entry, result reporting, and ADT information. VA will be sending HL7 Version 2.3.1 messages, as required by IHE. However, a number of HL7 Version 2.4 structures will be pre-adopted: for example, the ROL segment, which can accommodate multiple telephone numbers for clinicians. The purpose of this messaging is to support DICOM Modality Worklist functionality on PACS, indicate DICOM mapping of received order data into stored and forwarded IOD instances, and to allow storage of VistA reports on PACS.

This document serves two purposes. It identifies the VistA HIS data elements that will be handled by the new interface, as well as the HL7 and DICOM fields that contain those data elements. It also defines the functional business requirements of this interface, including the various conditions that can occur during operation and the expected behavior of the PACS under the possible circumstances.

Specifications in this document are organized into conformance profiles covering order messaging. The methodology used is that of the Conformance section (2.12) of Chapter 2 of HL7 Version 2.5. The order messages used are intended to support the Scheduled Workflow (SWF) profile of the Integrating the Healthcare Enterprise (IHE) Radiology Technical Framework (Rad-TF), Cardiology Technical Framework (CAR-TF) and Eye Care Technical Framework (EYE CARE-TF), while the ADT update messages used are intended to support the SWF profile.

Organization of This Document

The Introduction to this document contains four tables that group the key elements that are communicated by the HL7 interface. These Basic Data Sets include elements relating to patients, visits, orders, and reports. Within the tables are the names of the elements in the VistA system, the names of the corresponding HL7 elements, and the names and tags of the corresponding DICOM elements. These tables will be referred to throughout the document.

Following the Introduction, three HL7 profiles are presented. Each of these profiles is divided into sections as prescribed by the Conformance section of the HL7 Standard:

- **Use case**, including actors and roles
- **Interactions**, showing the message sent and expected processing within the communications portion of the interface
- **Dynamic definition**, which contains the business and functional requirements for message processing
- **Message level static definition**, showing the segment structure of the HL7 message used for the profile
- **Segment level static definition**, showing the elements used in each segment
- **Field level static definition**, describing how field elements (and, where applicable, subelements) are populated, including values for enterprise-wide controlled vocabularies

The sections listed above conform to the conventions used in the discussion of HL7 Conformance Profiles in the *Health Level Seven Standard*, Version 2.5, Section 2.12.

IHE Radiology support is provided by the following HL7 messages:

Message	Trigger Event(s)	Order Code(s)	Profile	VistA IHE Actor	Destination IHE Actor	Transaction
ADT	A01, A04		Scheduled Workflow	ADT	DSS/Order Filler	Patient Registration (1)
ADT	A02, A03, A08, A11, A12, A13, A40, A47		Patient Information Reconciliation	DSS/Order Filler	Image Manager	Patient Update (12)
ORM	O01	NW	Scheduled Workflow	DSS/Order Filler	Image Manager	Procedure Scheduled (4)
ORM	O01	XO, CA	Scheduled Workflow	DSS/Order Filler	Image Manager	Procedure Update (13)

Note: The current VA Radiology package does not support the transmission of multiple Scheduled Procedure Steps in a single HL7 message.

Changes for Version 1.2.8

The following changes are introduced in Version 1.2.8 of this specification.

1. The logic for populating PV1-19-Visit Number has been modified to reflect the actual values produced by VistA Radiology/Imaging HL7 utilities.

2. The documented values of Fields *OBR-18-Placer Field 1*, *OBR-19-Placer Field 2*, *OBR-20-Filler Field 1*, and *OBR-21-Filler Field 2* now match what is produced by the VistA Radiology Package.

Introduction: Basic Data Sets

The following basic data sets will be referred to throughout these profiles. These tables list the patient-related, order-related, and message-related elements that will be transmitted, stored, and/or used by interfaced systems.

0.1 Basic Patient Data Set

The following are the elements of the Basic Patient Data Set. All mapped DICOM fields, if they were provided and listed below, must be preserved in the PACS generated DICOM Modality Worklist (C-FIND) SOP class, as well as in all C-STORE storage SOP classes that are used to store and forward Instances by PACS.

VistA Data Description	HL7	DICOM
Site Number-DFN	PID-2-Patient ID, concatenated by hyphen	(0010,1000) Other Patient IDs, second value (PID-2.1)
Social Security Number (SSN)	PID-3-Patient Identifier List Following IHE, the identifier in PID-3 in all HL7 transactions is single valued. In the VA, the value of PID-3.1 is the SSN. In this document, the term Medical Record Number (MRN) will refer to the value of the PID-3.1 field. PID-19-SSN Number-Patient [HL7 recommends populating this field for backward compatibility]	(0010,0020) Patient ID (PID-3.1) (0010,0021) Issuer of Patient ID (PID-3.4)
ICN [Integration Control Number]	PID-4-Alternate Patient ID	(0010,1000) Other Patient IDs, first value (PID-4.1)
Name	PID-5-Patient Name	(0010,0010) Patient's Name

VistA Data Description	HL7	DICOM
Sex	PID-8-Sex	(0010,0040) Patient's Sex
Race	PID-10-Race	(0010,2160) Ethnic Group
DOB	PID-7-Date/Time of Birth [may be as imprecise as YYYY; is NOT zero filled]	(0010,0030) Patient's Birth Date (0010,0032) Patient's Birth Time
Patient Size	OBX instance containing **HEIGHT** in *OBX-3.2-Text*	(0010,1020) Patient's Size (height in meters)
Patient Weight	OBX instance containing **WEIGHT** in *OBX-3.2-Text*	(0010,1030) Patient's Weight (weight in kg)
Address	PID-11-Patient Address	(0010,1040) Patient's Address

0.2 Basic Visit Data Set

The following are the elements of the Basic Visit Data Set. All mapped DICOM fields, if they were provided and listed below, must be preserved in the PACS generated DICOM Modality Worklist (C-FIND) SOP class, as well as in all C-STORE storage SOP classes that are used to store and forward Instances by PACS. Superscript ^{MWL} is used if only the Modality Worklist applies.

VistA Data Description	HL7	DICOM
Category of Exam [inpatient, outpatient, etc.]	PV1-2-Patient Class	(0038,4000) Visit Comments
Room-Bed	PV1-3-Assigned Patient Location (inpatient)	(0038,0300) Current Patient Location
Clinic, Emergency Department	PV1-11-Temporary Patient Location (outpatient)	(0038,0300) Current Patient Location
Attending Physician	PV1-7-Attending Doctor [also carried in an occurrence of the ROL segment]	(0008,1050) Performing Physician's Name

VistA Data Description	HL7	DICOM
Ordering Physician	PV1-8-Referring Doctor [also carried in an occurrence of the ROL segment]	(0008,0090) Referring Physician's Name
Allergies	OBX instance containing **ALLERGIES** in *OBX-3.2-Text*	(0010,2110) Allergies
Pregnancy Status	PV1-15-Ambulatory Status (value **B6** indicates that patient is pregnant)	(0010,21C0) Pregnancy Status
Patient Sensitivity (employee, flagged sensitive, etc.)	PV1-16-VIP Indicator	(0040,3001) Confidentiality Constraint on Patient Data Description (0040,1008) MWL Confidentiality Code
Admission ID	PV1-19-Visit Number	(0038,0010) Admission ID
Date/Time of Admission	PV1-44-Admit Date and Time	(0038,0020) Admitting Date and (0038,0021) Admitting Time
Date/Time of Discharge	PV1-45-Discharge Date and Time	(0038,0030) Discharge Date and (0038,0032) Discharge Time

0.3 Basic Order Data Set

The following are the elements of the Basic Order Data Set. All mapped DICOM elements, if they were provided and listed below, must be preserved either in the PACS generated DICOM Modality Worklist (C-FIND) SOP class and/or in all C-STORE storage SOP classes that are used to store and forward Instances by PACS. Superscript MWL is used if only the Modality Worklist SOP class applies.

VistA Data Description	HL7	DICOM
Order set	ORC-8-Parent	Not used for clinical specialties

VistA Data Description	HL7	DICOM
Location/Institution (Contains institution and location where imaging is performed)	OBR-21-Filler Field 2	(0040,0011) MWL Scheduled Procedure Step Location (0008,0080) Institution Name (0008,0082) Institution Code Sequence
Ordering Provider	OBR-16-Ordering Provider	(0032,1032) Requesting Physician
Callback Phone Number	OBR-17-Order Callback Phone Number	(0040,2010) MWL Order Callback Phone Number
Full Accession Number (exam date concatenated with the Case Number: 'MMDDYY-nnnnn', or Station Number concatenated with the exam date concatenated with the Case Number: 'SSS-MMDDYY-nnnnn')	OBR-18-Placer Field 1	*Full Accession Number:* (0008,0050) Accession Number
Case Number	OBR-19-Placer Field 2	*Case Number only ('nnnnn'):* (0020,0010) Study ID (0040,0100) MWL Scheduled Procedure Step Sequence >(0040,1001)MWL Requested Procedure ID
Procedure (orderable item codes – CPT code and text)	OBR-4-Universal Service ID	*CPT-4 code and text*: (0032,1064) MWL Requested Procedure Code Sequence Sequence > (0008,0100) Code Value > (0008,0102) Coding Scheme Designator > (0008,0104) Code Meaning

VistA Data Description	HL7	DICOM
Request Urgency	ORC-7.6-Priority: S = STAT (with highest priority) A = ASAP (fill after Stat orders) R = ROUTINE (the default)	(0040,1003) MWL Requested Procedure Priority The HL7 values shown in the previous column are to be mapped to DICOM values as follows: **HL7** **DICOM** S STAT A HIGH R ROUTINE
Modifiers – procedure and CPT	OBX instance containing **MODIFIERS** in OBX-3.2-Text -3 Types: 'M' - Procedure modifiers (local) 'C4' - CPT modifiers (national)	(0032,1060) MWL Requested Procedure Description: applicable modifiers concatenated and optionally appended with laterality indicator
Modality	OBR-24 (Diagnostic Service Section ID)	(0008,0060) Modality (0040,0100) MWL Scheduled Procedure Step Sequence > (0008,0060) Modality
Scheduled Date/Time	ORC-7.4.1-Time (in Component OBR-27.4-Start Date/Time of Field OBR-27-Quantity/Timing) OBR-27.4.1- Time (in Component OBR-27.4-Start Date/Time of Field OBR-27-Quantity/Timing)	(0032,1000) MWL Scheduled Study Start Date (0032,1001) MWL Scheduled Study Start Time (0040,0100) MWL Scheduled Procedure Step Sequence > (0040,0002) MWL Scheduled Procecure Step Start Date > (0040,0003) MWL Scheduled Procedure Step Start Time

VistA Data Description	HL7	DICOM
History (unlimited text)	OBX instance containing **HISTORY** in OBX-3.2-Text	*For backward compatibility, the following element may be populated:* (0010,21B0) Additional Patient History
Reason for Study	OBR-31-Reason for Study	*Should be displayed for Modality Worklist and stored in DICOM header in the following elements:* (0040,1002) Reason for the Requested Procedure AND (0040,1400) Requested Procedure Comments (0032,1030) Reason for Study
Technologist's Comment	OBX instance containing **TECH COMMENT** in OBX-3.2-Text	(0032,4000) Study Comment
Study Instance UID	ZDS-1.1-Study Instance UID	*Value sent in HL7 message **MUST** be used by PACS.* (0020,000D) Study Instance UID

0.4 Basic Report Data Set

The following are the elements of the Basic Report Data Set. This is not a normative mapping for Report data. PACS is responsible for its own storage of report data, but if the PACS owns a transcription system, the context identified by the given DICOM tags must be stored in the appropriate outgoing HL7 ORU^R01 messages (which are not a part of this specification).

VistA Data Description	HL7	DICOM
Report Status	OBR-25-Result Status	(4008,0210) Interpretation Type ID – CS: [REPORT, AMENDMENT]
Report Status – Codes: F for final and R for released not verified	OBR-25-Result Status	(4008,0212) Interpretation Status ID – CS: [TRANSCRIBED, APPROVED]
Date/Time of Transaction	OBR-22-Results Rpt/Status Chg – Date/Time if OBR-18 = 'R'	(4008,0108) Interpretation Transcription Date (4008,0109) Interpretation Transcription Time
Impression Text	OBX instance containing **IMPRESSION** in OBX-3.2-Text	(4008,0300) Impressions
Report Text	OBX instance containing **REPORT** in OBX-3.2-Text	(4008,010B) Interpretation Text
Diagnostic Code	OBX instance containing **DIAGNOSTIC CODE** in OBX-3.2-Text	(4008,0117) Interpretation Diagnosis Code Sequence
Primary Interpreting Resident	OBR-33-Assistant Result Interpreter	(4008,010C) Interpretation Author
Verifying Physician	OBR-32-Principal Result Interpreter	(4008,0114) Physician Approving Interpretation

Terminology

The term ***file***, when used as a proper term, shall be understood to mean a VA File Manager file on the local VistA system, unless this document explicitly indicates otherwise. Likewise, the term ***table***, when used as a proper term, shall be understood to mean a table (HL7-defined or user-defined) cited in the Health Level Seven Standard.

In the static definition portions of the profile, the following abbreviations are employed in the **Usage** column. Note the constraints on the HL7 definitions of **CE** and **X**: the conformant receiving application shall NOT raise an error if such fields are populated.

Value	Description	Comment
R	Required	A conforming sending application shall populate all “R” elements with a non-empty value. A conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.
RE	Required but may be empty	The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conforming sending application must be **capable** of providing all "RE" elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted. Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).
C	Conditional	This usage has an associated condition predicate. **If the predicate is satisfied:** A conformant sending application must always send the element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present. **If the predicate is NOT satisfied:** A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false, whether the element is present or not.

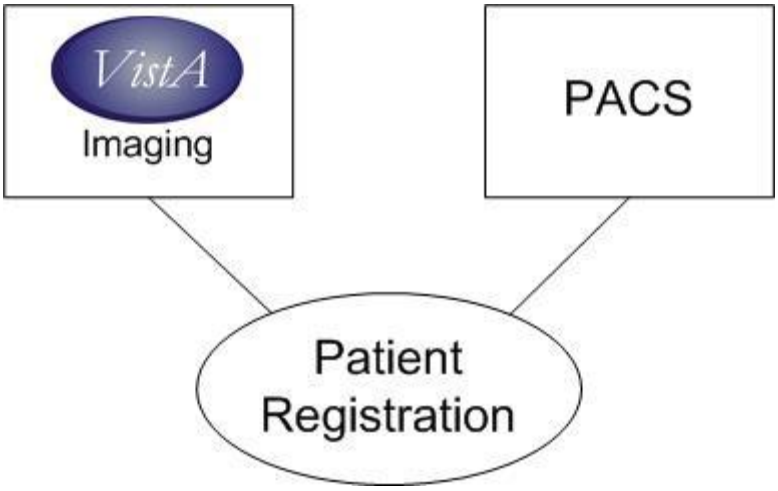
Value	Description	Comment
CE	Conditional but it may be empty	This usage has an associated condition predicate. **If the predicate is satisfied:** If the conforming sending application knows the required values for the element, then the application must send the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application must be **capable** of knowing the element (when the predicate is true) for all 'CE' elements. If the element is present, the conformant receiving application shall process (display/print/archive/etc.) or ignore the values of that element. If the element is not present, the conformant receiving application shall **not** raise an error due to the presence or absence of the element. **If the predicate is not satisfied:** A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false, whether the element is present or not.
B	Retained for backward compatibility	A conforming sending application may populate this element. However, this element has been deprecated in the HL7 Standard and may be withdrawn from a future version of the Standard. A future version of this Profile may withdraw support for this field. A conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed. A conforming receiving application must not raise an error due to the presence or absence of a deprecated element.
X	Not supported	For conformant sending applications, the element will not be sent. Conformant receiving applications shall ignore the element whether it is sent or not.

1 Patient Registration Profile

1.1 Use Case

1.1.1 Scope

The Patient Registration transaction conveys the patient demographic and visit information that was captured at the point of encounter. This transaction is used both for inpatients (*i.e.*, those who are assigned a bed at the facility) and outpatients (*i.e.*, those who are not assigned a bed at the facility). It is implemented only for PACS that assert support for the Modality Worklist Service Class Provider.



1.1.2 Actors and Roles

Actor: VistA Imaging

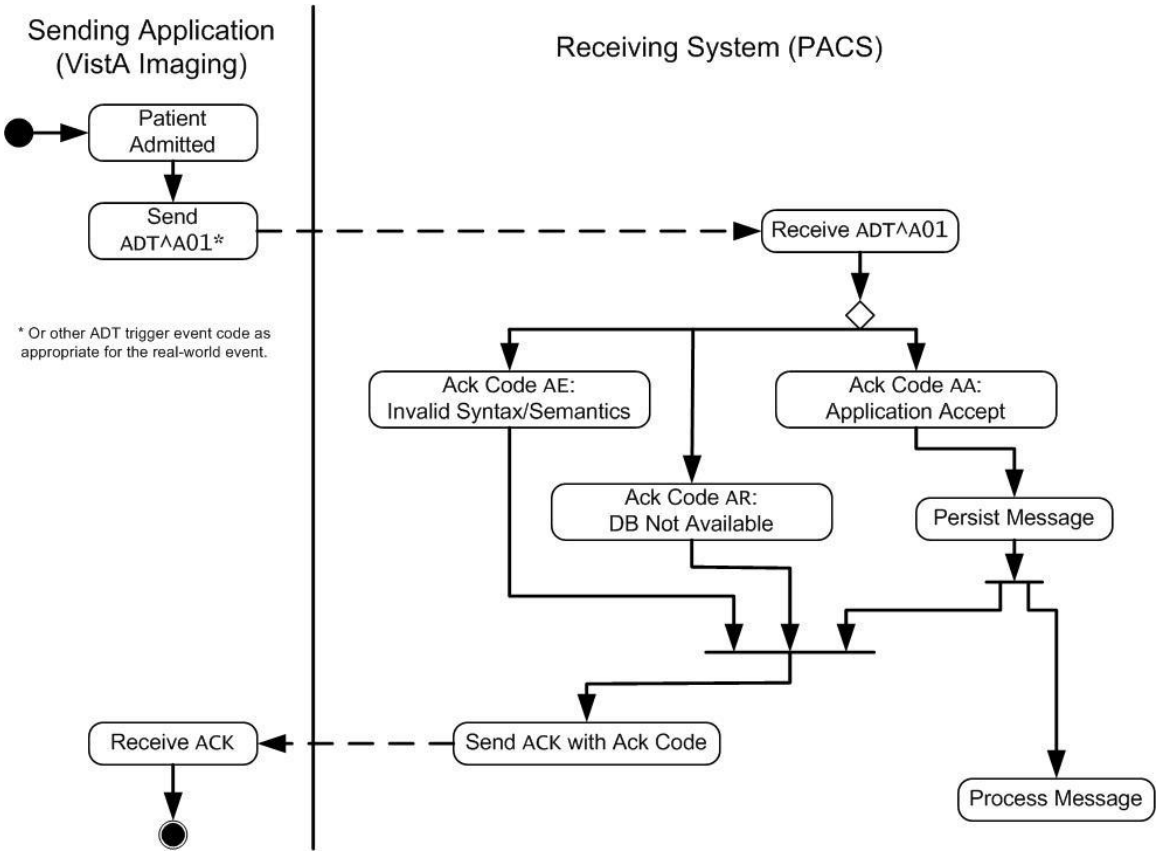
Role: Receives patient registration notification from VistA Patient Information Management System. Transmits appropriate demographic and encounter information to associated imaging systems including commercial Picture Archiving and Communication Systems (PACS).

Actor: PACS

Role: Receives and stores patient demographic and encounter information for use in building the Modality Worklist (MWL) when orders are received from VistA Radiology.

1.2 Interactions

The actors in this use case shall perform the behaviors shown in the following activity diagram.



1.3 Dynamic Definition

Vista and PACS shall generate and process HL7 messages according to the following functional and business requirements.

1.3.1 Patient Registration Message (ADT)

VistA Imaging shall transmit an ADT message to PACS upon patient registration.
If PACS accepts ADT messages, it shall process the message in conformance with the following requirements.

1.3.1.1 ADT Message Received – MRN Not Found

When PACS receives an ADT registration message for a patient for which it does not find an MRN in its system, PACS will create a new patient record and will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

1.3.1.2 ADT Received for Existing MRN (Non-Update, Non-Merge)

When PACS receives an ADT registration message for a patient for which it finds an MRN in its system, PACS will verify that name, sex, and DOB exactly match what is already in its system: if so, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above); if not, PACS will put the message onto a reconciliation queue and notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 below, including code **204** (unknown key identifier) in component 4.

1.3.1.3 ADT Received for Sensitive/Employee Patient

When PACS receives an ADT registration message for a patient whose VIP Indicator value in PV1-16 is set to **E** (employee) or **S** (sensitive), PACS shall safeguard the identity of the patient using VA rules for suppressing patient name and other identifying information.

1.3.1.4 ADT Received – More than 1 Value for Same Identifier

When PACS receives an ADT registration message containing more than one value for the MRN, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment and will not update any patient record. The application acknowledgment shall contain a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 below, including code **207** (application internal error) in component 4. PACS is responsible for notifying support staff and users of anomalies as needed.

1.3.2 Acknowledgment Message (ACK)

1.3.2.1 Original Mode ACK To Be Returned

If PACS accepts ADT registration messages, it shall return an original mode ACK application acknowledgment, as defined in the HL7 Standard and prescribed by the IHE Radiology Technical Framework. The trigger event of the acknowledgment message shall be equal to the trigger event of the message that was received.

1.3.2.2 ERR Segment To Be Sent for AE and AR Conditions

When an error is determined to have occurred, PACS shall return the acknowledgment code AE (Application Error) or AR (Application Reject) as appropriate, and shall populate Field ERR-1-error code and location with the relevant error information including the appropriate error code from HL7 Table 0357. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

1.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject

If the value received in *MSH-9.1-message type, MSH-9.2-trigger event, MSH-11-processing code*, or *MSH-12-version ID* is invalid, the value **AR** (application reject) shall be returned in *MSA-1-acknowledgment code*, and the appropriate value from HL7 Table 0357 shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

1.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error

If the value received in *MSH-5-receiving application* or *MSH-6-receiving facility* is invalid, the value **AE** (application error) shall be returned in *MSA-1-acknowledgment code*, and the value **103** (table value not found) shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

1.4 Static Definition – Message Level

HL7 messages shall be populated and processed according to the following abstract message definitions.

1.4.1 Patient Registration Message

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
`MSH`	Message Header	R	[1..1]	2
`EVN`	Event Type	R	[1..1]	3
`PID`	Patient Identification	R	[1..1]	3
`[ PD1 ]`	Additional Demographics	X	[0..0]	3
`[ { NK1 } ]`	Next of Kin / Associated Parties	X	[0..0]	3
`PV1`	Patient Visit	R	[1..1]	3
`[ PV2 ]`	Patient Visit – Additional Info.	X	[0..0]	3
`[ { ROL } ]`	Role	RE	[0..2]	12
`[ { DB1 } ]`	Disability Information	X	[0..0]	3
`[ { OBX } ]`	Observation / Result	R	[2..2]	7

[{ AL1 }]	Allergy Information	RE	[0..99]	3
[{ DG1 }]	Diagnosis Information	RE	[0..1]	6
[DRG]	Diagnosis Related Group	X	[0..0]	6
[{ PR1	Procedures	X	[0..0]	6
[{ ROL }]	Role	X	[0..0]	12
}]				
[{ GT1 }]	Guarantor	X	[0..0]	6
[{ IN1	Insurance	X	[0..0]	6
[IN2]	Insurance Additional Info.	X	[0..0]	6
[{ IN3 }]	Insurance Additional Info. – Cert.	X	[0..0]	6
}]				
[ACC]	Accident Information	X	[0..0]	6
[UB1]	Universal Bill Information	X	[0..0]	6
[UB2]	Universal Bill 92 Information	X	[0..0]	6

1.4.2 Acknowledgment Message

Segment	ACK Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[ERR]	Error	RE	[0..1]	2

1.5 Static Definition – Segment Level

Fields in HL7 messages shall be populated and processed according to the following Segment Attribute Tables.

1.5.1 MSH Segment

Refer to Section 1.6.1, MSH Segment Fields, for a detailed explanation of the fields used in this segment.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	1	ST	R	[1..1]		00001	Field Separator
2	4	ST	R	[1..1]		00002	Encoding Characters
3	180	HD	R	[1..1]	0361	00003	Sending Application
4	180	HD	R	[1..1]	0362	00004	Sending Facility
5	180	HD	R	[1..1]	0361	00005	Receiving Application
6	180	HD	R	[1..1]	0362	00006	Receiving Facility
7	26	TS	R	[1..1]		00007	Date/Time of Message
8	40	ST	X	[0..0]		00008	Security
9	13	CM	R	[1..1]	0076 0003	00009	Message Type

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
10	20	ST	R	[1..1]		00010	Message Control ID
11	3	PT	R	[1..1]		00011	Processing ID
12	60	VID	R	[1..1]	0104	00012	Version ID
13	15	NM	X	[0..0]		00013	Sequence Number
14	180	ST	X	[0..0]		00014	Continuation Pointer
15	2	ID	X	[0..0]	0155	00015	Accept Acknowledgment Type
16	2	ID	X	[0..0]	0155	00016	Application Acknowledgment Type
17	3	ID	R	[1..1]		00017	Country Code
18	16	ID	X	[0..0]	0211	00692	Character Set
19	250	CE	X	[0..0]		00693	Principal Language of Message
20	20	ID	X	[0..0]	0356	01317	Alternate Character Set Handling Scheme
21	10	ID	X	[0..0]		01598	Conformance Statement ID

1.5.2 EVN Segment

The following is a listing of all the fields defined for the EVN Segment in HL7. Refer to Section 1.6.2, EVN Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	3	ID	R	[1..1]	0003	00099	Event Type Code
2	26	TS	R	[1..1]		00100	Recorded Date/Time
3	26	TS	X	[0..0]		00101	Date/Time Planned Event
4	3	IS	X	[0..0]	0062	00102	Event Reason Code
5	60	XCN	X	[0..0]	0188	00103	Operator ID
6	26	TS	RE	[0..1]		01278	Event Occurred
7	180	HD	X	[0..0]		01534	Event Facility

1.5.3 PID Segment

The following is a listing of all the fields defined for the PID Segment in HL7. Refer to Section 1.6.3, PID Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00104	Set ID - PID
2	20	CX	R	[1..1]		00105	Patient ID
3	250	CX	R	[1..1]		00106	Patient Identifier List
4	20	CX	R	[1..1]		00107	Alternate Patient ID - PID
5	250	XPN	R	[1..1]		00108	Patient Name
6	250	XPN	X	[0..0]		00109	Mother's Maiden Name
7	26	TS	RE	[0..1]		00110	Date/Time of Birth
8	1	IS	RE	[0..1]	0001	00111	Sex
9	250	XPN	X	[0..0]		00112	Patient Alias
10	250	CE	RE	[0..1]	0005	00113	Race
11	250	XAD	RE	[0..1]		00114	Patient Address
12	4	IS	X	[0..0]	0289	00115	County Code
13	250	XTN	RE	[0..1]		00116	Phone Number - Home

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
14	250	XTN	RE	[0..1]		00117	Phone Number - Business
15	250	CE	X	[0..0]	0296	00118	Primary Language
16	250	CE	X	[0..0]	0002	00119	Marital Status
17	250	CE	X	[0..0]	0006	00120	Religion
18	250	CX	X	[0..0]		00121	Patient Account Number
19	16	ST	R	[1..1]		00122	SSN Number - Patient
20	25	DLN	X	[0..0]		00123	Driver's License Number - Patient
21	250	CX	X	[0..0]		00124	Mother's Identifier
22	250	CE	RE	[0..1]	0189	00125	Ethnic Group
23	250	ST	X	[0..0]		00126	Birth Place
24	1	ID	X	[0..0]	0136	00127	Multiple Birth Indicator
25	2	NM	X	[0..0]		00128	Birth Order
26	250	CE	X	[0..0]	0171	00129	Citizenship
27	250	CE	X	[0..0]	0172	00130	Veterans Military Status
28	250	CE	X	[0..0]	0212	00739	Nationality
29	26	TS	X	[0..0]		00740	Patient Death Date and Time
30	1	ID	X	[0..0]	0136	00741	Patient Death Indicator
31	1	ID	X	[0..0]	0136	01535	Identity Unknown Indicator
32	20	IS	X	[0..0]	0445	01536	Identity Reliability Code
33	26	TS	X	[0..0]		01537	Last Update Date/Time
34	40	HD	X	[0..0]		01538	Last Update Facility
35	250	CE	X	[0..0]	0446	01539	Species Code
36	250	CE	X	[0..0]	0447	01540	Breed Code
37	80	ST	X	[0..0]		01541	Strain
38	250	CE	X	[0..0]	0429	01542	Production Class Code

1.5.4 PV1 Segment

The following is a listing of all the fields defined for the PV1 Segment in HL7. Refer to Section 1.6.4, PV1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00131	Set ID - PV1
2	1	IS	R	[1..1]	0004	00132	Patient Class
3	80	PL	C	[0..1]		00133	Assigned Patient Location
4	2	IS	X	[0..0]	0007	00134	Admission Type
5	250	CX	X	[0..0]		00135	Preadmit Number
6	80	PL	X	[0..0]		00136	Prior Patient Location
7	250	XCN	CE	[0..1]	0010	00137	Attending Doctor
8	250	XCN	RE	[0..1]	0010	00138	Referring Doctor
9	250	XCN	X	[0..0]	0010	00139	Consulting Doctor
10	30	IS	C	[0..1]	0069	00140	Hospital Service
11	80	PL	X	[0..0]		00141	Temporary Location
12	2	IS	X	[0..0]	0087	00142	Preadmit Test Indicator
13	2	IS	X	[0..0]	0092	00143	Re-admission Indicator
14	6	IS	X	[0..0]	0023	00144	Admit Source
15	2	IS	RE	[0..2]	0009	00145	Ambulatory Status
16	2	IS	RE	[0..1]	0099	00146	VIP Indicator
17	250	XCN	X	[0..0]	0010	00147	Admitting Doctor

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
18	2	IS	X	[0..0]	0018	00148	Patient Type
19	250	CX	RE	[0..1]		00149	Visit Number
20	50	FC	X	[0..0]	0064	00150	Financial Class
21	2	IS	X	[0..0]	0032	00151	Charge Price Indicator
22	2	IS	X	[0..0]	0045	00152	Courtesy Code
23	2	IS	X	[0..0]	0046	00153	Credit Rating
24	2	IS	X	[0..0]	0044	00154	Contract Code
25	8	DT	X	[0..0]		00155	Contract Effective Date
26	12	NM	X	[0..0]		00156	Contract Amount
27	3	NM	X	[0..0]		00157	Contract Period
28	2	IS	X	[0..0]	0073	00158	Interest Code
29	1	IS	X	[0..0]	0110	00159	Transfer to Bad Debt Code
30	8	DT	X	[0..0]		00160	Transfer to Bad Debt Date
31	10	IS	X	[0..0]	0021	00161	Bad Debt Agency Code
32	12	NM	X	[0..0]		00162	Bad Debt Transfer Amount
33	12	NM	X	[0..0]		00163	Bad Debt Recovery Amount
34	1	IS	X	[0..0]	0111	00164	Delete Account Indicator
35	8	DT	X	[0..0]		00165	Delete Account Date
36	3	IS	X	[0..0]	0112	00166	Discharge Disposition
37	25	CM	X	[0..0]	0113	00167	Discharged to Location
38	250	CE	X	[0..0]	0114	00168	Diet Type
39	2	IS	X	[0..0]	0115	00169	Servicing Facility
40	1	IS	X	[0..0]	0116	00170	Bed Status
41	2	IS	X	[0..0]	0117	00171	Account Status
42	80	PL	X	[0..0]		00172	Pending Location
43	80	PL	X	[0..0]		00173	Prior Temporary Location
44	26	TS	RE	[0..1]		00174	Admit Date/Time
45	26	TS	X	[0..0]		00175	Discharge Date/Time
46	12	NM	X	[0..0]		00176	Current Patient Balance
47	12	NM	X	[0..0]		00177	Total Charges
48	12	NM	X	[0..0]		00178	Total Adjustments
49	12	NM	X	[0..0]		00179	Total Payments
50	250	CX	X	[0..0]	0203	00180	Alternate Visit ID
51	1	IS	X	[0..0]	0326	01226	Visit Indicator
52	250	XCN	X	[0..0]	0010	01274	Other Healthcare Provider

1.5.5 ROL Segment

The ROL Segment is used to give more complete information about the patient's referring and attending physicians than is permitted by the PV1 Segment. Specifically, the ROL Segment allows for the transmission of multiple callback numbers for each physician.

The following is a listing of all the fields defined for the ROL Segment in HL7. Refer to Section 1.6.5, ROL Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	60	EI	R	[1..1]		01206	Role Instance ID
2	2	ID	R	[1..1]	0287	00816	Action Code

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
3	250	CE	R	[1..1]	0443	01197	Role-ROL
4	250	XCN	R	[1..1]		01198	Role Person
5	26	TS	X	[0..0]		01199	Role Begin Date/Time
6	26	TS	X	[0..0]		01200	Role End Date/Time
7	250	CE	X	[0..0]		01201	Role Duration
8	250	CE	X	[0..0]		01205	Role Action Reason
9	250	CE	X	[0..0]		01510	Provider Type
10	250	CE	X	[0..0]	0406	01461	Organization Unit Type
11	250	XAD	X	[0..0]		00679	Office/Home Address
12	250	XTN	RE	[0..8]		00678	Phone

1.5.6 DG1 Segment

The following is a listing of all the fields defined for the DG1 Segment in HL7. Refer to Section 1.6.6, DG1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00375	Set ID - DG1
2	2	ID	X	[0..0]	0053	00376	Diagnosis Coding Method
3	250	CE	R	[1..1]	0051	00377	Diagnosis Code - DG1
4	40	ST	X	[0..0]		00378	Diagnosis Description
5	26	TS	X	[0..0]		00379	Diagnosis Date/Time
6	2	IS	RE	[0..1]	0052	00380	Diagnosis Type
7	250	CE	X	[0..0]	0118	00381	Major Diagnostic Category
8	250	CE	X	[0..0]	0055	00382	Diagnostic Related Group
9	1	ID	X	[0..0]	0136	00383	DRG Approval Indicator
10	2	IS	X	[0..0]	0056	00384	DRG Grouper Review Code
11	250	CE	X	[0..0]	0083	00385	Outlier Type
12	3	NM	X	[0..0]		00386	Outlier Days
13	12	CP	X	[0..0]		00387	Outlier Cost
14	4	ST	X	[0..0]		00388	Grouper Version And Type
15	2	ID	X	[0..0]	0359	00389	Diagnosis Priority
16	250	XCN	X	[0..0]		00390	Diagnosing Clinician
17	3	IS	X	[0..0]	0228	00766	Diagnosis Classification
18	1	ID	X	[0..0]	0136	00767	Confidential Indicator
19	26	TS	X	[0..0]		00768	Attestation Date/Time

1.5.7 OBX Segment

In the ADT registration message, the OBX Segment is used to communicate height and weight of the patient. The following is a listing of all the fields defined for the OBX Segment in HL7. Refer to Section 1.6.7, OBX Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00569	Set ID – OBX
2	2	ID	R	[1..1]	0125	00570	Value Type

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
3	250	CE	R	[1..1]		00571	Observation Identifier
4	20	ST	X	[0..0]		00572	Observation Sub-ID
5	65536*		R	[1..1]		00573	Observation Value
6	250	CE	R	[1..1]		00574	Units
7	60	ST	X	[0..0]		00575	Reference Range
8	5	IS	X	[0..0]	0078	00576	Abnormal Flags
9	5	NM	X	[0..0]		00577	Probability
10	2	ID	X	[0..0]		00578	Nature of Abnormal Test
11	1	ID	R	[1..1]	0085	00579	Observation Result Status
12	26	TS	X	[0..0]		00580	Date Last Observation Normal Value
13	20	ST	X	[0..0]		00581	User Defined Access Checks
14	26	TS	X	[0..0]		00582	Date/Time of the Observation
15	250	CE	X	[0..0]		00583	Producer's ID
16	250	XCN	X	[0..0]		00584	Responsible Observer
17	250	CE	X	[0..0]		00936	Observation Method
18	22	EI	X	[0..0]		01479	Equipment Instance Identifier
19	26	TS	X	[0..0]		01480	Date/Time of the Analysis

1.5.8 AL1 Segment

The following is a listing of all the fields defined for the AL1 Segment in HL7. Refer to Section 1.6.8, AL1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00203	Set ID – AL1
2	2	IS	R	[1..1]	0127	00204	Allergy Type
3	250	CE	R	[1..1]		00205	Allergy Code/Mnemonic/Description
4	2	IS	X	[0..0]	0128	00206	Allergy Severity
5	250	ST	RE	[0..99]		00207	Allergy Reaction
6	8	DT	RE	[0..1]		00208	Identification Date

1.5.9 MSA Segment

The following is a listing of all the fields defined for the MSA Segment in HL7. MSA is used only in the acknowledgment message. Refer to Section 1.6.9, MSA Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	2	ID	R	[1..1]	0003	00018	Acknowledgment Code
2	20	ST	R	[1..1]		00010	Message Control ID
3	80	ST	B	[0..1]		00020	Text Message
4	15	NM	X	[0..0]		00021	Expected Sequence Number
5	1	ID	X	[0..0]	0102	00022	Delayed Acknowledgment Type
6	250	CE	B	[0..1]		00023	Error Condition

* The length and data type of this field are variable, depending on *OBX-2-Value Type*.

1.5.10 ERR Segment

The following is a listing of all the fields defined for the ERR Segment in HL7. ERR is used only in the acknowledgment message. Refer to Section 1.6.10, ERR Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	80	CM	R	[1..999]		00024	Error Code and Location

1.6 Static Definition – Field Level

1.6.1 MSH Segment Fields

MSH-1-Field Separator

This field contains the top-level delimiter for HL7 elements within segments.

MSH-2-Encoding Characters

This field contains the component separator (secondary element delimiter), repetition separator, escape character, and subcomponent separator (tertiary element delimiter).

MSH-3-Sending Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA registration message, Component 1 of this field shall be populated with the value **VISTA IMAGING** from user-defined Table 0361, *Sending/Receiving Application*. PACS shall return this value in component MSH-5.1 of the acknowledgment message. Components 2 and 3 of MSH-3 are not valued.

MSH-4-Sending Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA registration message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was generated. PACS shall return this value

in component MSH-6.1 of the acknowledgment message. Components 2 and 3 of MSH-4 are not valued.

MSH-5-Receiving Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0361, *Sending/Receiving Application*, with the name of the PACS application. PACS shall return this value in component MSH-3.1 of the acknowledgment message. Components 2 and 3 of MSH-5 are not valued.

MSH-6-Receiving Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was received. PACS shall return this value in field MSH-4 of the acknowledgment message. Components 2 and 3 of MSH-6 are not valued.

MSH-7-Date/Time of Message

This field contains the date and time that the sending system built the message.

MSH-9-Message Type

This field is of data type CM. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ID	R	[1..1]	0076	Message Type
2	3	ID	R	[1..1]	0003	Trigger Event
3	7	ID	X	[0..0]	0354	Message Structure

The components used by VistA are defined as follows.

MSH-9.1-Message Type

This component contains a value from HL7 Table 0076, *Message Type*. For the registration message, it will always contain the value **ADT**.

MSH-9.2-Trigger Event

This component will contain one of the following values from HL7 Table 0003, *Event Type*.

Value	Description
A01	Admit/visit notification
A02	Transfer a patient
A03	Discharge/end visit
A04	Register a patient
A08	Update patient information
A11	Cancel admission
A12	Cancel transfer
A13	Cancel discharge
A40	Merge patient – patient identifier list
A47	Change patient identifier list

MSH-10-Message Control ID

This field will contain a unique identifier for the message.

MSH-11-Processing ID

This field is of type PT, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	1	ID	R	[1..1]	0103	Processing ID
2	1	ID	RE	[0..1]	0207	Processing Mode

The components used by VistA are defined as follows.

MSH-11.1-Processing ID

This field contains one of the following values from HL7 Table 0103, *Processing ID.*

Value	Description
P	Production
D	Debugging
T	Training

MSH-11.2-Processing Mode

This field contains one of the following values from HL7 Table 0207, *Processing Mode*.

Value	Description
A	Archive
R	Restore from archive
I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
not present	Not present (the default, meaning *current* processing)

MSH-12-Version ID

This field is of type VID, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ID	R	[1..1]	0104	Version ID
2	250	CE	X	[0..0]		Internationalization Code
3	250	CE	X	[0..0]		Internal Version ID

This field's first component will always contain the value **2.3.1** from HL7 Table 0104, *Version ID*. Although the VistA message pre-adopts certain Version 2.4 structures, such as the ROL segment, receivers that are unable to recognize Version 2.4 may use Version 2.3.1 syntax rules as prescribed by IHE. It is expected that receivers not now using HL7 Version 2.3.1 will be able to process the V2.3.1 messages according to the HL7 rules for backward compatibility. At such time as IHE is revised to a later version of HL7, receivers will be expected to adapt to the new structures within a stated period of time following the revision.

Other components of this field will not be used.

MSH-17-Country Code

This field is of type ID. It will always contain the value **USA** from the ISO 3166 country code table.

1.6.2 EVN Segment Fields

EVN-1-Event Type Code

This field contains the 3-character code of the trigger event being communicated. It is retained for backward compatibility with versions of HL7 that do not communicate the event type in the second component of MSH-9-Message Type.

EVN-2-Recorded Date/Time

This field contains the date and time that the event was recorded in the system.

EVN-6-Event Occurred

This field contains the date and time that the event actually took place. If it is not known when the event actually took place, this field is left blank.

1.6.3 PID Segment Fields

PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List

Field PID-3 is used to transmit the patient Medical Record Number (MRN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-3.1-ID

This is the Medical Record Number. In the VA, this is the Social Security Number.

PID-3.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-3.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-3.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-3.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-4-Alternate Patient ID

Field PID-4 contains the patient Integration Control Number (ICN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-4.1-ID

This is the alphanumeric identification string.

PID-4.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-4.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-4.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-4.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-5-Patient Name

This field is of data type XPN, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	35	FN	R	[1..1]		Family Name
2	35	ST	R	[1..1]		Given Name
3	35	ST	RE	[0..1]		Middle Initial or Name

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
4	10	ST	RE	[0..1]		Suffix
5	10	ST	RE	[0..1]		Prefix
6	10	IS	RE	[0..1]	0360	Degree
7	10	ID	R	[0..1]	0200	Name Type Code
8	10	ID	X	[0..0]	4000	Name Representation Code

Component 7, Name Type Code, indicates the type of name given in Components 1-6, such as legal, birth name, or alias. At present, VistA only uses name type **L** (legal).

PID-7-Date/Time of Birth

This is the date and time that the patient was born, as far as is known. It may be as imprecise as the four-digit birth year (*e.g.*, **1962**).

PID-8-Sex

This field contains the sex of the patient. It is populated with one of the following values from user-defined Table 0001, *Sex*, if a value is known.

Value	Description
F	Female
M	Male
U	Unknown

PID-10-Race

This field contains a code for the patient's race. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-10.1-Identifier

This component contains the RACE INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0005, *Race*.

PID-10.3-Name of Coding System

The value of this component shall be **0005**.

PID-10.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
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
9999-4	UNKNOWN BY PATIENT

PID-10.6-Name of Coding System

This component shall be populated **CDC**.

PID-11-Patient Address

This field contains the patient's address. It is of data type XAD, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	RE	[0..1]		Street Address
2	250	ST	RE	[0..1]		Other Designation
3	250	ST	RE	[0..1]		City
4	250	ST	RE	[0..1]		State or Province
5	250	ST	RE	[0..1]		ZIP or Postal Code
6	20	ID	X	[0..0]		Country
7	20	ID	X	[0..0]	0190	Address Type
8	250	ST	X	[0..0]		Other Geographic Designation
9	20	IS	X	[0..0]	0289	County/Parish Code
10	20	IS	X	[0..0]	0288	Census Tract
11	20	ID	X	[0..0]	4000	Address Representation Code

PID-13-Phone Number – Home

This field contains the patient's home telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-13.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-13.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number

PID-13.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-14-Phone Number – Business

This field contains the patient's work telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-14.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
WPN	Work Number

PID-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-19-SSN Number – Patient

This field carries the patient Social Security Number, for backward compatibility with versions of HL7 prior to Version 2.3.1. The Social Security Number is a secondary patient identifier. For the primary patient identifier, use the Integration Control Number from PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List.

PID-22-Ethnic Group

This field contains a code indicating whether the patient is of Hispanic descent. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-22.1-Identifier

This component contains the ETHNICITY INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0189, *Ethnic Group*.

PID-22.3-Name of Coding System

The value of this component shall be **0189**.

PID-22.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
2135-2	HISPANIC OR LATINO
2186-5	NOT HISPANIC OR LATINO
9999-4	UNKNOWN BY PATIENT

PID-22.6-Name of Coding System

This component shall be populated **CDC**.

1.6.4 PV1 Segment Fields

PV1-2-Patient Class

This field designates whether the patient is an inpatient (**I**) or an outpatient (**O**).

PV1-3-Assigned Patient Location

For inpatients, this field designates the patient's location in the medical center. It is not valued for outpatients. The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	30	IS	R	[1..1]	0302	Point of Care
2	30	IS	R	[1..1]	0303	Room
3	30	IS	RE	[0..1]	0304	Bed
4	30	HD	X	[0..0]		Facility
5	30	IS	X	[0..0]	0306	Location Status
6	30	IS	X	[0..0]	0305	Person Location Type
7	30	IS	X	[0..0]	0307	Building
8	30	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description

VistA sends Component 1, Point of Care, as three subcomponents, of which the first is an internal entry number into the VistA WARD LOCATION File (#42), and the second is the name of the ward location; the third is the internal designator of the WARD LOCATION File and should be ignored.

PV1-7-Attending Doctor

This is the physician responsible for the care of the patient during the present encounter. VistA values this field for inpatient encounters only.

The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix
6	250	ST	RE	[0..1]		Prefix
7	10	IS	RE	[0..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-8-Referring Doctor

This is the patient's primary physician. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix
6	250	ST	RE	[0..1]		Prefix
7	10	IS	RE	[0..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-10-Hospital Service

This is the treating specialty assigned to the patient with the most recent movement. VistA values this field for inpatient encounters only. When populated, it contains a value from user-defined Table 0069, *Hospital Service*; VistA sends values from the HOSPITAL LOCATION File (#44).

PV1-15-Ambulatory Status

This field indicates any permanent or transient conditions affecting the patient's mode of transportation. It may contain one or more values from user-defined Table 0009, *Ambulatory Status.* If the patient's ambulatory status is not known, this field is not populated.

Value	Description
A0	No functional limitations
A2	Wheelchair/stretcher bound
B6	Pregnant

Note: VistA populates this field with the value **B6** to indicate that the patient is pregnant.

PV1-16-VIP Indicator

This field is used to indicate that the patient is an employee, or that patient record is sensitive and should not be made available for general personnel access. If one of these conditions applies, VistA populates this field with one of the following values from user-defined Table 0099, *VIP Indicator.*

Value	Description
E	Patient is a VA employee
S	Patient record is sensitive
ES	Patient is a VA employee and patient record is sensitive

PV1-19-Visit

The value of this field depends on whether the patient is an inpatient or an outpatient at the time of message generation.

- For inpatients, this field contains **I** concatenated with the inpatient visit number from the VistA PIMS package.
- For outpatients, this field contains **O** concatenated with an integer representing today's date.

PV1-44-Admit Date/Time

This is the date and time when the patient was admitted (if the patient is an inpatient) or when the current encounter began (if the patient is an outpatient).

1.6.5 ROL Segment Fields

ROL-1-Role Instance ID

This is the ordinal number of this occurrence of the ROL Segment under the PV1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

ROL-2-Action Code

This field will always be valued **UP**, which indicates that the receiving system should update its database with the information contained in the ROL Segment(s) being sent in the current message.

ROL-3-Role

This field indicates the involvement with the activity being transmitted.

The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component *PID-10.1-Identifier* is valued **AT** to indicate the attending physician or **RP** to indicate the referring physician.

ROL-4-Role Person

This is the name of the person (physician) whose information is being transmitted. Its structure is identical to that of PV1-7-Attending Doctor and PV1-8-Referring Doctor.

ROL-12-Phone

This is the telephone number of the person (physician) whose information is being transmitted. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

ROL-12.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

ROL-12.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

ROL-12.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

1.6.6 DG1 Segment Fields

DG1-1-Set ID

This is the ordinal number of this occurrence of the DG1 Segment under the PV1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

DG1-3-Diagnosis Code

This field is of data type CE (Coded Element), which contains 6 components. Only the second component, “Text”, is populated. It contains the name of the diagnosis.

DG1-6-Diagnosis Type

This field is of data type IS (coded value for user-defined tables). It will contain one of the following values from user-defined Table 0052, *Diagnosis Type*.

Value	Description	Comment
A	Admitting	The diagnosis associated with the patient admission
W	Working	A diagnosis associated with any patient movement besides the admission

1.6.7 OBX Segment Fields

OBX-1-Set ID

This is the ordinal number of this occurrence of the OBX Segment. The first occurrence is labeled **1**, the second **2**, and so on.

OBX-2-Value Type

This field contains the data type of the information carried in *OBX-5-Observation Value*. It is populated with the value **ST** from HL7 Table 0125, *Value Type*.

OBX-3-Observation Identifier

This field classifies the kind of information carried in *OBX-5-Observation Value.* Its data type is CE, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	X	[0..0]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

In the ADT message, Component 2, Text, will contain either **HEIGHT** or **WEIGHT**. Other components are not populated.

OBX-5-Observation Value

This field contains the actual value whose data type is given in *OBX-2-Value Type* and whose classification is given in *OBX-3-Observation Identifier*. Its formatting follows the rules for the data type given in OBX-2.

OBX-6-Units

This field contains the units of the observation. Its data type is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Components 1, *Identifier*, and 2, *Text*, are populated as follows.

Identifier	Text
m	meter
kg	kilogram

Component 3 is always valued **ISO+**, indicating the use of units of measure from ISO Standard 2955-1983.

OBX-11-Observation Result Status

This field is of data type ID. In the ADT message, it is populated with the value **F** (final results) from HL7 Table 0085, *Observation Result Status Codes Interpretation.*

1.6.8 AL1 Segment Fields

AL1-1-Set ID

This is the ordinal number of this occurrence of the AL1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

AL1-2-Allergy Type

This field indicates whether the allergy is to a drug and/or food. VistA shall populate this field with one of the following values from user-defined Table 0127, *Allergy Type*.

Value	Description
D	Drug allergy
DF	Drug/food allergy
DFO	Drug/food/other allergy
DO	Drug/other allergy
F	Food allergy
FO	Food/other allergy
O	Other allergy

AL1-3-Allergy Code/Mnemonic/Description

The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	X	[0..0]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component 2, Text, is valued with the name of the allergy. Other components are not valued.

AL1-5-Allergy Reaction

This field contains reactions related to this allergy.

AL1-6-Identification Date

This field contains the date that the allergy was verified.

1.6.9 MSA Segment Fields

MSA-1-Acknowledgment Code

This field indicates whether the message was processed successfully. Original mode acknowledgment shall be used. PACS shall populate this field with one of the following values from HL7 Table 0008, *Acknowledgment Code*.

Value	Description
AA	Application Accept
AE	Application Error
AR	Application Reject

MSA-2-Message Control ID

This field contains the value of *MSH-10-Message Control ID* from the message being acknowledged.

MSA-3-Text Message

This field contains a narrative description of the error found in the message. It is preferred that *ERR-1-Error Code and Location* be used to communicate precise error information.

MSA-6-Error Condition

This field contains an encoded description of the error found in the message. It is preferred that *ERR-1-Error Code and Location* be used to communicate precise error information.

Data type CE is used for this field, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	RE	[0..1]	0357	Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	RE	[0..1]		Name of Coding System
4	250	ST	RE	[0..1]		Alternate Identifier
5	250	ST	RE	[0..1]		Alternate Text
6	250	ST	RE	[0..1]		Name of Alternate Coding System

Error condition codes are defined in HL7 Table 0357, *Message Error Condition.* If HL7 Table 0357 is used, the code shall be sent in Component 1, the description in Component 2, and the text **HL70357** in Component 3.

1.6.10 ERR Segment Fields

ERR-1-Error Code and Location

This field contains an encoded description of the error found in the message and the location of the error. Data type CM is used for this field. The components of this field are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ST	RE	[0..1]		Segment ID
2	3	NM	RE	[0..1]		Sequence
3	3	NM	RE	[0..1]		Field Position
4	250	CE	R	[1..1]		Code Identifying Error

ERR-1.1-Segment ID

This component contains the 3-character tag of the segment in the received message in which the error occurred. If the error is not related to a segment in the received message, this component is left blank.

ERR-1.2-Sequence

This component is an index to the ordinal occurrence of the segment in the received message whose segment ID is given in ERR-1.1. If only one such segment occurred in the received message, or if the error is not related to a segment in the received message, this component is left blank.

ERR-1.3-Field Position

This component is an index to the ordinal position of the field within the segment ID given in ERR-1.1. If the error is not related to a segment in the received message, this component is left blank.

ERR-1.4-Code Identifying Error

This component contains an encoded description of the error found in the message. Data type CE is used for this field, whose subcomponents are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]	0357	Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..1]		Alternate Identifier
5	250	ST	X	[0..1]		Alternate Text
6	250	ST	X	[0..1]		Name of Alternate Coding System

Error condition codes are defined in HL7 Table 0357, *Message Error Condition.* The appropriate entry from the **Value** column in the table below shall be sent in Subcomponent 1, and the corresponding text from the **Description** column shall be sent in Subcomponent 2. (The text in the **Comment** column is not sent.)

HL7 Table 0357 - Message error condition codes

Value	Description	Comment
100	Segment sequence error	Error: The message segments were not in the proper order, or required segments are missing.
101	Required field missing	Error: A required field is missing from a segment
102	Data type error	Error: The field contained data of the wrong data type, e.g. an NM field contained "FOO".
103	Table value not found	Error: A field of data type ID or IS was compared against the corresponding table, and no match was found.
200	Unsupported message type	Rejection: The Message Type is not supported.
201	Unsupported event code	Rejection: The Event Code is not supported.
202	Unsupported processing id	Rejection: The Processing ID is not supported.
203	Unsupported version id	Rejection: The Version ID is not supported.
204	Unknown key identifier	Rejection: The ID of the patient, order, etc., was not found. Used for transactions *other than* additions, e.g. transfer of a non-existent patient.
205	Duplicate key identifier	Rejection: The ID of the patient, order, etc., already exists. Used in response to addition transactions (Admit, New Order, etc.).
206	Application record locked	Rejection: The transaction could not be performed at the application storage level, e.g., database locked.
207	Application internal error	Rejection: A catchall for internal errors not explicitly covered by other codes.

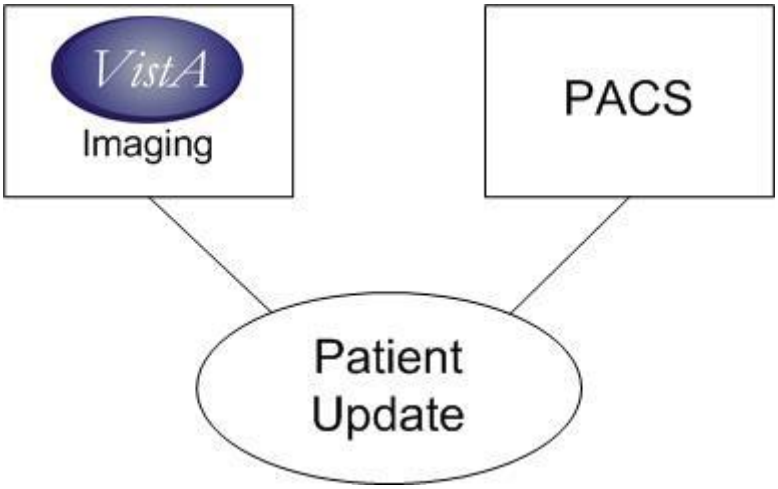
The text **HL70357** shall be sent in Subcomponent 3.

2 Patient Update Profile

2.1 Use Case

2.1.1 Scope

The Patient Update transaction conveys changes to patient information, including demographics, patient identification, patient location/class changes, and patient merges. These changes may occur at any time for a patient record. This transaction is used both for inpatients (*i.e.*, those who are assigned a bed at the facility) and outpatients (*i.e.*, those who are not assigned a bed at the facility) if the patient has been previously registered.



2.1.2 Actors and Roles

Actor: VistA Imaging

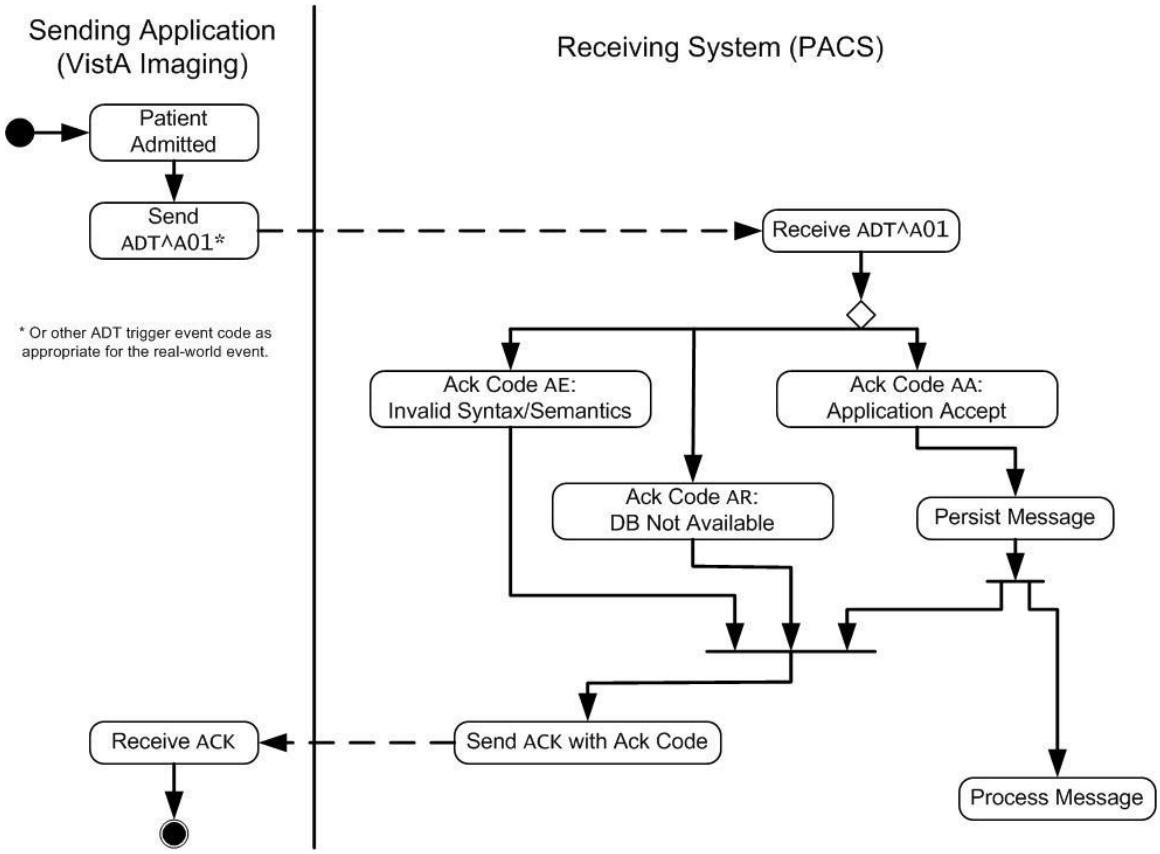
Role: Receives patient registration or update notification from VistA Patient Information Management System. Transmits appropriate demographic and encounter information to associated imaging systems including commercial Picture Archiving and Communication Systems (PACS).

Actor: PACS

Role: Tracks patient identifier, demographic and encounter information associated with orders.

2.2 Interactions

The actors in this use case shall perform the behaviors shown in the following activity diagram.



2.3 Dynamic Definition

Vista and PACS shall generate and process HL7 messages according to the following functional and business requirements.

2.3.1 Patient Update Message (ADT)

VistA Imaging shall transmit an ADT message to PACS when patient information changes, including when patient records are merged. PACS shall process the message in conformance with the following requirements.

2.3.1.1 Update Received for Existing MRN (Non-Demo, Non-Merge)

When PACS receives an ADT update message (other than A08-update patient information, A40-merge, or A47-change ID) for a patient for which it finds an MRN in its system, PACS will verify that name, sex, and DOB exactly match what is already in its system: if so, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above); if not, PACS will put the message onto a reconciliation queue and notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4.

a. If the update is a discharge, PACS shall display the patient's discharged status.

b. If the update is a transfer, PACS shall display the patient's new location (*i.e.*, the location to which the patient was transferred).

2.3.1.2 Update Received for MRN Not on File (Non-Demo, Non-Merge)

When PACS receives an ADT update message (other than A08-update patient information, A40-merge, or A47-change ID) for a patient for which it does not find an MRN in its system, PACS will create a new patient record and will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

2.3.1.3 Update Received for Existing MRN (Update Demographics)

When PACS receives an ADT^A08 (update patient information) message for a patient for which finds an MRN already in its system, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

2.3.1.4 Update Received for MRN Not on File (Update Demographics)

When PACS receives an ADT^A08 (update patient information) message for a patient for which it does not find an MRN already in its system, PACS will create a new patient record and will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

2.3.1.5 Update Received for Existing MRN (Merge)

When PACS receives an ADT^A40 (merge patient - patient identifier list) message for a patient for which it finds the merge-to MRN in its system, the PACS operator or administrator may review the patient IDs to be merged for correctness. Upon approval by the operator or administrator, if needed, PACS will extract from the

HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

a. If it finds the merge-from MRN in its system, PACS will retire the merge-from MRN as a lookup key.

b. PACS will reject lookup requests for the retired merge-from MRN.

2.3.1.6 Update Received for MRN Not on File (Merge)

When PACS receives an ADT^A40 (merge patient - patient identifier list) message for a patient for which it does not find the merge-to MRN in its system, PACS will create a new patient record and will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

a. If it finds the merge-from MRN in its system, PACS will retire the merge-from MRN as a lookup key.

b. PACS will reject lookup requests for the retired merge-from MRN.

2.3.1.7 Update Received for Existing MRN (Change ID)

When PACS receives an ADT^A47 (change patient identifier list) message for a patient for which it finds the change-from MRN (from *MRG-1-Prior Patient Identifier List*) in its system, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above). It will change the identifier value found in *MRG-1-Prior Patient Identifier List* to the value found for the corresponding assigning authority in *PID-3-Patient Identifier List.*

a. PACS will retire the change-from MRN as a lookup key.

b. PACS will reject lookup requests for the retired change-from MRN.

2.3.1.8 Update Received for MRN Not on File (Change ID)

When PACS receives an ADT^A47 (change patient identifier list) message for a patient for which it does not find the change-from MRN (from *MRG-1-Prior Patient Identifier List*) in its system, PACS will create a new patient record and will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above).

2.3.1.9 Update Received – More than 1 Value for Same Identifier

When PACS receives an ADT update message containing more than one value for the MRN, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment and will not update any patient record. The application acknowledgment shall contain a value of **AE** (application error) in

field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **207** (application internal error) in component 4. PACS is responsible for notifying support staff and users of anomalies as needed.

2.3.1.10 Update Received for Sensitive/Employee Patient

When PACS receives an ADT update message for a patient whose VIP Indicator value in PV1-16 is set to **E** (employee) or **S** (sensitive), PACS shall safeguard the identity of the patient using VA rules for suppressing patient name and other identifying information.

2.3.2 Acknowledgment Message (ACK)

2.3.2.1 Original Mode ACK To Be Returned

If PACS accepts ADT messages, it shall return an original mode ACK application acknowledgment, as defined in the HL7 Standard and prescribed by the IHE Radiology Technical Framework. The trigger event of the acknowledgment message shall be equal to the trigger event of the message that was received.

2.3.2.2 ERR Segment To Be Sent for AE and AR Conditions

When an error is determined to have occurred, PACS shall return the acknowledgment code AE (Application Error) or AR (Application Reject) as appropriate, and shall populate Field ERR-1-error code and location with the relevant error information including the appropriate error code from HL7 Table 0357. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

2.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject

If the value received in *MSH-9.1-message type*, *MSH-9.2-trigger event*, *MSH-11-processing code*, or *MSH-12-version ID* is invalid, the value **AR** (application reject) shall be returned in *MSA-1-acknowledgment code*, and the appropriate value from HL7 Table 0357 shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

2.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error

If the value received in *MSH-5-receiving application* or *MSH-6-receiving facility* is invalid, the value **AE** (application error) shall be returned in *MSA-1-acknowledgment code*, and the value **103** (table value not found) shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

2.4 Static Definition – Message Level

HL7 messages shall be populated and processed according to the following abstract message definitions.

2.4.1 Patient Update Message: Transfer

This message syntax is used for trigger event A02 (Transfer).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
PV1	Patient Visit	R	[1..1]	3
[PV2]	Patient Visit – Additional Info.	X	[0..0]	3
[{ ROL }]	Role	RE	[0..2]	12
[{ DB1 }]	Disability Information	X	[0..0]	3
[{ OBX }]	Observation / Result	X	[0..0]	7

2.4.2 Patient Update Message: Discharge

This message syntax is used for trigger event A03 (Discharge).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
PV1	Patient Visit	R	[1..1]	3
[PV2]	Patient Visit – Additional Info.	X	[0..0]	3
[{ ROL }]	Role	RE	[0..2]	12
[{ DB1 }]	Disability Information	X	[0..0]	3
[{ DG1 }]	Diagnosis Information	RE	[0..1]	6
[DRG]	Diagnosis Related Group	X	[0..0]	6
[{ PR1	Procedures	X	[0..0]	6
[{ ROL }]	Role	X	[0..0]	12
}]				
[{ OBX }]	Observation	X	[0..0]	7

2.4.3 Patient Update Message: Update Patient Information

This syntax is used for trigger event A08 (Update Patient Information). The Update Patient Information message is used to update demographic and other non-movement related information. Movement-related information should not be transmitted using trigger event A08 but instead should be transmitted using the appropriate movement-related trigger event code, such as A02 for patient transfer.

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
[{ NK1 }]	Next of Kin / Associated Parties	X	[0..0]	3
PV1	Patient Visit	R	[1..1]	3
[PV2]	Patient Visit – Additional Info.	X	[0..0]	3
[{ ROL }]	Role	RE	[0..2]	12
[{ DB1 }]	Disability Information	X	[0..0]	3
[{ OBX }]	Observation / Result	RE	[0..2]	7
[{ AL1 }]	Allergy Information	RE	[0..99]	3
[{ DG1 }]	Diagnosis Information	RE	[0..1]	6
[DRG]	Diagnosis Related Group	X	[0..0]	6
[{ PR1	Procedures	X	[0..0]	6
[{ ROL }]	Role	X	[0..0]	12
}]				
[{ GT1 }]	Guarantor	X	[0..0]	6
[{ IN1	Insurance	X	[0..0]	6
[IN2]	Insurance Additional Info.	X	[0..0]	6
[{ IN3 }]	Insurance Additional Info. – Cert.	X	[0..0]	6
}]				
[ACC]	Accident Information	X	[0..0]	6
[UB1]	Universal Bill Information	X	[0..0]	6
[UB2]	Universal Bill 92 Information	X	[0..0]	6

2.4.4 Patient Update Message: Merge Patient Identifier List

This syntax is used for trigger event A40 (Merge Patient Identifier List).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
{ PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
MRG	Merge Information	R	[1..1]	3

[PV1]	Patient Visit	X	[0..0]	3
}				

2.4.5 Patient Update Message: Change Patient Identifier List

This syntax is used for trigger event A47 (Change Patient Identifier List). The Change Patient Identifier List message is used to update any occurrence of field PID-3-Patient Identifier List. Updates to the MRN (Medical Record Number) must be sent using this message.

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
MRG	Merge Information	R	[1..1]	3

2.4.6 Patient Update Message: Cancel Admit

This syntax is used for trigger event A11 (Cancel Admit).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
PV1	Patient Visit	R	[1..1]	3

2.4.7 Patient Update Message: Cancel Transfer

This syntax is used for trigger event A12 (Cancel Transfer).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
PV1	Patient Visit	R	[1..1]	3
[PV2]	Patient Visit – Additional Info.	X	[0..0]	3
[{ ROL }]	Role	RE	[0..2]	12
[{ DB1 }]	Disability Information	X	[0..0]	3
[{ OBX }]	Observation / Result	R	[2..2]	7

[{ DG1 }]	Diagnosis Information	RE	[0..1]	6

2.4.8 Patient Update Message: Cancel Discharge

This syntax is used for trigger event A13 (Cancel Discharge / End Visit).

Segment	ADT Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
EVN	Event Type	R	[1..1]	3
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
[{ NK1 }]	Next of Kin / Associated Parties	X	[0..0]	3
PV1	Patient Visit	R	[1..1]	3
[PV2]	Patient Visit – Additional Info.	X	[0..0]	3
[{ ROL }]	Role	RE	[0..2]	12
[{ DB1 }]	Disability Information	X	[0..0]	3
[{ OBX }]	Observation / Result	X	[0..0]	7
[{ AL1 }]	Allergy Information	X	[0..0]	3
[{ DG1 }]	Diagnosis Information	X	[0..0]	6
[DRG]	Diagnosis Related Group	X	[0..0]	6
[{ PR1	Procedures	X	[0..0]	6
[{ ROL }]	Role	X	[0..0]	12
}]				
[{ GT1 }]	Guarantor	X	[0..0]	6
[{ IN1	Insurance	X	[0..0]	6
[IN2]	Insurance Additional Info.	X	[0..0]	6
[{ IN3 }]	Insurance Additional Info. – Cert.	X	[0..0]	6
}]				
[ACC]	Accident Information	X	[0..0]	6
[UB1]	Universal Bill Information	X	[0..0]	6
[UB2]	Universal Bill 92 Information	X	[0..0]	6

2.4.9 Acknowledgment Message

Segment	ACK Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[ERR]	Error	RE	[0..1]	2

2.5 Static Definition – Segment Level

Fields in HL7 messages shall be populated and processed according to the following Segment Attribute Tables.

2.5.1 MSH Segment

Refer to Section 2.6.1, MSH Segment Fields, for a detailed explanation of the fields used in this segment.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	1	ST	R	[1..1]		00001	Field Separator
2	4	ST	R	[1..1]		00002	Encoding Characters
3	180	HD	R	[1..1]	0361	00003	Sending Application
4	180	HD	R	[1..1]	0362	00004	Sending Facility
5	180	HD	R	[1..1]	0361	00005	Receiving Application
6	180	HD	R	[1..1]	0362	00006	Receiving Facility
7	26	TS	R	[1..1]		00007	Date/Time of Message
8	40	ST	X	[0..0]		00008	Security
9	13	CM	R	[1..1]	0076 0003	00009	Message Type
10	20	ST	R	[1..1]		00010	Message Control ID
11	3	PT	R	[1..1]		00011	Processing ID
12	60	VID	R	[1..1]	0104	00012	Version ID
13	15	NM	X	[0..0]		00013	Sequence Number
14	180	ST	X	[0..0]		00014	Continuation Pointer
15	2	ID	X	[0..0]	0155	00015	Accept Acknowledgment Type
16	2	ID	X	[0..0]	0155	00016	Application Acknowledgment Type
17	3	ID	R	[1..1]		00017	Country Code
18	16	ID	X	[0..0]	0211	00692	Character Set
19	250	CE	X	[0..0]		00693	Principal Language of Message
20	20	ID	X	[0..0]	0356	01317	Alternate Character Set Handling Scheme
21	10	ID	X	[0..0]		01598	Conformance Statement ID

2.5.2 EVN Segment

The following is a listing of all the fields defined for the EVN Segment in HL7. Refer to Section 2.6.2, EVN Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	3	ID	R	[1..1]	0003	00099	Event Type Code
2	26	TS	R	[1..1]		00100	Recorded Date/Time
3	26	TS	X	[0..0]		00101	Date/Time Planned Event
4	3	IS	X	[0..0]	0062	00102	Event Reason Code
5	60	XCN	X	[0..0]	0188	00103	Operator ID
6	26	TS	RE	[0..1]		01278	Event Occurred
7	180	HD	X	[0..0]		01534	Event Facility

2.5.3 PID Segment

The following is a listing of all the fields defined for the PID Segment in HL7. Refer to Section 2.6.3, PID Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00104	Set ID - PID
2	20	CX	R	[1..1]		00105	Patient ID
3	250	CX	R	[1..1]		00106	Patient Identifier List
4	20	CX	R	[1..1]		00107	Alternate Patient ID - PID
5	250	XPN	R	[1..1]		00108	Patient Name
6	250	XPN	X	[0..0]		00109	Mother's Maiden Name
7	26	TS	RE	[0..1]		00110	Date/Time of Birth
8	1	IS	RE	[0..1]	0001	00111	Sex
9	250	XPN	X	[0..0]		00112	Patient Alias
10	250	CE	RE	[0..1]	0005	00113	Race
11	250	XAD	RE	[0..1]		00114	Patient Address
12	4	IS	X	[0..0]	0289	00115	County Code
13	250	XTN	RE	[0..1]		00116	Phone Number - Home
14	250	XTN	RE	[0..1]		00117	Phone Number - Business
15	250	CE	X	[0..0]	0296	00118	Primary Language
16	250	CE	X	[0..0]	0002	00119	Marital Status
17	250	CE	X	[0..0]	0006	00120	Religion
18	250	CX	X	[0..0]		00121	Patient Account Number
19	16	ST	R	[1..1]		00122	SSN Number - Patient
20	25	DLN	X	[0..0]		00123	Driver's License Number - Patient
21	250	CX	X	[0..0]		00124	Mother's Identifier
22	250	CE	RE	[0..1]	0189	00125	Ethnic Group
23	250	ST	X	[0..0]		00126	Birth Place
24	1	ID	X	[0..0]	0136	00127	Multiple Birth Indicator
25	2	NM	X	[0..0]		00128	Birth Order
26	250	CE	X	[0..0]	0171	00129	Citizenship
27	250	CE	X	[0..0]	0172	00130	Veterans Military Status
28	250	CE	X	[0..0]	0212	00739	Nationality
29	26	TS	X	[0..0]		00740	Patient Death Date and Time
30	1	ID	X	[0..0]	0136	00741	Patient Death Indicator
31	1	ID	X	[0..0]	0136	01535	Identity Unknown Indicator
32	20	IS	X	[0..0]	0445	01536	Identity Reliability Code
33	26	TS	X	[0..0]		01537	Last Update Date/Time
34	40	HD	X	[0..0]		01538	Last Update Facility
35	250	CE	X	[0..0]	0446	01539	Species Code
36	250	CE	X	[0..0]	0447	01540	Breed Code
37	80	ST	X	[0..0]		01541	Strain
38	250	CE	X	[0..0]	0429	01542	Production Class Code

2.5.4 MRG Segment

The following is a listing of all the fields defined for the MRG Segment in HL7. Refer to Section 2.6.4, MRG Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	250	CX	R	[1..2]		00211	Prior Patient Identifier List
2	250	CX	X	[0..0]		00212	Prior Alternate Patient ID
3	250	CX	X	[0..0]		00213	Prior Patient Account Number
4	250	CX	X	[0..0]		00214	Prior Patient ID
5	250	CX	X	[0..0]		01279	Prior Visit Number
6	250	CX	X	[0..0]		01280	Prior Alternate Visit ID
7	250	XPN	X	[0..0]		01281	Prior Patient Name

2.5.5 PV1 Segment

The following is a listing of all the fields defined for the PV1 Segment in HL7. Refer to Section 2.6.5, PV1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00131	Set ID - PV1
2	1	IS	R	[1..1]	0004	00132	Patient Class
3	80	PL	C	[0..1]		00133	Assigned Patient Location
4	2	IS	X	[0..0]	0007	00134	Admission Type
5	250	CX	X	[0..0]		00135	Preadmit Number
6	80	PL	X	[0..0]		00136	Prior Patient Location
7	250	XCN	CE	[0..1]	0010	00137	Attending Doctor
8	250	XCN	RE	[0..1]	0010	00138	Referring Doctor
9	250	XCN	X	[0..0]	0010	00139	Consulting Doctor
10	30	IS	C	[0..1]	0069	00140	Hospital Service
11	80	PL	X	[0..0]		00141	Temporary Location
12	2	IS	X	[0..0]	0087	00142	Preadmit Test Indicator
13	2	IS	X	[0..0]	0092	00143	Re-admission Indicator
14	6	IS	X	[0..0]	0023	00144	Admit Source
15	2	IS	RE	[0..2]	0009	00145	Ambulatory Status
16	2	IS	RE	[0..1]	0099	00146	VIP Indicator
17	250	XCN	X	[0..0]	0010	00147	Admitting Doctor
18	2	IS	X	[0..0]	0018	00148	Patient Type
19	250	CX	RE	[0..1]		00149	Visit Number
20	50	FC	X	[0..0]	0064	00150	Financial Class
21	2	IS	X	[0..0]	0032	00151	Charge Price Indicator
22	2	IS	X	[0..0]	0045	00152	Courtesy Code
23	2	IS	X	[0..0]	0046	00153	Credit Rating
24	2	IS	X	[0..0]	0044	00154	Contract Code
25	8	DT	X	[0..0]		00155	Contract Effective Date
26	12	NM	X	[0..0]		00156	Contract Amount
27	3	NM	X	[0..0]		00157	Contract Period
28	2	IS	X	[0..0]	0073	00158	Interest Code

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
29	1	IS	X	[0..0]	0110	00159	Transfer to Bad Debt Code
30	8	DT	X	[0..0]		00160	Transfer to Bad Debt Date
31	10	IS	X	[0..0]	0021	00161	Bad Debt Agency Code
32	12	NM	X	[0..0]		00162	Bad Debt Transfer Amount
33	12	NM	X	[0..0]		00163	Bad Debt Recovery Amount
34	1	IS	X	[0..0]	0111	00164	Delete Account Indicator
35	8	DT	X	[0..0]		00165	Delete Account Date
36	3	IS	X	[0..0]	0112	00166	Discharge Disposition
37	25	CM	X	[0..0]	0113	00167	Discharged to Location
38	250	CE	X	[0..0]	0114	00168	Diet Type
39	2	IS	X	[0..0]	0115	00169	Servicing Facility
40	1	IS	X	[0..0]	0116	00170	Bed Status
41	2	IS	X	[0..0]	0117	00171	Account Status
42	80	PL	X	[0..0]		00172	Pending Location
43	80	PL	X	[0..0]		00173	Prior Temporary Location
44	26	TS	RE	[0..1]		00174	Admit Date/Time
45	26	TS	RE	[0..1]		00175	Discharge Date/Time
46	12	NM	X	[0..0]		00176	Current Patient Balance
47	12	NM	X	[0..0]		00177	Total Charges
48	12	NM	X	[0..0]		00178	Total Adjustments
49	12	NM	X	[0..0]		00179	Total Payments
50	250	CX	X	[0..0]	0203	00180	Alternate Visit ID
51	1	IS	X	[0..0]	0326	01226	Visit Indicator
52	250	XCN	X	[0..0]	0010	01274	Other Healthcare Provider

2.5.6 ROL Segment

The ROL Segment is used to give more complete information about the patient's referring and attending physicians than is permitted by the PV1 Segment. Specifically, the ROL Segment allows for the transmission of multiple callback numbers for each physician.

The following is a listing of all the fields defined for the ROL Segment in HL7. Refer to Section 2.6.6, ROL Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	60	EI	R	[1..1]		01206	Role Instance ID
2	2	ID	R	[1..1]	0287	00816	Action Code
3	250	CE	R	[1..1]	0443	01197	Role-ROL
4	250	XCN	R	[1..1]		01198	Role Person
5	26	TS	X	[0..0]		01199	Role Begin Date/Time
6	26	TS	X	[0..0]		01200	Role End Date/Time
7	250	CE	X	[0..0]		01201	Role Duration
8	250	CE	X	[0..0]		01205	Role Action Reason
9	250	CE	X	[0..0]		01510	Provider Type
10	250	CE	X	[0..0]	0406	01461	Organization Unit Type
11	250	XAD	X	[0..0]		00679	Office/Home Address
12	250	XTN	RE	[0..8]		00678	Phone

2.5.7 DG1 Segment

The following is a listing of all the fields defined for the DG1 Segment in HL7. Refer to Section 2.6.7, DG1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00375	Set ID - DG1
2	2	ID	X	[0..0]	0053	00376	Diagnosis Coding Method
3	250	CE	R	[1..1]	0051	00377	Diagnosis Code - DG1
4	40	ST	X	[0..0]		00378	Diagnosis Description
5	26	TS	X	[0..0]		00379	Diagnosis Date/Time
6	2	IS	RE	[0..1]	0052	00380	Diagnosis Type
7	250	CE	X	[0..0]	0118	00381	Major Diagnostic Category
8	250	CE	X	[0..0]	0055	00382	Diagnostic Related Group
9	1	ID	X	[0..0]	0136	00383	DRG Approval Indicator
10	2	IS	X	[0..0]	0056	00384	DRG Grouper Review Code
11	250	CE	X	[0..0]	0083	00385	Outlier Type
12	3	NM	X	[0..0]		00386	Outlier Days
13	12	CP	X	[0..0]		00387	Outlier Cost
14	4	ST	X	[0..0]		00388	Grouper Version And Type
15	2	ID	X	[0..0]	0359	00389	Diagnosis Priority
16	250	XCN	X	[0..0]		00390	Diagnosing Clinician
17	3	IS	X	[0..0]	0228	00766	Diagnosis Classification
18	1	ID	X	[0..0]	0136	00767	Confidential Indicator
19	26	TS	X	[0..0]		00768	Attestation Date/Time

2.5.8 OBX Segment

In the ADT message, the OBX Segment is used to communicate height and weight of the patient. The following is a listing of all the fields defined for the OBX Segment in HL7. Refer to Section 2.6.8, OBX Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00569	Set ID – OBX
2	2	ID	R	[1..1]	0125	00570	Value Type
3	250	CE	R	[1..1]		00571	Observation Identifier
4	20	ST	X	[0..0]		00572	Observation Sub-ID
5	65536†		R	[1..1]		00573	Observation Value
6	250	CE	R	[1..1]		00574	Units
7	60	ST	X	[0..0]		00575	Reference Range
8	5	IS	X	[0..0]	0078	00576	Abnormal Flags
9	5	NM	X	[0..0]		00577	Probability
10	2	ID	X	[0..0]		00578	Nature of Abnormal Test
11	1	ID	R	[0..1]	0085	00579	Observation Result Status
12	26	TS	X	[0..0]		00580	Date Last Observation Normal Value

† The length and data type of this field are variable, depending on *OBX-2-Value Type*.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
13	20	ST	X	[0..0]		00581	User Defined Access Checks
14	26	TS	X	[0..0]		00582	Date/Time of the Observation
15	250	CE	X	[0..0]		00583	Producer's ID
16	250	XCN	X	[0..0]		00584	Responsible Observer
17	250	CE	X	[0..0]		00936	Observation Method
18	22	EI	X	[0..0]		01479	Equipment Instance Identifier
19	26	TS	X	[0..0]		01480	Date/Time of the Analysis

2.5.9 AL1 Segment

The following is a listing of all the fields defined for the AL1 Segment in HL7. Refer to Section 2.6.9, AL1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00203	Set ID – AL1
2	2	IS	R	[1..1]	0127	00204	Allergy Type
3	250	CE	R	[0..1]		00205	Allergy Code/Mnemonic/Description
4	2	IS	X	[0..0]	0128	00206	Allergy Severity
5	250	ST	RE	[0..99]		00207	Allergy Reaction
6	8	DT	RE	[0..1]		00208	Identification Date

2.5.10 MSA Segment

The following is a listing of all the fields defined for the MSA Segment in HL7. MSA is used only in the acknowledgment message. Refer to Section 2.6.10, MSA Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	2	ID	R	[1..1]	0003	00018	Acknowledgment Code
2	20	ST	R	[1..1]		00010	Message Control ID
3	80	ST	B	[0..1]		00020	Text Message
4	15	NM	X	[0..0]		00021	Expected Sequence Number
5	1	ID	X	[0..0]	0102	00022	Delayed Acknowledgment Type
6	250	CE	B	[0..1]		00023	Error Condition

2.5.11 ERR Segment

The following is a listing of all the fields defined for the ERR Segment in HL7. ERR is used only in the acknowledgment message. Refer to Section 2.6.11, ERR Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	80	CM	R	[1..999]		00024	Error Code and Location

2.6 Static Definition – Field Level

2.6.1 MSH Segment Fields

MSH-1-Field Separator

This field contains the top-level delimiter for HL7 elements within segments.

MSH-2-Encoding Characters

This field contains the component separator (secondary element delimiter), repetition separator, escape character, and subcomponent separator (tertiary element delimiter).

MSH-3-Sending Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA registration message, Component 1 of this field shall be populated with the value **VISTA IMAGING** from user-defined Table 0361, *Sending/Receiving Application*. PACS shall return this value in component MSH-5.1 of the acknowledgment message. Components 2 and 3 of MSH-3 are not valued.

MSH-4-Sending Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was generated. PACS shall return this value in component MSH-6.1 of the acknowledgment message. Components 2 and 3 of MSH-4 are not valued.

MSH-5-Receiving Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0361, *Sending/Receiving Application*, with the name of the PACS application. PACS shall return this value in component MSH-3.1 of the acknowledgment message. Components 2 and 3 of MSH-5 are not valued.

MSH-6-Receiving Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was received. PACS shall return this value in field MSH-4 of the acknowledgment message. Components 2 and 3 of MSH-6 are not valued.

MSH-7-Date/Time of Message

This field contains the date and time that the sending system built the message.

MSH-9-Message Type

This field is of data type CM. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ID	R	[1..1]	0076	Message Type
2	3	ID	R	[1..1]	0003	Trigger Event
3	7	ID	X	[0..0]	0354	Message Structure

The components used by VistA are defined as follows.

MSH-9.1-Message Type

This component contains a value from HL7 Table 0076, *Message Type*. For the registration message, it will always contain the value **ADT**.

MSH-9.2-Trigger Event

This component will contain one of the following values from HL7 Table 0003, *Event Type*.

Value	Description
A01	Admit a patient
A02	Transfer a patient
A03	Discharge/end visit
A04	Register a patient
A08	Update patient information

Value	Description
A11	Cancel admit/visit notification
A12	Cancel transfer
A13	Cancel discharge
A40	Merge patient – patient identifier list
A47	Change patient identifier list

MSH-10-Message Control ID

This field will contain a unique identifier for the message.

MSH-11-Processing ID

This field is of type PT, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	1	ID	R	[1..1]	0103	Processing ID
2	1	ID	RE	[0..1]	0207	Processing Mode

The components used by VistA are defined as follows.

MSH-11.1-Processing ID

This field contains one of the following values from HL7 Table 0103, *Processing ID.*

Value	Description
P	Production
D	Debugging
T	Training

MSH-11.2-Processing Mode

This field contains one of the following values from HL7 Table 0207, *Processing Mode*.

Value	Description
A	Archive
R	Restore from archive
I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
not present	Not present (the default, meaning *current* processing)

MSH-12-Version ID

This field is of type VID, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ID	R	[1..1]	0104	Version ID
2	250	CE	X	[0..0]		Internationalization Code
3	250	CE	X	[0..0]		Internal Version ID

This field's first component will always contain the value **2.3.1** from HL7 Table 0104, *Version ID*. The following table contains the full set of legal values for the first component.

HL7 Table 0104 - Version ID

Value	Description	Comment (Date)
2.0	Release 2.0	September 1988
2.0D	Demo 2.0	October 1988
2.1	Release 2. 1	March 1990
2.2	Release 2.2	December 1994
2.3	Release 2.3	March 1997
2.3.1	Release 2.3.1	May 1999
2.4	Release 2.4	November 2000
2.5	Release 2.5	May 2003

Although the VistA message pre-adopts certain Version 2.4 structures, such as the ROL segment, receivers that are unable to recognize Version 2.4 may use Version 2.3.1 syntax rules as prescribed by IHE. It is expected that receivers not now using HL7 Version 2.3.1 will be able to process the V2.3.1 messages according to the HL7 rules for backward compatibility. At such time as IHE is revised to a later version of HL7, receivers will be expected to adapt to the new structures within a stated period of time following the revision.

Other components of this field will not be used.

MSH-17-Country Code

This field is of type ID. It will always contain the value **USA** from the ISO 3166 country code table.

2.6.2 EVN Segment Fields

EVN-1-Event Type Code

This field contains the 3-character code of the trigger event being communicated. It is retained for backward compatibility with versions of HL7 that do not communicate the event type in the second component of MSH-9-Message Type.

EVN-2-Recorded Date/Time

This field contains the date and time that the event was recorded in the system.

EVN-6-Event Occurred

This field contains the date and time that the event actually took place. If it is not known when the event actually took place, this field is left blank.

2.6.3 PID Segment Fields

PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List

Field PID-3 is used to transmit the patient Medical Record Number (MRN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-3.1-ID

This is the Social Security Number.

PID-3.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-3.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-3.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-3.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-4-Alternate Patient ID

Field PID-4 contains the patient Integration Control Number (ICN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-4.1-ID

This is the alphanumeric identification string.

PID-4.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-4.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-4.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-4.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-5-Patient Name

This field is of data type XPN, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	35	FN	R	[1..1]		Family Name
2	35	ST	R	[1..1]		Given Name
3	35	ST	RE	[0..1]		Middle Initial or Name
4	10	ST	RE	[0..1]		Suffix
5	10	ST	RE	[0..1]		Prefix
6	10	IS	RE	[0..1]	0360	Degree
7	10	ID	R	[0..1]	0200	Name Type Code
8	10	ID	X	[0..0]	4000	Name Representation Code

Component 7, Name Type Code, indicates the type of name given in Components 1-6, such as legal, birth name, or alias. At present, VistA only uses name type **L** (legal).

PID-7-Date/Time of Birth

This is the date and time that the patient was born, as far as is known. It may be as imprecise as the four-digit birth year (*e.g.*, **1962**).

PID-8-Sex

This field contains the sex of the patient. It is populated with one of the following values from user-defined Table 0001, *Sex*, if a value is known.

Value	Description
F	Female
M	Male
U	Unknown

PID-10-Race

This field contains a code for the patient's race. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-10.1-Identifier

This component contains the RACE INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0005, *Race*.

PID-10.3-Name of Coding System

The value of this component shall be **0005**.

PID-10.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
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
9999-4	UNKNOWN BY PATIENT

PID-10.6-Name of Coding System

This component shall be populated **CDC**.

PID-11-Patient Address

This field contains the patient's address. It is of data type XAD, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	RE	[0..1]		Street Address
2	250	ST	RE	[0..1]		Other Designation
3	250	ST	RE	[0..1]		City
4	250	ST	RE	[0..1]		State or Province
5	250	ST	RE	[0..1]		ZIP or Postal Code
6	20	ID	X	[0..0]		Country
7	20	ID	X	[0..0]	0190	Address Type
8	250	ST	X	[0..0]		Other Geographic Designation
9	20	IS	X	[0..0]	0289	County/Parish Code
10	20	IS	X	[0..0]	0288	Census Tract
11	20	ID	X	[0..0]	4000	Address Representation Code

PID-13-Phone Number – Home

This field contains the patient's home telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-13.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-13.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number

PID-13.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-14-Phone Number – Business

This field contains the patient's work telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-14.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
WPN	Work Number

PID-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-19-SSN Number – Patient

This field carries the patient Social Security Number, for backward compatibility with versions of HL7 prior to Version 2.3.1. The Social Security Number is a secondary patient identifier. For the primary patient identifier, use the Integration Control Number from PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List.

PID-22-Ethnic Group

This field contains a code indicating whether the patient is of Hispanic descent. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-22.1-Identifier

This component contains the ETHNICITY INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0189, *Ethnic Group*.

PID-22.3-Name of Coding System

The value of this component shall be **0189**.

PID-22.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
2135-2	HISPANIC OR LATINO
2186-5	NOT HISPANIC OR LATINO
9999-4	UNKNOWN BY PATIENT

PID-22.6-Name of Coding System

This component shall be populated **CDC**.

2.6.4 MRG Segment Fields

MRG-1-Prior Patient Identifier List

This field contains the previous or "old" patient identifier. The current or "new" patient identifier will be contained in the repetition of PID-3-Patient Identifier List that has the same assigning authority and identifier type.

This field is of data type CX. Its components are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

MRG-1.1-ID

This is the alphanumeric identification string.

MRG-1.4-Assigning Authority

This component contains the entity that assigned the identifier value in *MRG-1.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain one of the following values from user-defined Table 0300, *Namespace ID*.

Value	Description
USVHA	United States Veterans Health Administration
USSSA	United States Social Security Administration

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

MRG-1.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *MRG-1.1-ID*. It will contain one of the following values from user-defined Table 0203, *Identifier Type*.

Value	Description
NI	National unique individual identifier
PI	Patient internal identifier
SS	Social Security number

The Medical Record Number (MRN) will be used as the primary identifier. This identifier is designated by Assigning Authority **USVHA** and Identifier Type **NI**.

2.6.5 PV1 Segment Fields

PV1-2-Patient Class

This field designates whether the patient is an inpatient (**I**) or an outpatient (**O**).

PV1-3-Assigned Patient Location

For inpatients, this field designates the patient's location in the medical center. It is not valued for outpatients. The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	30	IS	R	[1..1]	0302	Point of Care
2	30	IS	R	[1..1]	0303	Room
3	30	IS	RE	[0..1]	0304	Bed
4	30	HD	X	[0..0]		Facility
5	30	IS	X	[0..0]	0306	Location Status
6	30	IS	X	[0..0]	0305	Person Location Type

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
7	30	IS	X	[0..0]	0307	Building
8	30	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description

VistA sends Component 1, Point of Care, as three subcomponents, of which the first is an internal entry number into the VistA WARD LOCATION File (#42), and the second is the name of the ward location; the third is the internal designator of the WARD LOCATION File and should be ignored.

PV1-7-Attending Doctor

This is the physician responsible for the care of the patient during the present encounter. VistA values this field for inpatient encounters only.

The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix
6	250	ST	RE	[0..1]		Prefix
7	10	IS	RE	[0..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-8-Referring Doctor

This is the patient's primary physician. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[1..1]		Middle Initial or Name
5	250	ST	RE	[1..1]		Suffix
6	250	ST	RE	[1..1]		Prefix
7	10	IS	RE	[1..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-10-Hospital Service

This is the treating specialty assigned to the patient with the most recent movement. VistA values this field for inpatient encounters only. When populated, it contains a value from user-defined Table 0069, *Hospital Service*; VistA sends values from the HOSPITAL LOCATION File (#44).

PV1-15-Ambulatory Status

This field indicates any permanent or transient conditions affecting the patient's mode of transportation. It may contain one or more values from user-defined Table 0009, *Ambulatory Status*. If the patient's ambulatory status is not known, this field is not populated.

Value	Description
A0	No functional limitations
A2	Wheelchair/stretcher bound
B6	Pregnant

Note: VistA populates this field with the value **B6** to indicate that the patient is pregnant.

PV1-16-VIP Indicator

This field is used to indicate that the patient is an employee, or that patient record is sensitive and should not be made available for general personnel access. If one of these conditions applies, VistA populates this field with one of the following values from user-defined Table 0099, *VIP Indicator*.

Value	Description
E	Patient is a VA employee
S	Patient record is sensitive
ES	Patient is a VA employee and patient record is sensitive

PV1-19-Visit

The value of this field depends on whether the patient is an inpatient or an outpatient at the time of message generation.

- For inpatients, this field contains **I** concatenated with the inpatient visit number from the VistA PIMS package.
- For outpatients, this field contains **O** concatenated with an integer representing today's date.

PV1-44-Admit Date/Time

This is the date and time when the patient was admitted (if the patient is an inpatient) or when the current encounter began (if the patient is an outpatient).

PV1-45-Discharge Date/Time

This is the date and time when the patient was discharged (if the patient was an inpatient and has been discharged) or when the current encounter ended (if the patient is an outpatient and the current encounter is complete).

2.6.6 ROL Segment Fields

ROL-1-Role Instance ID

This is the ordinal number of this occurrence of the ROL Segment under the PV1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

ROL-2-Action Code

This field will always be valued **UP**, which indicates that the receiving system should update its database with the information contained in the ROL Segment(s) being sent in the current message.

ROL-3-Role

This field indicates the involvement with the activity being transmitted.

The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component *PID-10.1-Identifier* is valued **AT** to indicate the attending physician and **RP** to indicate the referring physician.

ROL-4-Role Person

This is the name of the person (physician) whose information is being transmitted. Its structure is identical to that of PV1-7-Attending Doctor and PV1-8-Referring Doctor.

ROL-12-Phone

This is the telephone number of the person (physician) whose information is being transmitted. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

ROL-12.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

ROL-12.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

ROL-12.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax

BP	Beeper

2.6.7 DG1 Segment Fields

DG1-1-Set ID

This is the ordinal number of this occurrence of the DG1 Segment under the PV1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

DG1-3-Diagnosis Code

This field is of data type CE (Coded Element), which contains 6 components. Only the second component, "Text", is populated. It contains the name of the diagnosis.

DG1-6-Diagnosis Type

This field is of data type IS (coded value for user-defined tables). It will contain one of the following values from user-defined Table 0052, *Diagnosis Type*.

Value	Description	Comment
A	Admitting	The diagnosis associated with the patient admission
W	Working	A diagnosis associated with any patient movement besides the admission

2.6.8 OBX Segment Fields

OBX-2-Value Type

This field contains the data type of the information carried in *OBX-5-Observation Value*. It is populated with the value **ST** from HL7 Table 0125, *Value Type*.

OBX-3-Observation Identifier

This field classifies the kind of information carried in *OBX-5-Observation Value.* Its data type is CE, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	X	[0..0]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

In the ADT message, Component 2, Text, will contain either **HEIGHT** or **WEIGHT**. Other components are not populated.

OBX-5-Observation Value

This field contains the actual value whose data type is given in *OBX-2-Value Type* and whose classification is given in *OBX-3-Observation Identifier*. Its formatting follows the rules for the data type given in OBX-2.

OBX-6-Units

This field contains the units of the observation. Its data type is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Components 1, *Identifier*, and 2, *Text*, are populated as follows.

Identifier	Text
m	meter
kg	kilogram

Component 3 is always valued **ISO+**, indicating the use of units of measure from ISO Standard 2955-1983.

OBX-11-Observation Result Status

This field is of data type ID. In the ADT message, it is populated with the value **F** (final results) from HL7 Table 0085, *Observation Result Status Codes Interpretation.*

2.6.9 AL1 Segment Fields

AL1-1-Set ID

This is the ordinal number of this occurrence of the AL1 Segment. The first occurrence is labeled **1**, the second **2**, and so on.

AL1-2-Allergy Type

This field indicates whether the allergy is to a drug and/or food. VistA shall populate this field with one of the following values from user-defined Table 0127, *Allergy Type*.

Value	Description
D	Drug allergy
DF	Drug/food allergy
DFO	Drug/food/other allergy

Value	Description
DO	Drug/other allergy
F	Food allergy
FO	Food/other allergy
O	Other allergy

AL1-3-Allergy Code/Mnemonic/Description

The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	X	[0..0]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component 2, Text, is valued with the name of the allergy. Other components are not valued.

AL1-5-Allergy Reaction

This field contains reactions related to this allergy.

AL1-6-Identification Date

This field contains the date that the allergy was verified.

2.6.10 MSA Segment Fields

MSA-1-Acknowledgment Code

This field indicates whether the message was processed successfully. Original mode acknowledgment shall be used. PACS shall populate this field with one of the following values from HL7 Table 0008, *Acknowledgment Code*.

Value	Description
AA	Application Accept
AE	Application Error
AR	Application Reject

MSA-2-Message Control ID

This field contains the value of *MSH-10-Message Control ID* from the message being acknowledged.

MSA-3-Text Message

This field contains a narrative description of the error found in the message. It is preferred that *ERR-1-Error Code and Location* be used to communicate precise error information.

MSA-6-Error Condition

This field contains an encoded description of the error found in the message. It is preferred that *ERR-1-Error Code and Location* be used to communicate precise error information.

Data type CE is used for this field, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	RE	[0..1]	0357	Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	RE	[0..1]		Name of Coding System
4	250	ST	RE	[0..1]		Alternate Identifier
5	250	ST	RE	[0..1]		Alternate Text
6	250	ST	RE	[0..1]		Name of Alternate Coding System

Error condition codes are defined in HL7 Table 0357, *Message Error Condition.* If HL7 Table 0357 is used, the code shall be sent in Component 1, the description in Component 2, and the text **HL70357** in Component 3.

2.6.11 ERR Segment Fields

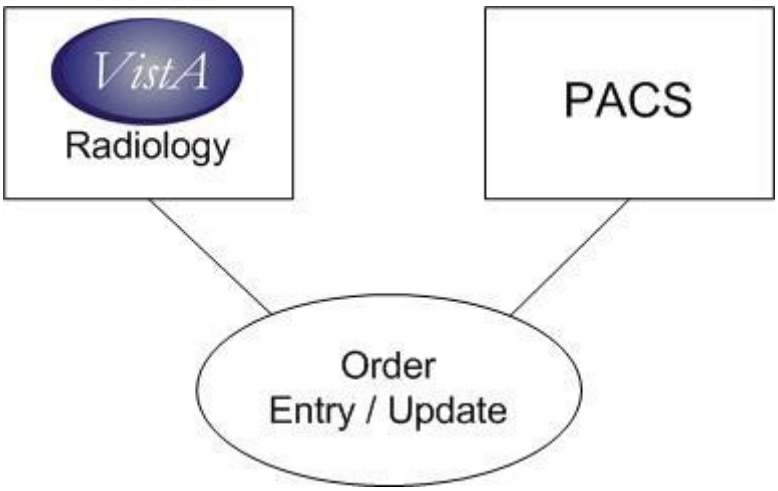
Refer to Section 1.6.10, ERR Segment Fields, for a more detailed explanation of the ERR fields used in VistA messaging.

3 Order Entry/Update Profile

3.1 Use Case

3.1.1 Scope

This transaction is used by VistA Radiology to inform PACS of a new order. It also allows VistA Radiology to inform PACS that an order has been cancelled or otherwise updated.



3.1.2 Actors and Roles

Actor: VistA Radiology

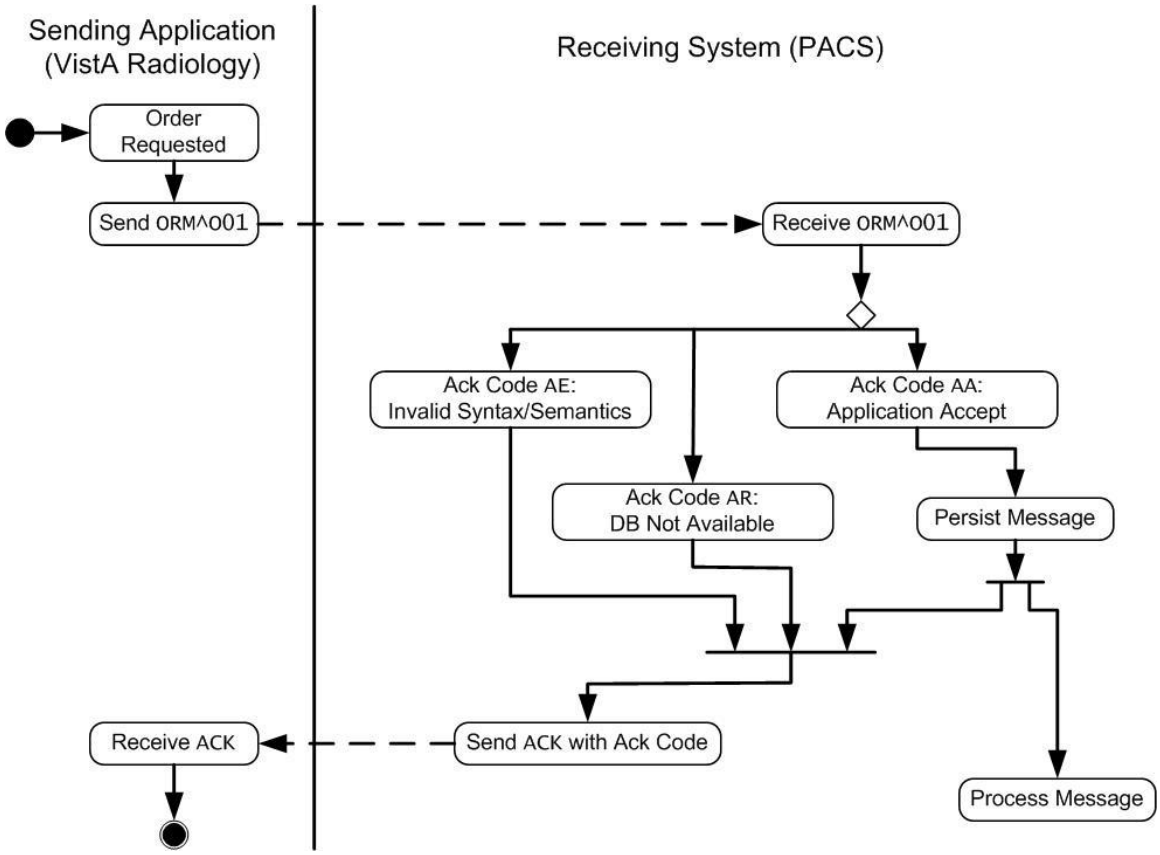
Role: Notifies ancillary VistA Modules and clinical systems when VistA Radiology orders have been placed or updated.

Actor: PACS

Role: Receives order entry and update messages. Optionally, maintains the DICOM Modality Worklist.

3.2 Interactions

The actors in this use case shall perform the behaviors shown in the following activity diagram.



3.3 Dynamic Definition

Vista and PACS shall generate and process HL7 messages according to the following functional and business requirements.

3.3.1 Order Message (ORM)

VistA Radiology shall transmit an ORM message to PACS upon order entry or when an order is updated.

PACS shall process the message in conformance with the following requirements.

Note:	A Vista **Case**, identified by a Case Number, corresponds to one DICOM Imaging Service Request. A Vista Case causes the generation of one Vista **Order**, which corresponds to one DICOM Requested Procedure. A Vista Order, however, can have multiple Vista **Procedure Modalities**. Each Vista Procedure Modality corresponds to one DICOM Scheduled Procedure Step. For example, a Vista Order for a barium enema may require both a computerized radiography (CR) Procedure Modality and a radio fluoroscopy (RF) Procedure Modality.

3.3.1.1 New Order – Case, Study Instance UID and MRN Not Found

When PACS receives an order message containing order control code NW for a case and Study Instance UID not now in its system for a patient for which it does

not find an MRN in its system, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above), and the Basic Order Data Set (see Section 0.3 above).

3.3.1.2 New Order – Case and Study Instance UID Not Found, MRN Found

When PACS receives an order message containing order control code NW for a case and Study Instance UID not now in its system for a patient for which it finds an MRN already in its system, PACS will verify that name, sex, and DOB exactly match what is already in its system: if so, PACS will extract from the HL7 message, and will store in its system, the data contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above), and the Basic Order Data Set (see Section 0.3 above); if not, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not file the order. At the present time, application acknowledgment details may be sent in MSA-3, MSA-6, or ERR-1; however, MSA-3 and MSA-6 will be phased out in the near future. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.3 New Order – Case and Study Instance UID Found, MRN Does Not Match

When PACS receives an order message containing order control code NW for a case and Study Instance UID already in its system for which the MRN does not match the MRN in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing acknowledgement code AE and giving details of the error in the ERR segment, containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.4 New Study for Existing Order – Case and MRN Found, Study Instance UID Does Not Match

When PACS receives an order message containing order control code NW for a case and MRN already in its system for which the Study Instance UID does not match a Study Instance UID currently associated with this study in its system, PACS will verify that name, sex, and DOB exactly match what is already in its system: if so, PACS will extract from the HL7 message, and will store in its system as a new study for the same case, the data contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above), and the Basic Order Data Set (see Section 0.3 above); if not, PACS will notify the sending system of the anomaly(ies) via an HL7 application

acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not file a new study or otherwise alter the existing case information. At the present time, application acknowledgment details may be sent in MSA-3, MSA-6, or ERR-1; however, MSA-3 and MSA-6 will be phased out in the near future. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.5 New Order – Case, Study Instance UID and Matching MRN Found, Orderable Item Code Does Not Match

If PACS asserts support for the DICOM Modality Worklist Provider, then when PACS receives an order message containing order control code NW for a case, study instance UID and MRN already in its system for which the orderable item code does not match the orderable item code on the case in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.6 Order Cancellation – Case and Matching MRN Found

When PACS receives an order message containing order control code CA for a case and MRN already in its system, PACS will cancel the order if no image acquisition has occurred. The order record will not be deleted, but rather marked as cancelled and removed from the DICOM Modality Worklist. If images have been acquired, PACS retains the already-acquired images as part of the legal record. PACS is responsible for notifying support staff and users as needed that images have already been acquired for this cancelled order.

3.3.1.7 Order Cancellation – Case Found, MRN and/or Study Instance UID Do Not Match

When PACS receives an order message containing order control code CA for a case already in its system for which the MRN and/or Study Instance UID does not match the MRN and Study Instance UID in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not cancel or otherwise update any order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.8 Order Cancellation – Case Found, DOB, Sex or Name Do Not Match

When PACS receives an order message containing order control code CA for a case already in its system for which the date of birth, sex and/or name does not match the date of birth, sex and name in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not cancel or otherwise update any order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.9 Order Cancellation – Case and Matching MRN Not Found

When PACS receives an order message containing order control code CA for a case and MRN not already in its system, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above), and the Basic Order Data Set (see Section 0.3 above). PACS will record the status of the order as Cancelled.

3.3.1.10 Patient Examined – Case and Matching MRN Found

When PACS receives an order message containing order control code XO and order status IP or CM for a case, Study Instance UID and MRN already in its system, PACS will update the status of the order to Examined.

3.3.1.11 Patient Examined – Case Not Found

When PACS receives an order message containing order control code XO and order status IP or CM for a case and Study Instance UID not now in its system, PACS will extract from the HL7 message, and will store in its system, the information contained in the Basic Patient Data Set (see Section 0.1 above) and the Basic Visit Data Set (see Section 0.2 above), and the Basic Order Data Set (see Section 0.3 above). PACS will record the status of the order as Examined.

3.3.1.12 Patient Examined – Case Found, MRN and/or Study Instance UID Do Not Match

When PACS receives an order message containing order control code XO and order status IP or CM for a case already in its system for which the MRN and/or Study Instance UID does not match the MRN and Study Instance UID in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.13 Patient Examined – Case Found, DOB, Sex or Name Do Not Match

When PACS receives an order message containing order control code XO and order status IP or CM for a case already in its system for which the date of birth, sex and/or name does not match the date of birth, sex and name in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.14 Patient Examined – Case and Matching MRN Found, Orderable Item Code Does Not Match

When PACS receives an order message containing order control code XO and order status IP or CM for a case and MRN already in its system for which the orderable item code does not match the orderable item code on the case in its system, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **204** (unknown key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.15 New or Updated Order – Study Instance UID To Be Assigned from ZDS Segment

When PACS receives an order message containing order control code NW or XO and there is no previous case assigned to this study instance UID, it shall assign the study instance UID from the ZDS segment to the case that it files on its system. The study instance UID shall be placed in the DICOM header of all images acquired for this study. It shall be available for queries. If there is a previous case already in PACS for which this study instance UID is assigned, then PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment containing a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 above, including code **205** (duplicate key identifier) in component 4, and will not update the order. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.1.16 New Order –VistA Code To Be Stored, CPT Code May Be Stored

When PACS receives an order message containing order control code NW or XO and there is no previous order on file for this case, PACS shall store the VistA Radiology order code for the orderable item from field OBR-4. PACS may also store the CPT code from field OBR-4, but is not required to do so.

3.3.1.17 Order Received and Filed for Pregnant Patient

When PACS receives and files an order message for a patient whose Ambulatory Status value in PV1-15 contains **B6** (pregnant), PACS shall record that the patient is pregnant.

3.3.1.18 Order Received and Filed for Sensitive/Employee Patient

When PACS receives and files an order message for a patient whose VIP Indicator value in PV1-16 is set to **E** (employee) or **S** (sensitive), PACS shall store the value and shall safeguard the identity of the patient using VA rules for suppressing patient name and other identifying information.

3.3.1.19 Order or Order Update Received – More than 1 Value for Same Identifier

When PACS receives an order or order update message containing more than one value for the MRN, PACS will notify the sending system of the anomaly(ies) via an HL7 application acknowledgment and will not update any patient record. The application acknowledgment shall contain a value of **AE** (application error) in field *MSA-1-acknowledgment code* and a fully populated occurrence of *ERR-1-error code and location*, as described in Section 1.6.10 below, including code **207** (application internal error) in component 4. PACS is responsible for notifying support staff and users of anomalies as needed.

3.3.2 Acknowledgment Message (ACK)

3.3.2.1 Original Mode ACK To Be Returned

PACS shall return an ACK application acknowledgment, as defined in the HL7 Standard and prescribed by the IHE Radiology Technical Framework. The trigger event of the acknowledgment message shall be equal to the trigger event of the message that was received.

3.3.2.2 ERR Segment To Be Sent for AE and AR Conditions

When an error is determined to have occurred, PACS shall return the acknowledgment code **AE** (Application Error) or **AR** (Application Reject) as appropriate, and shall populate Field *ERR-1-error code and location* with the relevant error information including the appropriate error code from HL7 Table 0357. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

3.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject

If the value received in *MSH-9.1-message type, MSH-9.2-trigger event, MSH-11-processing code*, or *MSH-12-version ID* is invalid, the value **AR** (application

reject) shall be returned in *MSA-1-acknowledgment code*, and the appropriate value from HL7 Table 0357 shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

3.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error

If the value received in *MSH-5-receiving application* or *MSH-6-receiving facility* is invalid, the value **AE** (application error) shall be returned in *MSA-1-acknowledgment code*, and the value **103** (table value not found) shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

3.4 Static Definition – Message Level

HL7 messages shall be populated and processed according to the following abstract message definitions.

3.4.1 Order Message

Segment	ORM Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
[{ NTE }]	Notes and Comments (for Header)	X	[0..0]	2
[				
PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
[{ NTE }]	Notes and Comments (for Patient ID)	X	[0..0]	2
[PV1	Patient Visit	R	[1..1]	3
[PV2]]	Patient Visit – Additional Info.	X	[0..0]	3
[{ IN1	Insurance	X	[0..0]	6
[IN2]	Insurance Additional Info.	X	[0..0]	6
[[IN3]]	Insurance Additional Info. – Cert.	X	[0..0]	6
[{ GT1 }]	Guarantor	X	[0..0]	6
[{ AL1 }]	Allergy Information	X	[0..0]	3
]				
{ ORC	Common Order	R	[1..1]	4
[OBR	Observation Request	R	[1..1]	4
ZDS	Additional Identification Information	R	[1..1]	‡
[{ NTE }]	Notes and Comments (for Detail)	X	[0..0]	2
[{ DG1 }]	Diagnosis	X	[0..0]	6
[{ OBX	Observation/Result	RE	[0..999]	7
[{ NTE }]	Notes and Comments (for Results)	X	[0..0]	2
}]]				

‡ This segment is defined in IHE Rad-TF Transaction 4 (Procedure Scheduled).

Segment	ORM Message	Usage	Cardinality	HL7 Chapter
{ [CTI] }	Clinical Trial Information	X	[0..0]	7
[BLG]	Billing Segment	X	[0..0]	4
}				

3.4.2 Acknowledgment Message

Segment	ACK Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[ERR]	Error	RE	[0..1]	2

3.5 Static Definition – Segment Level

Fields in HL7 messages shall be populated and processed according to the following Segment Attribute Tables.

3.5.1 MSH Segment

Refer to the definition in Section 1.5.1, MSH Segment, for a listing of all the fields defined for the MSH segment in HL7.

Refer to Section 3.6.1, MSH Segment Fields, for a more detailed explanation of the fields used by VistA.

3.5.2 PID Segment

The following is a listing of all the fields defined for the PID Segment in HL7, and their usage in the order message. Refer to Section 3.6.2, PID Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00104	Set ID - PID
2	20	CX	R	[1..1]		00105	Patient ID
3	250	CX	R	[1..1]		00106	Patient Identifier List
4	20	CX	R	[1..1]		00107	Alternate Patient ID - PID
5	250	XPN	R	[1..1]		00108	Patient Name
6	250	XPN	X	[0..0]		00109	Mother's Maiden Name
7	26	TS	RE	[0..1]		00110	Date/Time of Birth
8	1	IS	RE	[0..1]	0001	00111	Sex
9	250	XPN	X	[0..0]		00112	Patient Alias
10	250	CE	RE	[0..1]	0005	00113	Race
11	250	XAD	RE	[0..1]		00114	Patient Address
12	4	IS	X	[0..0]	0289	00115	County Code

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
13	250	XTN	RE	[0..1]		00116	Phone Number - Home
14	250	XTN	RE	[0..1]		00117	Phone Number - Business
15	250	CE	X	[0..0]	0296	00118	Primary Language
16	250	CE	X	[0..0]	0002	00119	Marital Status
17	250	CE	X	[0..0]	0006	00120	Religion
18	250	CX	X	[0..0]		00121	Patient Account Number
19	16	ST	R	[1..1]		00122	SSN Number - Patient
20	25	DLN	X	[0..0]		00123	Driver's License Number - Patient
21	250	CX	X	[0..0]		00124	Mother's Identifier
22	250	CE	RE	[0..1]	0189	00125	Ethnic Group
23	250	ST	X	[0..0]		00126	Birth Place
24	1	ID	X	[0..0]	0136	00127	Multiple Birth Indicator
25	2	NM	X	[0..0]		00128	Birth Order
26	250	CE	X	[0..0]	0171	00129	Citizenship
27	250	CE	X	[0..0]	0172	00130	Veterans Military Status
28	250	CE	X	[0..0]	0212	00739	Nationality
29	26	TS	X	[0..0]		00740	Patient Death Date and Time
30	1	ID	X	[0..0]	0136	00741	Patient Death Indicator
31	1	ID	X	[0..0]	0136	01535	Identity Unknown Indicator
32	20	IS	X	[0..0]	0445	01536	Identity Reliability Code
33	26	TS	X	[0..0]		01537	Last Update Date/Time
34	40	HD	X	[0..0]		01538	Last Update Facility
35	250	CE	X	[0..0]	0446	01539	Species Code
36	250	CE	X	[0..0]	0447	01540	Breed Code
37	80	ST	X	[0..0]		01541	Strain
38	250	CE	X	[0..0]	0429	01542	Production Class Code

3.5.3 PV1 Segment

The following is a listing of all the fields defined for the PV1 Segment in HL7, together with their usage in the VistA order message. Refer to Section 3.6.3, PV1 Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00131	Set ID - PV1
2	1	IS	R	[1..1]	0004	00132	Patient Class
3	80	PL	C	[0..1]		00133	Assigned Patient Location
4	2	IS	X	[0..0]	0007	00134	Admission Type
5	250	CX	X	[0..0]		00135	Preadmit Number
6	80	PL	X	[0..0]		00136	Prior Patient Location
7	250	XCN	CE	[0..1]	0010	00137	Attending Doctor
8	250	XCN	RE	[0..1]	0010	00138	Referring Doctor
9	250	XCN	X	[0..0]	0010	00139	Consulting Doctor
10	30	IS	C	[0..1]	0069	00140	Hospital Service
11	80	PL	X	[0..0]		00141	Temporary Location
12	2	IS	X	[0..0]	0087	00142	Preadmit Test Indicator
13	2	IS	X	[0..0]	0092	00143	Re-admission Indicator
14	6	IS	X	[0..0]	0023	00144	Admit Source
15	2	IS	RE	[0..2]	0009	00145	Ambulatory Status
16	2	IS	RE	[0..1]	0099	00146	VIP Indicator

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
17	250	XCN	X	[0..0]	0010	00147	Admitting Doctor
18	2	IS	X	[0..0]	0018	00148	Patient Type
19	250	CX	R	[1..1]		00149	Visit Number
20	50	FC	X	[0..0]	0064	00150	Financial Class
21	2	IS	X	[0..0]	0032	00151	Charge Price Indicator
22	2	IS	X	[0..0]	0045	00152	Courtesy Code
23	2	IS	X	[0..0]	0046	00153	Credit Rating
24	2	IS	X	[0..0]	0044	00154	Contract Code
25	8	DT	X	[0..0]		00155	Contract Effective Date
26	12	NM	X	[0..0]		00156	Contract Amount
27	3	NM	X	[0..0]		00157	Contract Period
28	2	IS	X	[0..0]	0073	00158	Interest Code
29	1	IS	X	[0..0]	0110	00159	Transfer to Bad Debt Code
30	8	DT	X	[0..0]		00160	Transfer to Bad Debt Date
31	10	IS	X	[0..0]	0021	00161	Bad Debt Agency Code
32	12	NM	X	[0..0]		00162	Bad Debt Transfer Amount
33	12	NM	X	[0..0]		00163	Bad Debt Recovery Amount
34	1	IS	X	[0..0]	0111	00164	Delete Account Indicator
35	8	DT	X	[0..0]		00165	Delete Account Date
36	3	IS	X	[0..0]	0112	00166	Discharge Disposition
37	25	CM	X	[0..0]	0113	00167	Discharged to Location
38	250	CE	X	[0..0]	0114	00168	Diet Type
39	2	IS	X	[0..0]	0115	00169	Servicing Facility
40	1	IS	X	[0..0]	0116	00170	Bed Status
41	2	IS	X	[0..0]	0117	00171	Account Status
42	80	PL	X	[0..0]		00172	Pending Location
43	80	PL	X	[0..0]		00173	Prior Temporary Location
44	26	TS	X	[0..0]		00174	Admit Date/Time
45	26	TS	X	[0..0]		00175	Discharge Date/Time
46	12	NM	X	[0..0]		00176	Current Patient Balance
47	12	NM	X	[0..0]		00177	Total Charges
48	12	NM	X	[0..0]		00178	Total Adjustments
49	12	NM	X	[0..0]		00179	Total Payments
50	250	CX	X	[0..0]	0203	00180	Alternate Visit ID
51	1	IS	X	[0..0]	0326	01226	Visit Indicator
52	250	XCN	X	[0..0]	0010	01274	Other Healthcare Provider

3.5.4 ORC Segment

The following is a listing of all the fields defined for the ORC Segment in HL7. Refer to Section 3.6.4, ORC Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	2	ID	R	[1..1]	0119	00215	Order Control
2	22	EI	R	[1..1]		00216	Placer Order Number
3	22	EI	R	[1..1]		00217	Filler Order Number
4	22	EI	X	[0..0]		00218	Placer Group Number

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
5	2	ID	R	[1..1]	0038	00219	Order Status
6	1	ID	X	[0..0]	0121	00220	Response Flag
7	200	TQ	R	[1..1]		00221	Quantity/Timing
8	200	CM	RE	[0..1]		00222	Parent
9	26	TS	R	[1..1]		00223	Date/Time of Transaction
10	250	XCN	R	[1..1]		00224	Entered By
11	250	XCN	X	[0..0]		00225	Verified By
12	250	XCN	RE	[0..1]		00226	Ordering Provider
13	80	PL	RE	[0..1]		00227	Enterer's Location
14	250	XTN	RE	[0..8]		00228	Call Back Phone Number
15	26	TS	X	[0..0]		00229	Order Effective Date/Time
16	250	CE	X	[0..0]		00230	Order Control Code Reason
17	250	CE	RE	[0..1]		00231	Entering Organization
18	250	CE	X	[0..0]		00232	Entering Device
19	250	XCN	X	[0..0]		00233	Action By
20	250	CE	X	[0..0]	0339	01310	Advanced Beneficiary Notice Code
21	250	XON	X	[0..0]		01311	Ordering Facility Name
22	250	XAD	X	[0..0]		01312	Ordering Facility Address
23	250	XTN	X	[0..0]		01313	Ordering Facility Phone Number
24	250	XAD	X	[0..0]		01314	Ordering Provider Address
25	250	CWE	X	[0..0]		01473	Order Status Modifier

3.5.5 OBR Segment

The following is a listing of all the fields defined for the OBR Segment in HL7. Refer to Section 3.6.5, OBR Segment Fields, for a more detailed explanation of the fields used in the VistA order message.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00237	Set ID - OBR
2	22	EI	R	[1..1]		00216	Placer Order Number
3	22	EI	R	[1..1]		00217	Filler Order Number
4	250	CE	R	[1..1]		00238	Universal Service Identifier
5	2	ID	R	[1..1]		00239	Priority - OBR
6	26	TS	X	[0..0]		00240	Requested Date/Time
7	26	TS	X	[0..0]		00241	Observation Date/Time
8	26	TS	X	[0..0]		00242	Observation End Date/Time
9	20	CQ	X	[0..0]		00243	Collection Volume
10	250	XCN	X	[0..0]		00244	Collector Identifier
11	1	ID	X	[0..0]	0065	00245	Specimen Action Code
12	250	CE	X	[0..0]		00246	Danger Code
13	300	ST	X	[0..0]		00247	Relevant Clinical Information
14	26	TS	X	[0..0]		00248	Specimen Received Date/Time
15	300	CM	RE	[0..1]	0070 0163 0369	00249	Specimen Source
16	250	XCN	R	[1..1]		00226	Ordering Provider
17	250	XTN	RE	[0..8]		00250	Order Callback Phone Number
18	60	ST	R	[1..1]		00251	Placer Field 1
19	60	ST	R	[1..1]		00252	Placer Field 2
20	60	ST	R	[1..1]		00253	Filler Field 1
21	60	ST	R	[1..1]		00254	Filler Field 2

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
22	26	TS	X	[0..0]		00255	Results Rpt/Status Chng - Date/Time
23	40	CM	X	[0..0]		00256	Charge to Practice
24	10	ID	RE	[0..1]	0074	00257	Diagnostic Serv Sect ID
25	1	ID	X	[0..0]	0123	00258	Result Status
26	400	CM	X	[0..0]		00259	Parent Result
27	200	TQ	R	[1..1]		00221	Quantity/Timing
28	250	XCN	X	[0..0]		00260	Result Copies To
29	200	CM	RE	[0..1]		00222	Parent
30	20	ID	RE	[0..1]	0124	00262	Transportation Mode
31	250	CE	RE	[0..1]		00263	Reason for Study
32	200	CM	X	[0..0]		00264	Principal Result Interpreter
33	200	CM	X	[0..0]		00265	Assistant Result Interpreter
34	200	CM	X	[0..0]		00266	Technician
35	200	CM	X	[0..0]		00267	Transcriptionist
36	26	TS	X	[0..0]		00268	Scheduled Date/Time
37	4	NM	X	[0..0]		01028	Number of Sample Containers
38	250	CE	X	[0..0]		01029	Transport Logistics of Collected Sample
39	250	CE	X	[0..0]		01030	Collector's Comment
40	250	CE	X	[0..0]		01031	Transport Arrangement Responsibility
41	30	ID	X	[0..0]	0224	01032	Transport Arranged
42	1	ID	X	[0..0]	0225	01033	Escort Required
43	250	CE	X	[0..0]		01034	Planned Patient Transport Comment
44	250	CE	X	[0..0]	0088	00393	Procedure Code
45	250	CE	X	[0..0]	0340	01316	Procedure Code Modifier
46	250	CE	X	[0..0]	0411	01474	Placer Supplemental Service Information
47	250	CE	X	[0..0]	0411	01475	Filler Supplemental Service Information

3.5.6 ZDS Segment

The following is a listing of all the fields defined for the ZDS Segment in HL7. Refer to Section 3.6.6, ZDS Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	200	RP	R	[1..1]			Study Instance UID

3.5.7 OBX Segment

In the order message, the OBX Segment is used to communicate ancillary order information including history. The following is a listing of all the fields defined for the OBX Segment in HL7. Refer to Section 3.6.7, OBX Segment Fields, for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00569	Set ID – OBX
2	2	ID	R	[1..1]	0125	00570	Value Type
3	250	CE	R	[1..1]		00571	Observation Identifier

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
4	20	ST	X	[0..0]		00572	Observation Sub-ID
5	65536[§]		R	[1..4]		00573	Observation Value
6	250	CE	CE	[0..1]		00574	Units
7	60	ST	X	[0..0]		00575	Reference Range
8	5	IS	X	[0..0]	0078	00576	Abnormal Flags
9	5	NM	X	[0..0]		00577	Probability
10	2	ID	X	[0..0]		00578	Nature of Abnormal Test
11	1	ID	R	[1..1]	0085	00579	Observation Result Status
12	26	TS	X	[0..0]		00580	Date Last Observation Normal Value
13	20	ST	X	[0..0]		00581	User Defined Access Checks
14	26	TS	X	[0..0]		00582	Date/Time of the Observation
15	250	CE	X	[0..0]		00583	Producer's ID
16	250	XCN	X	[0..0]		00584	Responsible Observer
17	250	CE	X	[0..0]		00936	Observation Method
18	22	EI	X	[0..0]		01479	Equipment Instance Identifier
19	26	TS	X	[0..0]		01480	Date/Time of the Analysis

3.5.8 MSA Segment

Refer to Section 1.5.9, MSA Segment, for a listing of all the fields defined for the MSA segment in HL7.

Refer to the Section 1.6.9, MSA Segment Fields, for a more detailed explanation of the fields used by VistA.

3.5.9 ERR Segment

Refer to the definitions in Section 1.5.10, ERR Segment, for a listing of all the fields defined for the ERR segment in HL7.

Refer to Section 1.6.10, ERR Segment Fields, for a more detailed explanation of the fields used by VistA.

3.6 Static Definition – Field Level

3.6.1 MSH Segment Fields

MSH-1-Field Separator

This field contains the top-level delimiter for HL7 elements within segments.

MSH-2-Encoding Characters

This field contains the component separator (secondary element delimiter), repetition separator, escape character, and subcomponent separator (tertiary element delimiter).

[§] The length and data type of this field are variable, depending on *OBX-2-Value Type*.

MSH-3-Sending Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA order message, the first component of this field shall be populated with the value **RA-SERVER-IMG** from user-defined Table 0361, *Sending/Receiving Application*. PACS shall return this value in component MSH-5.1 of the acknowledgment message. The second and third components of MSH-3 are not valued.

MSH-4-Sending Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was generated. PACS shall return this value in component MSH-6.1 of the acknowledgment message. The second and third components of MSH-4 are not valued.

MSH-5-Receiving Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0361, *Sending/Receiving Application*, with the name of the PACS application. PACS shall return this value in component MSH-3.1 of the acknowledgment message. The second and third components of MSH-5 are not valued.

MSH-6-Receiving Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was received. PACS shall return this value in field MSH-4 of the acknowledgment message. The second and third components of MSH-6 are not valued.

MSH-7-Date/Time of Message

This field contains the date and time that the sending system built the message.

MSH-9-Message Type

This field is of data type CM. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ID	R	[1..1]	0076	Message Type
2	3	ID	R	[1..1]	0003	Trigger Event
3	7	ID	X	[0..0]	0354	Message Structure

The components used by VistA are defined as follows.

MSH-9.1-Message Type

This component contains a value from HL7 Table 0076, *Message Type*. For the order message, it will always contain the value **ORM**.

MSH-9.2-Trigger Event

This component contains a value from HL7 Table 0003, *Event Type*. For the order message, it will always contain the value **O01** (oh zero one).

MSH-10-Message Control ID

This field will contain a unique identifier for the message.

MSH-11-Processing ID

This field is of type PT, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	1	ID	R	[1..1]	0103	Processing ID
2	1	ID	RE	[0..1]	0207	Processing Mode

The components used by VistA are defined as follows.

MSH-11.1-Processing ID

This field contains one of the following values from HL7 Table 0103, *Processing ID.*

Value	Description
P	Production
D	Debugging
T	Training

MSH-11.2-Processing Mode

This field contains one of the following values from HL7 Table 0207, *Processing Mode*.

Value	Description
A	Archive
R	Restore from archive
I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
not present	Not present (the default, meaning *current* processing)

MSH-12-Version ID

This field is of type VID, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ID	R	[1..1]	0104	Version ID
2	250	CE	X	[0..0]		Internationalization Code
3	250	CE	X	[0..0]		Internal Version ID

This field's first component will always contain the value **2.3.1** from HL7 Table 0104, *Version ID*. Although the VistA message pre-adopts certain Version 2.4 structures, such as the ROL segment, receivers that are unable to recognize Version 2.4 may use Version 2.3.1 syntax rules as prescribed by IHE. It is expected that receivers not now using HL7 Version 2.3.1 will be able to process the V2.3.1 messages according to the HL7 rules for backward compatibility. At such time as IHE is revised to a later version of HL7, receivers will be expected to adapt to the new structures within a stated period of time following the revision.

Other components of this field will not be used.

MSH-17-Country Code

This field is of type ID. It will always contain the value **USA** from the ISO 3166 country code table.

3.6.2 PID Segment Fields

PID-2-Patient ID

Field PID-2 contains the SITE-DFN value, the station number and patient file internal entry number (the latter also known as DFN). (This is a secondary patient identifier. For the primary patient identifier, use the Medical Record Number from PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List.) This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List

Field PID-3 is used to transmit the patient Medical Record Number (MRN). In the VA, the value of the MRN is the Social Security Number (SSN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-3.1-ID

This is the Social Security Number.

PID-3.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-3.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-3.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-3.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-4-Alternate Patient ID

Field PID-4 contains the patient Integration Control Number (ICN). (The Integration Control Number is a secondary patient identifier. For the primary patient identifier, use the Medical Record Number from PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List.) This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-4.1-ID

This is the alphanumeric identification string.

PID-4.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-4.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-4.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-4.1-ID*. It will contain the value **NI**, meaning National unique individual identifier, from user-defined Table 0203, *Identifier Type*.

PID-5-Patient Name

This field is of data type XPN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	35	FN	R	[1..1]		Family Name
2	35	ST	R	[1..1]		Given Name
3	35	ST	RE	[0..1]		Middle Initial or Name
4	10	ST	RE	[0..1]		Suffix
5	10	ST	RE	[0..1]		Prefix
6	10	IS	RE	[0..1]	0360	Degree
7	10	ID	R	[1..1]	0200	Name Type Code
8	10	ID	X	[0..0]	4000	Name Representation Code

Component 7, Name Type Code, indicates the type of name given in Components 1-6, such as legal, birth name, or alias. At present, VistA only uses name type **L** (legal).

PID-7-Date/Time of Birth

This is the date and time that the patient was born, as far as is known. It may be as imprecise as the four-digit birth year (*e.g.*, **1962**).

PID-8-Sex

This field contains the sex of the patient. It is populated with one of the following values from user-defined Table 0001, *Sex*, if a value is known.

Value	Description
F	Female
M	Male
U	Unknown

PID-10-Race

This field contains a code for the patient's race. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-10.1-Identifier

This component contains the RACE INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0005, *Race*.

PID-10.3-Name of Coding System

The value of this component shall be **0005**.

PID-10.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER

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
9999-4	UNKNOWN BY PATIENT

PID-10.6-Name of Coding System

This component shall be populated **CDC**.

PID-11-Patient Address

This field contains the patient's address. It is of data type XAD, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	RE	[0..1]		Street Address
2	250	ST	RE	[0..1]		Other Designation
3	250	ST	RE	[0..1]		City
4	250	ST	RE	[0..1]		State or Province
5	250	ST	RE	[0..1]		ZIP or Postal Code
6	20	ID	X	[0..0]		Country
7	20	ID	X	[0..0]	0190	Address Type
8	250	ST	X	[0..0]		Other Geographic Designation
9	20	IS	X	[0..0]	0289	County/Parish Code
10	20	IS	X	[0..0]	0288	Census Tract
11	20	ID	X	[0..0]	4000	Address Representation Code

PID-13-Phone Number – Home

This field contains the patient's home telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-13.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-13.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number

PID-13.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-14-Phone Number – Business

This field contains the patient's work telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

PID-14.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

PID-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
WPN	Work Number

PID-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-19-SSN Number – Patient

This field carries the patient Social Security Number, for backward compatibility with versions of HL7 prior to Version 2.3.1. The Social Security Number is a secondary patient identifier. For the primary patient identifier, use the Integration Control Number from PID-2-Patient ID

Field PID-2 contains the station number and patient file internal entry number (the latter also known as DFN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ID	R	[1..1]		ID
2	2	ST	X	[0..0]		Check Digit
3	250	CE	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
4	180	HD	R	[1..1]	0363	Assigning Authority
5	20	ID	R	[1..1]	0203	Identifier Type Code
6	180	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-2.1-ID

This is the station number and DFN (patient file internal entry number). The format of this component is `mmm-nnnnnnnn`, where `mmm` is the station number and `nnnnnnnn` (1-8 characters, not zero-filled) is the DFN.

PID-2.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-2.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-2.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-2.1-ID*. It will contain the value **PI**, meaning Patient identifier, from user-defined Table 0203, *Identifier Type*.

PID-3-Patient Identifier List.

PID-22-Ethnic Group

This field contains a code indicating whether the patient is of Hispanic descent. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	X	[0..0]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The following components are valued.

PID-22.1-Identifier

This component contains the ETHNICITY INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0189, *Ethnic Group*.

PID-22.3-Name of Coding System

The value of this component shall be **0189**.

PID-22.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
2135-2	HISPANIC OR LATINO
2186-5	NOT HISPANIC OR LATINO
9999-4	UNKNOWN BY PATIENT

PID-22.6-Name of Coding System

This component shall be populated **CDC**.

3.6.3 PV1 Segment Fields

PV1-2-Patient Class

This field designates whether the patient is an inpatient (**I**) or an outpatient (**O**).

PV1-3-Assigned Patient Location

For inpatients, this field designates the patient's location in the medical center. It is not valued for outpatients (see PV1-11-Temporary Location). The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	30	IS	R	[1..1]	0302	Point of Care
2	30	IS	R	[1..1]	0303	Room
3	30	IS	RE	[0..1]	0304	Bed
4	30	HD	X	[0..0]		Facility
5	30	IS	X	[0..0]	0306	Location Status
6	30	IS	X	[0..0]	0305	Person Location Type
7	30	IS	X	[0..0]	0307	Building
8	30	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description

VistA sends Component 1, Point of Care, as three subcomponents, of which the first is an internal entry number into the VistA WARD LOCATION File (#42), and the second is the name of the ward location; the third is the internal designator of the WARD LOCATION File and should be ignored.

PV1-7-Attending Doctor

This is the physician responsible for the care of the patient during the present encounter. VistA values this field for inpatient encounters only.

The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
5	250	ST	RE	[0..1]		Suffix
6	250	ST	RE	[0..1]		Prefix
7	10	IS	RE	[0..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-8-Referring Doctor

This is the physician that placed the order. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix
6	250	ST	RE	[0..1]		Prefix
7	10	IS	RE	[0..1]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

PV1-11-Temporary Location

For an outpatient, this field designates the patient's location in the medical center. It is not valued for an inpatient. The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	30	IS	R	[1..1]	0302	Point of Care
2	30	IS	R	[1..1]	0303	Room
3	30	IS	RE	[0..1]	0304	Bed
4	30	HD	X	[0..0]		Facility
5	30	IS	X	[0..0]	0306	Location Status

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
6	30	IS	X	[0..0]	0305	Person Location Type
7	30	IS	X	[0..0]	0307	Building
8	30	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description

VistA sends Component 1, Point of Care, as three subcomponents, of which the first is an internal entry number into the VistA WARD LOCATION File (#42), and the second is the name of the ward location; the third is the internal designator of the WARD LOCATION File and should be ignored.

PV1-10-Hospital Service

This is the treating specialty assigned to the patient with the most recent movement. VistA values this field for inpatient encounters only. When populated, it contains a value from user-defined Table 0069, *Hospital Service*; VistA sends values from the HOSPITAL LOCATION File (#44).

PV1-15-Ambulatory Status

This field indicates any permanent or transient conditions affecting the patient's mode of transportation. It may contain one or more values from user-defined Table 0009, *Ambulatory Status*. If the patient's ambulatory status is not known, this field is not populated.

Value	Description
A0	No functional limitations
A2	Wheelchair/stretcher bound
B6	Pregnant

Note: VistA populates this field with the value **B6** to indicate that the patient is pregnant.

The VistA RAD/NUC MED ORDERS File contains two fields that decide the values set into this field: PREGNANT and MODE OF TRANSPORT. Because of this fact, this field may repeat when the patient is both ambulatory and pregnant.

PV1-16-VIP Indicator

This field is used to indicate that the patient is an employee, or that patient record is sensitive and should not be made available for general personnel access. If one of these conditions applies, VistA populates this field with one of the following values from user-defined Table 0099, *VIP Indicator.*

Value	Description
E	Patient is a VA employee
S	Patient record is sensitive
ES	Patient is a VA employee and patient record is sensitive

PV1-19-Visit

The value of this field depends on whether the patient is an inpatient or an outpatient at the time of message generation.

- For inpatients, this field contains `I` concatenated with the inpatient visit number from the VistA PIMS package.
- For outpatients, this field contains `O` concatenated with an integer representing today's date.

3.6.4 ORC Segment Fields

ORC-1-Order Control

This field is of data type ID. It will contain one of the following values from HL7 Table 0119, *Order Control Codes*.

Value	Description
CA	Cancel order/service request
NW	New order/service
XO	Change order/service request

ORC-2-Placer Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "OR", concatenated with the internal entry number of the order. The elements of this field are separated by hyphens. Example: 688-OR-12345.

ORC-3-Filler Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "GMRC", concatenated with the internal entry number of the consult or procedure request. The elements of this field are separated by hyphens. Example: 688-GMRC-12345.

ORC-5-Order Status

This field is of data type ID. It will contain one of the following values from HL7 Table 0038, *Order Status*.

Value	Description
CA	Order was canceled
CM	Order is completed
IP	In process, unspecified
SC	In process, scheduled

ORC-7-Quantity/Timing

This field is of data type TQ, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CQ	X	[0..0]		Quantity
2	250	CM	X	[0..0]		Interval
3	250	CM	X	[0..0]		Duration
4	26	TS	R	[1..1]		Start Date/Time
5	26	TS	X	[0..0]		End Date/Time
6	20	ST	R	[1..1]		Priority
7	250	ST	X	[0..0]		Condition
8	65535	TX	X	[0..0]		Text
9	250	ST	X	[0..0]		Conjunction
10	250	CM	X	[0..0]		Order Sequencing
11	250	CE	X	[0..0]		Occurrence Duration
12	10	NM	X	[0..0]		Total Occurrences

The following components are populated.

ORC-7.4-Start Date/Time

This is the date and time requested for the start of the order.

ORC-7.6-Priority

This component contains the priority of the order. It will be populated with one of the following values.

Value	Description
S	Stat (with highest priority)
A	ASAP (fill after Stat orders)
R	Routine (the default)

ORC-8-Parent

This field is valued either to identify an examset or printset, or to indicate that the parent order of the examset or printset has been purged.

If the order is part of an examset, the field will be valued as follows:

EXAMSET: *procedure_name*

If the order is part of a printset, the field will be valued as follows:

PRINTSET: *procedure_name*

If the parent order has been purged, the field will be valued as follows:

ORIGINAL ORDER PURGED

ORC-9-Date/Time of Transaction

This is the date and time that the order was entered into VistA.

ORC-10-Entered By

This is the name of the person who entered the order into VistA. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]		Degree
8	10	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

ORC-12-Ordering Provider

This field contains the ID number and name of the provider that requested the order. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]		Degree
8	10	IS	X	[0..0]		Source Table

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
9	250	HD	X	[0..0]		Assigning Authority
10	10	ID	X	[0..0]		Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]		Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]		Identifier Type Code
14	250	HD	X	[0..0]		Assigning Facility
15	10	ID	X	[0..0]		Name Representation Code

Note that only the first four components are used. Other components may be ignored.

ORC-13-Enterer's Location

This is the location of the enterer in the medical center, if known. The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	30	IS	R	[1..1]	0302	Point of Care
2	30	IS	X	[0..0]	0303	Room
3	30	IS	X	[0..0]	0304	Bed
4	30	HD	X	[0..0]		Facility
5	30	IS	X	[0..0]	0306	Location Status
6	30	IS	X	[0..0]	0305	Person Location Type
7	30	IS	X	[0..0]	0307	Building
8	30	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description

Only the first component is populated. It contains the name of the enterer's service/section from the VistA SERVICE/SECTION File (#49).

ORC-14-Call Back Phone Number

This is the telephone number of the provider identified in *ORC-11-Ordering Provider*. It is used to get clarification of a request or other information regarding the order. Up to eight telephone numbers may be entered into this field.

The data type of this field is XTN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

ORC-14.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

ORC-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

ORC-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

ORC-15-Order Effective Date/Time (Clinical Specialties only)

This is the date and time the order was released from CPRS Consult Request Tracking Order Entry. It is not when the appointment for the request is scheduled.

ORC-17-Entering Organization

This is the service/section of the medical center that contains the person identified in *ORC-10-Entered By*. Information in this field is obtained from the VistA SERVICE/SECTION File. The data type of this field is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

The components of this field are defined as follows.

ORC-17.1-Identifier

This is the abbreviation for the service/section of the medical center.

ORC-17.2-Text

This is the full name of the service/section of the medical center.

ORC-17.3-Name of Coding System

This component shall contain the value **VISTA49**.

3.6.5 OBR Segment Fields

OBR-1-Set ID

This is an integer corresponding to the ordinal position of this OBR segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

OBR-2-Placer Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "OR", concatenated with the internal entry number of the order. The elements of this field are separated by hyphens. Example: 688-OR-12345.

OBR-3-Filler Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "GMRC", concatenated with the internal entry number of the consult or procedure request. The elements of this field are separated by hyphens. Example: 688-GMRC-12345.

OBR-4-Universal Service Identifier

This field is of data type CE (coded entity), which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	R	[1..1]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The components of this field are defined as follows.

OBR-4.1-Identifier

This component contains the CPT code from the VistA CPT File (#81).

OBR-4.2-Text

This component contains the short name associated with the CPT code in *OBR-4.1-Identifier*.

OBR-4.3-Name of Coding System

This component always contains the value **C4**.

OBR-4.4-Alternate Identifier

For radiology, this component contains the internal entry number of this procedure in the VistA RAD/NUC MED PROCEDURES File (#71).

For the clinical specialties, this component contains the letter “C” for a consult or “P” for a procedure, followed by the internal entry number of either the consult in the VistA REQUEST SERVICE file (#123.5) or the procedure in the VistA GMRC Procedure file (#123.3).

OBR-4.5-Alternate Text

For radiology, this component contains the name of the procedure as defined in the RAD/NUC MED PROCEDURES File.

For the clinical specialties, this component contains the name of either the consult in the VistA REQUEST SERVICE file (#123.5) or the procedure in the VistA GMRC Procedure file (#123.3).

OBR-4.6-Name of Alternate Coding System

For radiology, this component always contains the value **99RAP**.

For the clinical specialties, this component contains 99CON for consults or 99PROC for procedures.

OBR-5-Priority

This field contains the priority of the order. It is populated to satisfy IHE requirements, but is intended for backward compatibility only.

Valid values are as follows.

Value	Description
S	Stat
A	ASAP
R	Routine

OBR-15-Specimen Source

This field is of data type CM. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CE	X	[0..0]		Specimen Source Name or Code
2	65535	TX	X	[0..0]		Additives
3	65535	TX	X	[0..0]		Freetext
4	250	CE	X	[0..0]		Body Site
5	250	CE	RE	[0..1]		Site Modifier
6	250	CE	X	[0..0]		Collection Method Modifier Code

Only component 5 is populated. When a body site modifier (**LEFT** and/or **RIGHT**) is included in the order, that value will be sent in subcomponent 2 of component 5.

OBR-16-Ordering Provider

This field contains the ID number and name of the provider that requested the order. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]	0360	Degree
8	10	IS	X	[0..0]	0297	Source Table
9	250	HD	X	[0..0]	0363	Assigning Authority
10	10	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]	0203	Identifier Type Code
14	250	HD	X	[0..0]	0300	Assigning Facility
15	10	ID	X	[0..0]	4000	Name Representation Code

Note that only the first four components are used. Other components may be ignored.

OBR-17-Order Callback Phone Number

This field contains up to eight telephone numbers that may be used to report order status or results. The data type of this field is XTN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

OBR-17.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

OBR-17.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

OBR-17.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

OBR-18-Placer Field 1

For radiology, this field contains the accession number of the study.

For clinical specialties, this field contains the CPRS Consult Request Tracking or Appointment Management status. The possible values are listed below.

Consult Tracking Event	Trigger	CPRS Consult Request Tracking Status
Order Enter - Placed	No	
Order Entry - Consult Signed	Yes	GMRC-PENDING
Receive	Yes	GMRC-ACTIVE
Schedule	Yes	GMRC-SCHEDULED
Cancel (Deny)	Yes	GMRC-CANCELLED, remove consult from worklist
Edit/Resubmit	Yes	GMRC-PENDING
Discontinue	Yes	GMRC-DISCONTINUED
Forward	Yes	GMRC-PENDING (may be to/from a DICOM enabled service to/from a service that is not DICOM enabled.)
Add Comment	No	
Significant Findings	No	
Administrative Complete	No	
Consult Resulting Events		
Complete/Update Results…	Yes/No	GMRC-ACTIVE
Make Addendum…	No	
Attach Medicine Results	No	
Remove Medicine Results	No	
Change Title…	No	
Reload Boilerplate Text	No	
Add to Signature List	Yes	GMRC-COMPLETE
Delete Note…	No	

Appointment Management Event	Trigger	Appointment Management Status
Check In	Yes	SDAM-CHECKIN
Checked In	Yes	SDAM-CHECKIN
Check Out	Yes	SDAM-CHECKIN

Appointment Management Event	Trigger	Appointment Management Status
Checked Out	Yes	SDAM-CHECKIN
Auto Re-	Yes	SDAM-SCHEDULED
Auto-Re	Yes	SDAM-SCHEDULED
Action Required	Yes	SDAM-SCHEDULED
ACT REQ	Yes	SDAM-SCHEDULED
Non-Count	Yes	SDAM-SCHEDULED
Cancelled	Yes	SCAM-CANCELLED
No-Show	Yes	SCAM-CANCELLED
Deleted	Yes	SCAM-CANCELLED
Future	Yes	SDAM-FUTURE
No Action Taken	Yes	SDAM-SCHEDULED
NO ACT TAKN	Yes	SDAM-SCHEDULED
INPATIENT	Yes	SDAM-SCHEDULED

OBR-19-Placer Field 2

For radiology, this field contains the case number of the study, which is an internal identifier that is generated and used by the VistA Radiology package.

For the clinical specialties, this field contains the internal entry number of the consult request.

OBR-20-Filler Field 1

For radiology, this field contains the accession number of the study.

For the clinical specialties, this field contains four subelements:

- The first subelement is the **request type**, either "CONSULT" or "PROCEDURE".
- The second element is the **place of the consult**.
- The third element is the **abbreviation** and **name** for the clinic, separated by underscore.
- The fourth element contains the name of the requesting service from the VistA HOSPITAL LOCATION File (#44). It contains three components, the **identifier**, the **text**, and the **name of the coding system**, (always **VISTA44**), separated by underscores.

The four subelements are separated by backticks (`).

OBR-21-Filler Field 2

This field contains three subelements:

- The first subelement is the **abbreviation** and **name** for the type of imaging, separated by underscore.
- The second subelement is the **abbreviation** and **name** of the imaging location within the medical center, separated by underscore.
- The third subelement is the **station number** and **name** of the medical center, separated by underscore.

The three subelements are separated by backticks (`).

OBR-24-Diagnostic Service Section ID

This field contains the single known Procedure Modality associated with the type of examination being ordered. (If more than one Procedure Modality is known to VistA, nothing is sent in this field.) The terms used are from the VistA RAD MODALITY DEFINED TERMS File (#73.1).

OBR-27-Quantity/Timing

This field is of data type TQ, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CQ	X	[0..0]		Quantity
2	250	CM	X	[0..0]		Interval
3	250	CM	X	[0..0]		Duration
4	26	TS	R	[1..1]		Start Date/Time
5	26	TS	X	[0..0]		End Date/Time
6	20	ST	R	[1..1]		Priority
7	250	ST	X	[0..0]		Condition
8	65535	TX	X	[0..0]		Text
9	250	ST	X	[0..0]		Conjunction
10	250	CM	X	[0..0]		Order Sequencing
11	250	CE	X	[0..0]		Occurrence Duration
12	10	NM	X	[0..0]		Total Occurrences

The following components are populated.

OBR-27.4-Start Date/Time

This is the date and time requested for the start of the order.

OBR-27.6-Priority

This component contains the priority of the order. It will be populated with one of the following values.

Value	Description
S	Stat (with highest priority)
A	ASAP (fill after Stat orders)
R	Routine (the default)

OBR-28-Result Copies To (Clinical Specialties only)

This field contains the ID number and name of the people who are to receive copies of the results. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]	0360	Degree
8	10	IS	X	[0..0]	0297	Source Table
9	250	HD	X	[0..0]	0363	Assigning Authority
10	10	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]	0203	Identifier Type Code
14	250	HD	X	[0..0]	0300	Assigning Facility
15	10	ID	X	[0..0]	4000	Name Representation Code

Note that only the first four components are used. Other components may be ignored.

OBR-29-Parent

This field is valued either to identify an examset or printset, or to indicate that the parent order of the examset or printset has been purged.

If the order is part of an examset, the field will be valued as follows:

EXAMSET: *procedure_name*

If the order is part of a printset, the field will be valued as follows:

PRINTSET: *procedure_name*

If the parent order has been purged, the field will be valued as follows:

ORIGINAL ORDER PURGED

OBR-30-Transportation Mode

This field describes how, or whether, to transport a patient. It shall contain one of the following values from HL7 Table 0124, *Transportation Mode*:

HL7 Value	HL7 Description	VistA Value
CART	Cart - patient travels on cart or gurney	STRETCHER
PORT	The examining device goes to patient's location	PORTABLE
WALK	Patient walks to diagnostic service	AMBULATORY
WHLC	Wheelchair	WHEELCHAIR

OBR-31-Reason for Study

This field is of data type CE. Its components are structured as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	X	[0..0]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	X	[0..0]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component 2, Text, is populated with the narrative reason for study.

OBR-36-Scheduled date/time (Clinical Specialties only)

This field is the date/time the filler scheduled an observation, when applicable. This is a result of a request to schedule a particular test and provides a way to inform the placer of the date/time a study is scheduled (result only).

3.6.6 ZDS Segment Fields

ZDS-1-Study Instance UID

This field contains the unique identifier that VistA assigns to the study. The data type of this field is RP, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	Item #	Element Name
1	250	ST	R	[1..1]		Pointer
2	250	HD	R	[1..1]		Application ID
3	20	ID	R	[1..1]	0191	Type of Data
4	20	ID	R	[1..1]	0291	Subtype

The components of this field are populated as follows.

ZDS-1.1-Pointer

This component contains the ISO Object Identifier (OID) value that VistA has assigned to the study. PACS and modalities shall use this value rather than assigning one of their own.

ZDS-1.2-Application ID

This component identifies the application that generated the value in Component 1. Its value will always be **VISTA**.

ZDS-1.3-Type of Data

This component contains the general type of data that is being pointed to. Its value will always be **Application**.

ZDS-1.4-Subtype

This component contains the specific type of data that is being pointed to. Its value will always be **DICOM**.

3.6.7 OBX Segment Fields

OBX-2-Value Type

This field contains the data type of the information carried in *OBX-5-Observation Value*. It is populated with one of the following values from HL7 Table 0125, *Value Type*.

Value	Description
CE	Coded Element
TX	Text

OBX-3-Observation Identifier

This field classifies the kind of information carried in *OBX-5-Observation Value.* Its data type is CE, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Components 1, *Identifier*, and 2, *Text*, are populated as follows.

Identifier	Text
A	ALLERGIES
C4	CPT MODIFIERS
D	DIAGNOSTIC CODE
H	HISTORY
I	IMPRESSION

M	MODIFIERS
P	PROCEDURE
PDX	PROVISIONAL DIAGNOSIS
PO	POSTINGS
R	REPORT
RFR	REASON FOR REQUEST
SF	SIGNIFICANT FINDINGS
TCM	TECH COMMENT

Component 3 is always valued **L**.

Note: RFR, PDX, SF, and PO are only supported by the Clinical Specialties.

OBX-5-Observation Value

This field contains the actual value whose data type is given in *OBX-2-Value Type* and whose classification is given in *OBX-3-Observation Identifier*. Its formatting follows the rules for the data type given in OBX-2.

For observation identifier values **C4** (CPT MODIFIERS), **D** (DIAGNOSTIC CODE), and **P** (PROCEDURE), the data type of OBX-5 shall be CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

For all other observation identifier values, the data type of OBX-5 shall be TX.

OBX-6-Units

For quantitative measurements, this field contains the units of the observation. For observations other than quantitative measurements, this field is not populated.

The data type of this field is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component 3 is always valued **ISO+**, indicating the use of units of measure from ISO Standard 2955-1983.

OBX-11-Observation Result Status

This field is of data type ID. In the order message, it is populated with the value **O** (order detail description only, no result) from HL7 Table 0085, *Observation Result Status Codes Interpretation.*

3.6.8 MSA Segment Fields

Refer to Section 1.6.9, MSA Segment Fields, for a more detailed explanation of the MSA fields used in VistA messaging.

3.6.9 ERR Segment Fields

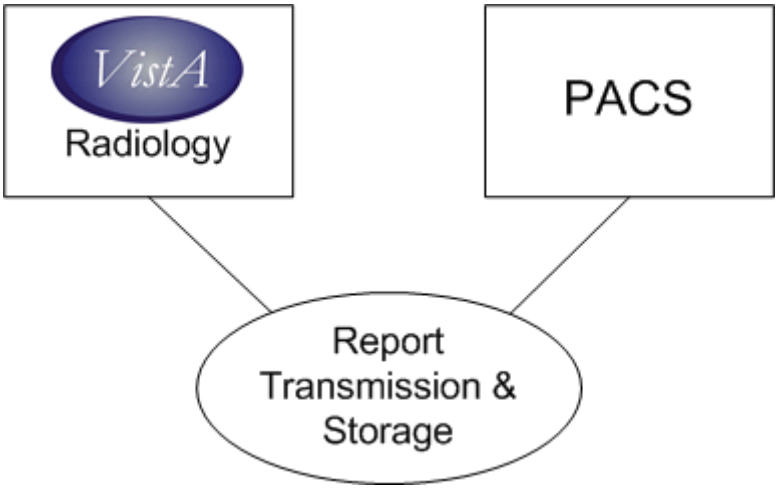
Refer to Section 1.6.10, ERR Segment Fields, for a more detailed explanation of the ERR fields used in VistA messaging.

4 Report Transmission & Storage Profile

4.1 Use Case

4.1.1 Scope

This transaction is used by VistA Radiology to transmit a radiology report to PACS.



4.1.2 Actors and Roles

Actor: VistA Radiology

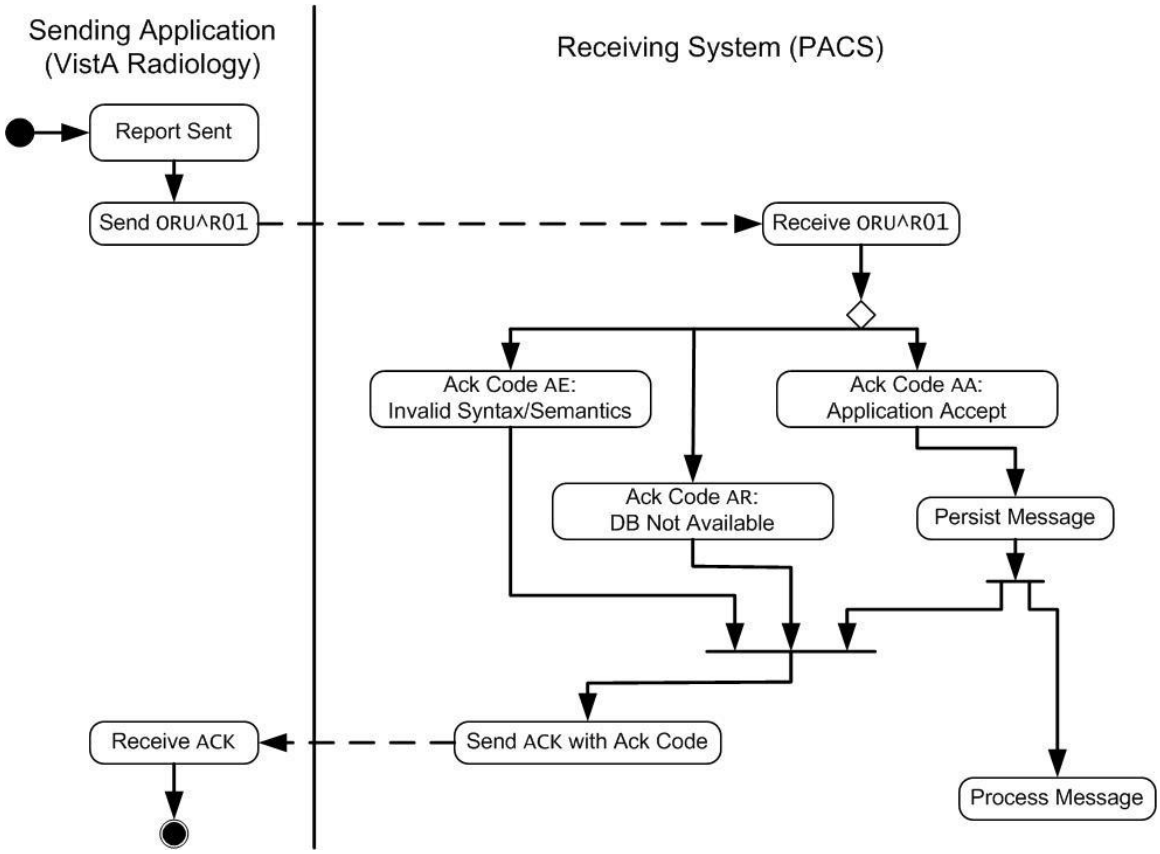
Role: Transmits radiology report information to ancillary VistA Modules and clinical systems when VistA Radiology reports are filed.

Actor: PACS

Role: Receives and files radiology report information.

4.2 Interactions

The actors in this Profile shall perform the behaviors shown in the following activity diagram.



4.3 Dynamic Definition

Vista and PACS shall generate and process HL7 messages according to the following functional and business requirements.

4.3.1 Report Message (ORU)

VistA Radiology shall transmit an ORU message to PACS when a report is filed.

PACS shall process the message in conformance with the following requirements.

4.3.1.1 VistA Is System of Legal Record

VistA will maintain the legal record for radiology reports. PACS will receive radiology reports only through the VistA HL7 interface. Reports will have a status of either **F** for final verified report or **R** for released, not verified report.

4.3.1.2 Report Received by PACS – Case and MRN Found, No Previous Report on File

When PACS receives a report message for a case and MRN already in its system for which it has not previously received a report, PACS will file the report labeled with its proper status and will display the report status on the report display. PACS will extract from the HL7 message, and will store in its system, the data contained in the Basic Patient Data Set (see Section 0.1 above), the Basic Order Data Set (see Section 0.3 above), and the Basic Report Data Set (see Section 0.4 above).

4.3.1.3 Report Received by PACS – Case and MRN Found, Previous Report Already on File

When PACS receives a report message for a case and MRN already in its system for which it has already previously received a report, PACS will file the report labeled with its proper status if the value of *OBR-22-Results Rpt/Status Chng* in the message is later than the value of *OBR-22-Results Rpt/Status Chng* in the previous message. At a minimum, PACS will retain the most recently dated report, as determined by the value of *OBR-22-Results Rpt/Status Chng*, for the case, irrespective of the order in which reports for the case are received. PACS may store multiple versions of the report. The default for display shall be the most recently dated report, as determined by the value of *OBR-22-Results Rpt/Status Chng*. PACS will extract from the HL7 message, and will store in its system, the data contained in the Basic Patient Data Set (see Section 0.1 above), the Basic Order Data Set (see Section 0.3 above), and the Basic Report Data Set (see Section 0.4 above).

4.3.1.4 Report Received by PACS – Case and MRN Not Found

When PACS receives a report message for a case and MRN not already in its system, PACS will file the report labeled with its proper status. PACS will extract from the HL7 message, and will store in its system, the data contained in the Basic Patient Data Set (see Section 0.1 above), the Basic Order Data Set (see Section 0.3 above), and the Basic Report Data Set (see Section 0.4 above). This allows for loading of historical reports.

4.3.2 Acknowledgment Message (ACK)

4.3.2.1 Original Mode ACK To Be Returned

PACS shall return an ACK application acknowledgment, as defined in the HL7 Standard and prescribed by the IHE Radiology Technical Framework. The trigger event of the acknowledgment message shall be equal to the trigger event of the message that was received.

4.3.2.2 ERR Segment To Be Sent for AE and AR Conditions

When an error is determined to have occurred, PACS shall return the acknowledgment code AE (Application Error) or AR (Application Reject) as appropriate, and shall populate Field ERR-1-error code and location with the relevant error information including the appropriate error code from HL7 Table 0357. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

4.3.2.3 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject

If the value received in *MSH-9.1-message type, MSH-9.2-trigger event, MSH-11-processing code*, or *MSH-12-version ID* is invalid, the value **AR** (application reject) shall be returned in *MSA-1-acknowledgment code*, and the appropriate value from HL7 Table 0357 shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

4.3.2.4 Incorrect Receiving Application or Receiving Facility to Cause Error

If the value received in *MSH-5-receiving application* or *MSH-6-receiving facility* is invalid, the value **AE** (application error) shall be returned in *MSA-1-acknowledgment code*, and the value **103** (table value not found) shall be returned in *ERR-1-error code and location*. See Section 1.6.10 for more information on populating *ERR-1-error code and location*.

4.4 Static Definition – Message Level

HL7 messages shall be populated and processed according to the following abstract message definitions.

4.4.1 Report Message

Segment	ORU Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
{ [PID	Patient Identification	R	[1..1]	3
[PD1]	Additional Demographics	X	[0..0]	3
[{ NK1 }]	Next of Kin / Associated Parties	X	[0..0]	3
[{ NTE }]	Notes and Comments	X	[0..0]	2
[PV1	Patient Visit	X	[0..0]	3
[PV2]]	Patient Visit – Additional Info.	X	[0..0]	3
]				
{ [ORC]	Common Order	X	[0..0]	4
OBR	Observation Request	R	[1..1]	4

[{ NTE }]	Notes and Comments (for Detail)	X	[0..0]	2
[{ OBX	Observation/Result	RE	[0..999]	7
[{ NTE }]	Notes and Comments (for Results)	X	[0..0]	2
}]				
{ [CTI] }	Clinical Trial Information	X	[0..0]	7
}				
[DSC]	Continuation Pointer	X	[0..0]	2

4.4.2 Acknowledgment Message

Segment	ACK Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[ERR]	Error	RE	[0..1]	2

4.5 Static Definition – Segment Level

4.5.1 MSH Segment

Refer to Section 1.5.1, MSH Segment, for a listing of all the fields defined for the MSH segment in HL7.

Refer to Section 4.6.1, MSH Segment Fields, for a more detailed explanation of the fields used by VistA.

4.5.2 PID Segment

Refer to the definition in Section 3.5.2, PID Segment, for a listing of all the fields defined for the PID segment in HL7.

Refer to Section 3.6.2, PID Segment Fields, for a more detailed explanation of the PID fields used in the VistA order and report messages.

4.5.3 OBR Segment

The following is a listing of all the fields defined for the OBR Segment in HL7. Refer to Section 4.6.3, OBR Segment Fields, for a more detailed explanation of the fields used in the VistA order message.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00237	Set ID - OBR
2	22	EI	R	[1..1]		00216	Placer Order Number
3	22	EI	R	[1..1]		00217	Filler Order Number
4	250	CE	R	[1..1]		00238	Universal Service Identifier

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
5	2	ID	X	[0..0]		00239	Priority - OBR
6	26	TS	X	[0..0]		00240	Requested Date/Time
7	26	TS	R	[1..1]		00241	Observation Date/Time
8	26	TS	X	[0..0]		00242	Observation End Date/Time
9	20	CQ	X	[0..0]		00243	Collection Volume
10	250	XCN	X	[0..0]		00244	Collector Identifier
11	1	ID	X	[0..0]	0065	00245	Specimen Action Code
12	250	CE	X	[0..0]		00246	Danger Code
13	300	ST	X	[0..0]		00247	Relevant Clinical Information
14	26	TS	X	[0..0]		00248	Specimen Received Date/Time
15	300	CM	RE	[0..1]	0070 0163 0369	00249	Specimen Source
16	250	XCN	R	[1..1]		00226	Ordering Provider
17	250	XTN	RE	[0..8]		00250	Order Callback Phone Number
18	60	ST	R	[1..1]		00251	Placer Field 1
19	60	ST	R	[1..1]		00252	Placer Field 2
20	60	ST	X	[0..0]		00253	Filler Field 1
21	60	ST	R	[1..1]		00254	Filler Field 2
22	26	TS	R	[1..1]		00255	Results Rpt/Status Chng - Date/Time
23	40	CM	X	[0..0]		00256	Charge to Practice
24	10	ID	X	[0..0]	0074	00257	Diagnostic Serv Sect ID
25	1	ID	R	[1..1]	0123	00258	Result Status
26	400	CM	X	[0..0]		00259	Parent Result
27	200	TQ	X	[0..0]		00221	Quantity/Timing
28	250	XCN	X	[0..0]		00260	Result Copies To
29	200	CM	RE	[0..1]		00222	Parent
30	20	ID	X	[0..0]	0124	00262	Transportation Mode
31	250	CE	X	[0..0]		00263	Reason for Study
32	200	CM	RE	[0..1]		00264	Principal Result Interpreter
33	200	CM	RE	[0..10]		00265	Assistant Result Interpreter
34	200	CM	X	[0..0]		00266	Technician
35	200	CM	RE	[0..1]		00267	Transcriptionist
36	26	TS	X	[0..0]		00268	Scheduled Date/Time
37	4	NM	X	[0..0]		01028	Number of Sample Containers
38	250	CE	X	[0..0]		01029	Transport Logistics of Collected Sample
39	250	CE	X	[0..0]		01030	Collector's Comment
40	250	CE	X	[0..0]		01031	Transport Arrangement Responsibility
41	30	ID	X	[0..0]	0224	01032	Transport Arranged
42	1	ID	X	[0..0]	0225	01033	Escort Required
43	250	CE	X	[0..0]		01034	Planned Patient Transport Comment
44	250	CE	X	[0..0]	0088	00393	Procedure Code
45	250	CE	X	[0..0]	0340	01316	Procedure Code Modifier
46	250	CE	X	[0..0]	0411	01474	Placer Supplemental Service Information
47	250	CE	X	[0..0]	0411	01475	Filler Supplemental Service Information

Refer to Section 4.6.3, OBR Segment Fields, for a more detailed explanation of the fields used by VistA.

4.5.4 OBX Segment

Refer to the definition Section 3.5.7, OBX Segment, for a listing of all the fields defined for the OBX segment in HL7.

Refer to Section 4.6.4, OBX Segment Fields, for a more detailed explanation of the fields used by VistA.

4.5.5 MSA Segment

Refer to the definition in Section 1.5.9, MSA Segment, for a listing of all the fields defined for the MSA segment in HL7.

Refer to Section 1.6.9, MSA Segment Fields, for a more detailed explanation of the fields used by VistA.

4.5.6 ERR Segment

Refer to the definition in Section 1.5.10, ERR Segment, for a listing of all the fields defined for the ERR segment in HL7.

Refer to the Section 1.6.10, ERR Segment Fields for a more detailed explanation of the fields used by VistA.

4.6 Static Definition – Field Level

4.6.1 MSH Segment Fields

MSH-1-Field Separator

This field contains the top-level delimiter for HL7 elements within segments.

MSH-2-Encoding Characters

This field contains the component separator (secondary element delimiter), repetition separator, escape character, and subcomponent separator (tertiary element delimiter).

MSH-3-Sending Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA report message, Component 1 of this field shall be populated with the value **RA-SERVER-IMG** from user-defined Table 0361, *Sending/Receiving Application*. PACS shall return this value in component MSH-5.1 of the acknowledgment message. Components 2 and 3 of MSH-3 are not valued.

MSH-4-Sending Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was generated. PACS shall return this value in component MSH-6.1 of the acknowledgment message. Components 2 and 3 of MSH-4 are not valued.

MSH-5-Receiving Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0361, *Sending/Receiving Application*, with the name of the PACS application. PACS shall return this value in component MSH-3.1 of the acknowledgment message. Components 2 and 3of MSH-5 are not valued.

MSH-6-Receiving Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, Component 1 of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was received. PACS shall return this value in field MSH-4 of the acknowledgment message. Components 2 and 3 of MSH-6 are not valued.

MSH-7-Date/Time of Message

This field contains the date and time that the sending system built the message.

MSH-9-Message Type

This field is of data type CM. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ID	R	[1..1]	0076	Message Type
2	3	ID	R	[1..1]	0003	Trigger Event
3	7	ID	X	[0..0]	0354	Message Structure

The components used by VistA are defined as follows.

MSH-9.1-Message Type

This component contains a value from HL7 Table 0076, *Message Type*. For the report message, it will always contain the value **ORU**.

MSH-9.2-Trigger Event

This component contains a value from HL7 Table 0003, *Event Type*. For the report message, it will always contain the value **R01**.

MSH-10-Message Control ID

This field will contain a unique identifier for the message.

MSH-11-Processing ID

This field is of type PT, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	1	ID	R	[1..1]	0103	Processing ID
2	1	ID	RE	[0..1]	0207	Processing Mode

The components used by VistA are defined as follows.

MSH-11.1-Processing ID

This field contains one of the following values from HL7 Table 0103, *Processing ID.*

Value	Description
P	Production
D	Debugging
T	Training

MSH-11.2-Processing Mode

This field contains one of the following values from HL7 Table 0207, *Processing Mode*.

Value	Description
A	Archive
R	Restore from archive

I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
not present	Not present (the default, meaning *current* processing)

MSH-12-Version ID

This field is of type VID, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ID	R	[1..1]	0104	Version ID
2	250	CE	X	[0..0]		Internationalization Code
3	250	CE	X	[0..0]		Internal Version ID

This field's first component will always contain the value **2.3.1** from HL7 Table 0104, *Version ID*. Although the VistA message pre-adopts certain Version 2.4 structures, such as the ROL segment, receivers that are unable to recognize Version 2.4 may use Version 2.3.1 syntax rules as prescribed by IHE. It is expected that receivers not now using HL7 Version 2.3.1 will be able to process the V2.3.1 messages according to the HL7 rules for backward compatibility. At such time as IHE is revised to a later version of HL7, receivers will be expected to adapt to the new structures within a stated period of time following the revision.

Other components of this field will not be used.

MSH-17-Country Code

This field is of type ID. It will always contain the value **USA** from the ISO 3166 country code table.

4.6.2 PID Segment Fields

Refer to Section 3.6.2, PID Segment Fields, for a complete explanation of the PID fields used in the VistA order and report messages.

4.6.3 OBR Segment Fields

OBR-1-Set ID

This is an integer corresponding to the ordinal position of this OBR segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

OBR-2-Placer Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number

of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "OR", concatenated with the internal entry number of the order. The elements of this field are separated by hyphens. Example: 688-OR-12345.

OBR-3-Filler Order Number

For radiology, this is the medical center site number of the examination, concatenated with the date of the examination, concatenated with the case number of the examination. The elements of this field are separated by hyphens. Example: 688-102104-1693.

For the clinical specialties, this is the medical center site number of the examination, concatenated with "GMRC", concatenated with the internal entry number of the consult or procedure request. The elements of this field are separated by hyphens. Example: 688-GMRC-12345.

OBR-4-Universal Service Identifier

This field is of data type CE (coded entity), which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	R	[1..1]		Alternate Identifier
5	250	ST	R	[1..1]		Alternate Text
6	250	ST	R	[1..1]		Name of Alternate Coding System

The components of this field are defined as follows.

OBR-4.1-Identifier

This component contains the CPT code from the VistA CPT File (#81).

OBR-4.2-Text

This component contains the short name associated with the CPT code in *OBR-4.1-Identifier*.

OBR-4.3-Name of Coding System

This component alwayscontains the value **C4**.

OBR-4.4-Alternate Identifier

For radiology, this component contains the internal entry number of this procedure in the VistA RAD/NUC MED PROCEDURES File (#71).

For the clinical specialties, this component contains the letter "C" for a consult or "P" for a procedure, followed by the internal entry number of either the consult in the VistA REQUEST SERVICE file (#123.5) or the procedure in the VistA GMRC Procedure file (#123.3).OBR-4.5-Alternate Text

For radiology, this component contains the name of the procedure as defined in the RAD/NUC MED PROCEDURES File.

For the clinical specialties, this component contains the name of either the consult in the VistA REQUEST SERVICE file (#123.5) or the procedure in the VistA GMRC Procedure file (#123.3).OBR-4.6-Name of Alternate Coding System

For radiology, this component always contains the value **99RAP**.

For the **clinical specialties, this component contains 99CON for consults or 99PROC for procedures.**

OBR-7-Observation Date/Time

This field contains the date and time the interpreting physician entered the report.

OBR-15-Specimen Source

This field is of data type CM. Its components are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CE	X	[0..0]		Specimen Source Name or Code
2	65535	TX	X	[0..0]		Additives
3	65535	TX	X	[0..0]		Freetext
4	250	CE	X	[0..0]		Body Site
5	250	CE	RE	[0..1]		Site Modifier
6	250	CE	X	[0..0]		Collection Method Modifier Code

Only component 5 is populated. When a body site modifier (**LEFT** or **RIGHT**) is included in the order, that value will be sent in subcomponent 2 of component 5.

OBR-16-Ordering Provider

This field contains the ID number and name of the provider that requested the order. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]	0360	Degree
8	10	IS	X	[0..0]	0297	Source Table
9	250	HD	X	[0..0]	0363	Assigning Authority
10	10	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]	0203	Identifier Type Code
14	250	HD	X	[0..0]	0300	Assigning Facility
15	10	ID	X	[0..0]	4000	Name Representation Code

Note that only the first four components are used. Other components may be ignored.

OBR-17-Order Callback Phone Number

This field contains up to eight telephone numbers that may be used to report order status or results. The data type of this field is XTN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]
2	3	ID	R	[1..1]	0201	Telecommunication use code
3	10	ID	R	[1..1]	0202	Telecommunication equipment type
4	250	ST	X	[0..0]		Email address
5	20	NM	X	[0..0]		Country code
6	20	NM	X	[0..0]		Area/city code
7	20	NM	X	[0..0]		Phone number
8	20	NM	X	[0..0]		Extension
9	250	ST	X	[0..0]		Any text

Only the first three components of this field are used. They are populated as follows.

OBR-17.1-[NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

This component contains the full telephone number as recorded in VistA. Components 5-9 are not used to break out the sub-elements of the telephone number.

OBR-17.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 1. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number

BPN	Beeper Number

OBR-17.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 1. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

OBR-18-Placer Field 1

For radiology, this field contains the accession number of the study.

For clinical specialties, this field contains the CPRS Consult Request Tracking or Appointment Management status. The possible values are listed below.

Consult Tracking Event	Trigger	CPRS Consult Request Tracking Status
Administrative Complete	No	
Consult Resulting Events		
Complete/Update Results…	Yes/No	GMRC-ACTIVE
Add to Signature List	Yes	GMRC-COMPLETE

OBR-19-Placer Field 2

For radiology, this field contains the case number of the study, which is an internal identifier that is generated and used by the VistA Radiology package.

For the clinical specialties, this field contains the internal entry number of the consult request.

OBR-20-Filler Field 1

For radiology, this field contains the accession number of the study.

For the clinical specialties, this field contains four subelements:

- The first subelement is the **request type**, either "CONSULT" or "PROCEDURE".
- The second element is the **place of the consult**.
- The third element is the **abbreviation** and **name** for the clinic, separated by underscore.
- The fourth element contains the name of the requesting service from the VistA HOSPITAL LOCATION File (#44). It contains three components, the **identifier**, the **text**, and the **name of the coding system**, (always **VISTA44**), separated by underscores.

The four subelements are separated by backticks (`).

OBR-21-Filler Field 2

This field contains three subelements:

- The first subelement is the **abbreviation** and **name** for the type of imaging, separated by underscore.
- The second subelement is the **name of the imaging location** within the medical center.
- The third subelement is the **division** and **name** of the medical center, separated by underscore.

The three subelements are separated by backtick (`).

OBR-22-Results Rpt/Status Chng – Date/Time

This field contains the date/time the report was entered, if it is unverified, or the date/time of verification, if the report is verified.

OBR-25-Status

This field indicates the status of the report. It shall contain one of the following values from HL7 Table 0123, *Result Status*.

Value	Description
R	Results stored; not yet verified
F	Final results; results stored and verified. Can only be changed with a corrected result.
C	Correction to results

OBR-28-Result Copies To (Clinical Specialties only)

This field contains the ID number and name of the people who are to receive copies of the results. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	R	[1..1]		Middle Initial or Name
5	250	ST	X	[0..0]		Suffix
6	250	ST	X	[0..0]		Prefix
7	10	IS	X	[0..0]	0360	Degree
8	10	IS	X	[0..0]	0297	Source Table
9	250	HD	X	[0..0]	0363	Assigning Authority
10	10	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	10	ID	X	[0..0]	0061	Code Identifying the Check Digit Scheme Employed
13	10	IS	X	[0..0]	0203	Identifier Type Code
14	250	HD	X	[0..0]	0300	Assigning Facility
15	10	ID	X	[0..0]	4000	Name Representation Code

Note that only the first four components are used. Other components may be ignored.

OBR-29-Parent

This field is valued either to identify an examset or printset, or to indicate that the parent order of the examset or printset has been purged.

If the order is part of an examset, the field will be valued as follows:

EXAMSET: *procedure_name*

If the order is part of a printset, the field will be valued as follows:

PRINTSET: *procedure_name*

If the parent order has been purged, the field will be valued as follows:

ORIGINAL ORDER PURGED

OBR-32-Principal Result Interpreter

This field identifies the physician or other clinician who interpreted the observation and is responsible for the report content.

The data type of this field is CM. Its components are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CN	R	[1..1]		Name
2	26	TS	X	[0..0]		Start Date/Time
3	26	TS	X	[0..0]		End Date/Time
4	20	IS	X	[0..0]		Point of Care
5	20	IS	X	[0..0]		Room
6	20	IS	X	[0..0]		Bed
7	250	HD	X	[0..0]		Facility
8	20	IS	X	[0..0]		Location Status
9	20	IS	X	[0..0]		Patient Location Type

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
10	20	IS	X	[0..0]		Building
11	20	IS	X	[0..0]		Floor

Only Component 1, Name, is populated. It is of data type CN. The subcomponents of this component are defined and used as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix (*e.g.*, JR or III)
6	250	ST	RE	[0..1]		Prefix (*e.g.*, DR)
7	20	IS	RE	[0..1]	0360	Degree (*e.g.*, MD)
8	20	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority

OBR-33-Assistant Result Interpreter

This field identifies the clinical observer(s) who assisted with the interpretation of this study. Up to 10 Assistant Result Interpreters may be sent.

The data type of this field is CM. Its components are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CN	R	[1..1]		Name
2	26	TS	X	[0..0]		Start Date/Time
3	26	TS	X	[0..0]		End Date/Time
4	20	IS	X	[0..0]		Point of Care
5	20	IS	X	[0..0]		Room
6	20	IS	X	[0..0]		Bed
7	250	HD	X	[0..0]		Facility
8	20	IS	X	[0..0]		Location Status
9	20	IS	X	[0..0]		Patient Location Type
10	20	IS	X	[0..0]		Building
11	20	IS	X	[0..0]		Floor

Only Component 1, Name, is populated. It is of data type CN. The subcomponents of this component are defined and used as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix (*e.g.*, JR or III)
6	250	ST	RE	[0..1]		Prefix (*e.g.*, DR)
7	20	IS	RE	[0..1]	0360	Degree (*e.g.*, MD)
8	20	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority

OBR-35-Transcriptionist

This field identifies the report transcriber.

The data type of this field is CM. Its components are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	CN	R	[1..1]		Name
2	26	TS	X	[0..0]		Start Date/Time
3	26	TS	X	[0..0]		End Date/Time
4	20	IS	X	[0..0]		Point of Care
5	20	IS	X	[0..0]		Room
6	20	IS	X	[0..0]		Bed
7	250	HD	X	[0..0]		Facility
8	20	IS	X	[0..0]		Location Status
9	20	IS	X	[0..0]		Patient Location Type
10	20	IS	X	[0..0]		Building
11	20	IS	X	[0..0]		Floor

Only Component 1, Name, is populated. It is of data type CN. The subcomponents of this component are defined and used as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		ID Number
2	250	ST	R	[1..1]		Family Name
3	250	ST	R	[1..1]		Given Name
4	250	ST	RE	[0..1]		Middle Initial or Name
5	250	ST	RE	[0..1]		Suffix (*e.g.*, JR or III)
6	250	ST	RE	[0..1]		Prefix (*e.g.*, DR)
7	20	IS	RE	[0..1]	0360	Degree (*e.g.*, MD)
8	20	IS	X	[0..0]		Source Table
9	250	HD	X	[0..0]		Assigning Authority

Only the first four subcomponents are populated. Other subcomponents are not used.

4.6.4 OBX Segment Fields

OBX-2-Value Type

This field contains the data type of the information carried in *OBX-5-Observation Value*. It is populated with one of the following values from HL7 Table 0125, *Value Type*.

Value	Description
CE	Coded Element
TX	Text

OBX-3-Observation Identifier

This field classifies the kind of information carried in *OBX-5-Observation Value.* Its data type is CE, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Components 1, *Identifier*, and 2, *Text*, are populated as follows.

Identifier	Text
A	Allergies
C4	CPT MODIFIERS
D	DIAGNOSTIC CODE
H	HISTORY
I	IMPRESSION
M	MODIFIERS
P	PROCEDURE
PDX	PROVISIONAL DIAGNOSIS
PO	POSTINGS
R	REPORT
RFR	REASON FOR REQUEST
SF	SIGNIFICANT FINDINGS
TCM	TECH COMMENT

Component 3 is always valued **L**.

OBX-5-Observation Value

This field contains the actual value whose data type is given in *OBX-2-Value Type* and whose classification is given in *OBX-3-Observation Identifier*. Its formatting follows the rules for the data type given in OBX-2.

In OBX segments for which OBX-3.1 contains a value of **R**, this field contains report text.

OBX-6-Units

For quantitative measurements, this field contains the units of the observation. For observations other than quantitative measurements, this field is not populated.

The data type of this field is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	250	ST	R	[1..1]		Identifier

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	250	ST	R	[1..1]		Text
3	250	ST	R	[1..1]		Name of Coding System
4	250	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	250	ST	X	[0..0]		Name of Alternate Coding System

Component 3 is always valued **ISO+**, indicating the use of units of measure from ISO Standard 2955-1983.

OBX-11-Observation Result Status

This field is of data type ID. In the report message, it is populated with the following values from HL7 Table 0085, *Observation Result Status Codes Interpretation.*

Value	Description
F	Final results; Can only be changed with a corrected result.
C	Record coming over is a correction and thus replaces a final result
R	Results entered – not verified

4.6.5 Fields Used in the MSA Segment

Refer to Section 1.6.9, MSA Segment Fields, for a more detailed explanation of the MSA fields used in VistA messaging.

4.6.6 Fields Used in the ERR Segment

Refer to Section 1.6.10, ERR Segment Fields, for a more detailed explanation of the ERR fields used in VistA messaging.