

eHealth Ontario

Provincial Client Registry IHE PIX/PDQ HL7 v2

Interface Specification

Version: 1.5

Copyright Notice

Copyright © 2016, eHealth Ontario

All rights reserved

No part of this document may be reproduced in any form, including photocopying or transmission electronically to any computer, without prior written consent of eHealth Ontario. The information contained in this document is proprietary to eHealth Ontario and may not be used or disclosed except as expressly authorized in writing by eHealth Ontario.

Trademarks

Other product names mentioned in this document may be trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Document Control

The electronic version of this document is recognized as the only valid version.

Approval History

APPROVER(S)	TITLE/DEPARTMENT	APPROVED DATE
		YYYY-MM-DD
		YYYY-MM-DD

Revision History

VERSION NO.	DATE	SUMMARY OF CHANGE	CHANGED BY
1.4	2016-01-05	Initial Draft for Comment	eHealth Ontario
1.5	2016-04-08	Incorporate feedback from SC/BCT review. Changed all elements that were 'O' but the example value said 'not used' to NS to align with the ADT update iGuide	eHealth Ontario

Table of Contents

Table of Contents	1
--------------------------	----------

1	Introduction	3
1.1	Background.....	3
1.2	Purpose.....	4
1.3	Audience.....	4
1.4	Referenced Documents.....	5
1.5	Acronyms.....	5
1.6	Legend.....	5
1.6.1	Message Delimiters.....	6
1.6.2	Optionality Codes.....	6
1.6.3	Abbreviations.....	6
1.6.4	Data Types.....	6
2	Patient Identifier Cross-Referencing (PIX)	8
2.1	ITI-9 Patient Identifier Cross-referencing (PIX).....	8
2.2	Scope.....	8
2.3	Referenced Standard.....	8
2.4	Interaction Diagrams.....	8
2.5	Trigger Events.....	9
2.6	PIX Query [ITI-9] message- QBP^Q23	9
2.6.1	Message Level.....	9
2.6.2	MSH-Message Header Segment	10
2.6.3	QPD – Query Parameter Definition.....	~~15~~ 17
2.6.4	RCP – Response Control Parameter	~~16~~ 18
2.7	Response Message- RSP^K23	~~18~~ 20
2.7.1	Message-Level Profile.....	~~18~~ 20
2.7.2	MSH - Message Header Segment.....	~~18~~ 20
2.7.3	MSA - Message Acknowledgement Segment.....	~~18~~ 20
2.7.4	ERR – Error Segment.....	~~19~~ 21
2.7.5	QAK – Query Acknowledgement Segment	~~20~~ 22
2.7.6	QPD – Query Parameter Definition Segment.....	~~21~~ 23
2.7.7	PID – Patient Identification Segment	~~21~~ 23
3	Patient Demographics Query (PDQ)	~~24~~26
3.1	ITI-21 Patient Demographics Query	~~24~~ 26
3.2	Scope.....	~~24~~ 26
3.3	Referenced Standards	~~24~~ 26
3.4	Interaction Diagrams.....	~~24~~ 26
3.5	Trigger Events.....	~~25~~ 27
3.6	PDQ Query [ITI-21] message- QBP^Q22.....	~~25~~ 27
3.6.1	Message Level.....	~~25~~ 27
3.6.2	MSH-Message Header Segment	~~26~~ 28
3.6.3	QPD-Query Parameter Definition	~~26~~ 28
3.6.4	RCP-Response Control Parameter.....	~~28~~ 30

3.6.5	DSC-Continuation Pointer.....	~~293~~
3.7	Response Message- RSP^K22.....	~~303~~
3.7.1	Message-Level Profile.....	~~303~~
3.7.2	MSH - Message Header Segment.....	~~303~~
3.7.3	MSA - Message Acknowledgement Segment.....	~~313~~
3.7.4	ERR – Error Segment.....	~~313~~
3.7.5	QAK – Query Acknowledgement Segment	~~313~~
3.7.6	QPD – Query Parameter Definition Segment.....	~~313~~
3.7.7	PID – Patient Identification Segment	~~313~~
3.7.8	PD1 - Patient Additional Demographic Segment	~~363~~
3.7.9	QRI- Query Response Instance Segment	~~373~~
3.7.10	DSC- Continuation Pointer Segment.....	~~373~~

4 **Data Definition Tables** ~~384~~

1 Introduction

1.1 Background

The Provincial Client Registry (PCR) is the definitive source for a health care client's identity, facilitating the unique, accurate and reliable identification of individual clients and others who receive care in Ontario, across the disciplines in the health care sector. It contains demographic and identification cross-reference data for health care clients registered in one or more Patient Identifier Domains (PID) for which eHealth Ontario, as a result of policy /program/IT decisions, has established a data sharing agreement with the respective organizations.

The PCR is fed by multiple data sources, including the Ministry of Health (MOH) Registered Persons Database (RPDB), over 170 hospital sites tracking Admissions, Discharges, and Transfers (ADT), and other systems that participate in health care services (e.g. Wait Times Information System (WTIS), Cardiac Care Network (CCN)). The PCR includes the functionality of an Enterprise Master Patient Index (EMPI) to match records from different sources referring to a single health care client, addressing the need for positive client identification across Ontario's electronic health record.

Examples of PCR services include:

- Validating health care client identity information
- Searching and resolving information from multiple sources that refer to the same health care client identity
- Obtaining summary and detailed demographic information about a health care client
- Adding and updating a health care client record
- Merging and unmerging health care client records (because they either do, or do not, refer to the same individual)
- Reconciling duplicates

Ontario has published the following standards for querying or contributing to the PCR:

- Pan-Canadian HL7 V3 based PCR standard (used for both contribution and querying)
- HL7 v2 based standard (used exclusively for contribution)
- Integrating the Healthcare Enterprise (IHE) Patient Identity Cross-Referencing Query and Patient Demographics Query (PIX/PDQ) based standard (used exclusively for querying)

The table below describes which functions are supported by each of the standards:

Function	Standard	Interface / Interaction
Query	IHE (PIX/PDQ)	IHE PIX/PDQ: ITI-9 Patient Identity Cross-Referencing Query (PIX) ITI-21 Patient Demographics Query (PDQ)
	HL7 V3	Pan-Canadian based: Find Candidates Query Get Client Demographics Query Find Associated Identifiers Query
Update (Add/Revise)	HL7 v2.4 (Passive*)	ADT (Passive): Add, Revise, Merge, Unmerge
	Ontario HL7 V3 (Active*)	Pan-Canadian based: Add, Revise (Merge, Unmerge, Delete)

* Active interfaces require the registration system to communicate directly to PCR to check for matching patients, before additional data is collected and written to file. Passive interfaces require downstream systems to perform a merge after data is collected.

Note that both PIX/PDQ and pan Canadian V3 based standards can be used for querying the PCR.

The table below describes the relationship between the functions that exist in the pan-Canadian-based HL7 V3 PCR standard and the functions described in this document.

PCR HL7V3 Standard Functions	IHE PIX/PDQ Profile	Additional Instructions
Get Client Demographics	ITI-21	Search by a global or local ID to return a single client's demographics
Find Candidates	ITI-21	Search by a local or global ID and/or by demographic information to return matching EMPI search algorithm member records
Find Associated Identifiers	ITI-9	This message returns every PCR record that matches as per the PCR's search algorithm

1.2 Purpose

The purpose of this specification is to outline the translation and mapping required for a given adopter to perform IHE PIX/PDQ HL7 v2 queries against the PCR. As summarized in the table below, this specification represents the first-half of the functionality (i.e. query) required to perform HL7v2 active integration with the PCR (i.e. active query & passive update). Refer to the corresponding PCRA Admission, Discharge & Transfer (ADT) Update Interface Specification for the second-half of the functionality required for HL7v2 PCR active integration (i.e. passive update). Note that this IHE PIX/PDQ HL7 v2 interface can also be implemented as a standalone service (i.e. for query functionality only).

Function	Standard	Interface / Interaction
Query	PCR IHE PIX/PDQ	ITI-9 - Patient Identity Cross-Referencing Query (PIX) ITI-21 - Patient Demographics Query (PDQ)
Update	PCR ADT	Add Client - ADT^A28^ADT_A05 Update Client - ADT^A31^ADT_A05 Merge Client - ADT^A40^ADT_A39 Unmerge Client - ADT^A39^ADT_A39

PIX and PDQ are similar but distinct queries:

- PIX enables organizations to uniquely identify patients using local or global identifications (such as hospital specific MRN)
- PDQ enables organizations to uniquely identify patients using their demographics (in the absence of identifiers)

Since both of these profiles are used for querying the PCR, they are bundled together.

NOTE: Ontario has made minor changes to these profiles to meet Ontario-specific requirements. This are specified in the document by, **highlighting in yellow** and a “*” to the left of the change.

1.3 Audience

The audience for this document includes technical and business audiences who will be developing implementations to query the PCR. Readers are expected to have some basic understanding of HL7 v2 as well as IHE PIX/PDQ implementations.

1.4 Referenced Documents

Document Name	Version
Integrating the Healthcare Enterprise (IHE) Patient Identity Cross-Reference (PIX) / Patient Demographics Query (PDQ) Interface Specification	IHE IT Infrastructure Technical Framework, Volume 2a (ITITF-2a): Transactions Part A Revision 12.0 – Final Text September 18, 2015
HL7 v2 International	v2.5
Provincial Client Registry ADT HL7 v2 Update Implementation Guide	V10.8
eHealth Ontario HL7 V3 Pan-Canadian based PCR standard	V1.0

1.5 Acronyms

Acronym	Full Name
EHR	Electronic Health Record
EID	Enterprise Identifier
EMPI	Enterprise Master Patient Index
HL7	Health Level Seven
IHE	Integrating the Health Care Environment
ISO	International Organization for Standardization
OLIS	Ontario Lab Information System
PCR	Provincial Client Registry
PDQ	Patient Demographic Query
PIX	Patient Identifier Cross-Reference

1.6 Legend

This section represents key symbols and abbreviations found within the specification. It can be used as a reference for interpreting the specification requirements.

1.6.1 Message Delimiters

Delimiter	Usage	Colour Code / Font	Sample Seq Format
\r	Segment Terminator		
\	Escape Character Delimiter		
~	Repetition Separator		
	Field Separator	Normal Font	1
^	Component Separator	<i>Blue Italicized Font</i>	<i>1.1</i>
&	Subcomponent Separator	<i>Pink Bolded Italicized Font</i>	<i>1.1.1</i>

1.6.2 Optionality Codes

Code	Description
R	Required
RE	Required or Empty
C	Conditional
O	Optional
R2	This is an IHE extension. If the sending application has data for the field, it is required to populate the field. If the value is not known, the field may not be sent.
NS	Not supported

1.6.3 Abbreviations

Code	Description
Seq	Sequence
Len	Maximum length
Opt	Optionality
RP/#	Repeatable

1.6.4 Data Types

Code	Description	Code	Description	Code	Description
CE	Coded element	MSG	Message Type	TX	Text data
CQ	Composite quantity with units	NM	Numeric	VID	Version identifier
CWE	Coded with exceptions	PT	Processing type	XAD	Extended address
CX	Extended composite ID	QIP	Query input parameter list	XPB	Extended person name

Code	Description	Code	Description	Code	Description
	with check digit				
DTM	Date/Time	SAD	Street Address	XTN	Extended telecommunications number
FN	Family name	SI	SequenceID		
FT	Form atted text	SN	Structured numeric		
HD	Hierarchic designator	ST	String		
ID	Coded v alues for HL7 tables	TM	Time		
IS	Coded v alue for user-defined tables	TS	Time stamp		

2 Patient Identifier Cross-Referencing (PIX)

This section corresponds to Transaction ITI-9 of the IHE IT Infrastructure Technical Framework. Transaction ITI-9 is used by the Patient Identifier Cross-reference Consumer and Patient Identifier Cross-reference Manager actors.

2.1 ITI-9 Patient Identifier Cross-referencing (PIX)

The Patient Identifier Cross-referencing Integration Profile (PIX) is targeted at a broad range of health care enterprise sizes (e.g. hospital, a clinic, a physician office, etc.). It supports the cross-referencing of patient identifiers from multiple Patient Identifier Domains via the following interactions:

- The transmission of patient identity information from an Identity Source to the Patient Identifier Cross-reference Manager
- The ability to access the list(s) of cross-referenced patient identifiers via a query/response

2.2 Scope

This transaction involves a request by the Patient Identifier Cross-reference Consumer Actor for a list of patient identifiers that correspond to a patient identifier known by the consumer. The request is received by the Patient Identifier Cross-reference Manager. The Patient Identifier Cross-reference Manager immediately processes the request and returns a response in the form of a list of corresponding patient identifiers, if any are found.

For example, a patient might arrive at hospital ABC with a Medical Record Number (MRN) card from hospital XYZ. In order to find all identifiers that are used to refer to this patient across all contributing sites, a PIX query is sent to a *Patient Identifier Cross-reference Manager* (PCR in Ontario) using hospital XYZ's MRN as a search parameter. The response message received by the *Patient Identifier Cross-reference Consumer* (hospital ABC) contains a list of identifiers including the client's MRN in hospital ABC and a global identifier recognized by all health care organizations.

2.3 Referenced Standard

HL7 version 2.5 was selected for this transaction because it was considered the most stable version that contained the functionality required by transactions ITI-9.

2.4 Interaction Diagrams

The following diagram was created by IHE to illustrate the high level interaction between a Patient Identifier Cross-reference Consumer and Patient Identifier Cross-reference Manager. Patient Identifier Cross-Referencing HL7 v2 version will use the following messages: Get/return corresponding identifiers for PIX Query (QBP^Q23 and RSP^K23).

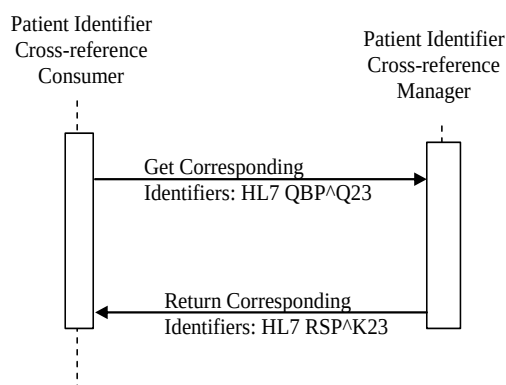


Figure 1: Get Corresponding Identifiers Sequence

Actor: Patient Identifier Cross-reference Consumer

Role: Queries the Patient Identifier Cross-reference Manager for a list of corresponding patient identifiers, if any

Actor: Patient Identifier Cross-reference Manager

Role: Manages the cross-referencing of patient identifiers across Patient Identification Domains. Upon request it returns a list of corresponding patient identifiers, if any.

2.5 Trigger Events

The Patient Identifier Cross-reference Consumer's need for identifiers associated with a healthcare client will trigger the following message:

- Q23 – Get Corresponding Identifiers

The Patient Identifier Cross-reference Manager's response to the Get Corresponding Identifiers message will trigger the following message:

- K23 – Corresponding patient identifiers

2.6 PIX Query [ITI-9] message- QBP^Q23

2.6.1 Message Level

The Get Corresponding Identifiers transaction is conducted by the HL7 QBP^Q23 message. The Patient Identifier Cross-reference Consumer Actor will generate the query message whenever it needs to obtain a corresponding patient identifier(s) from other Patient Identification Domain(s). The segments of the message listed below are required, and their detailed descriptions and associated business rules are provided in the following subsections.

QBP	Query By Parameter	Chapter in HL7 2.5
MSH	Message Header	2

QBP	Query By Parameter	Chapter in HL7 2.5
QPD	Query Parameter Definition	5
RCP	Response Control Parameter	5

PIX Query request message- Example

MSH|^~\&|^2.16.840.1.113883.3.239.35.1.2.1.2^ISO|^2.16.840.1.113883.3.239.23.270^ISO|^2.16.840.1.113883.3.239.2^ISO|^2.16.840.1.113883.3.239^ISO|201403141002-0500||QBP^Q23^QBP_Q21|1235421946|P^T|2.5|||||
 UTF-8
 QPD|IHE PIX Query|Q231235421946|L101^^^&1.3.6.1.4.1.21367.2009.1.2.310&ISO|
 RCP|I|

2.6.2 MSH-Message Header Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment Name		R		ST		MSH
1	Field Separator	1	R		ST		
2	Encoding Characters	4	R		ST		^~\&
3	Sending Application	180	R		HD		^2.16.840.1.113883.3.239.35.1.2.1.2 ^ISO
3.1	Namespace ID		NS		IS		
3.2	Universal ID		R		ST		2.16.840.1.113883.3.239.35.1.2.1.2
3.3	Universal ID Type		R		ID	0301	ISO
4	Sending Facility	* 80	R		HD		^2.16.840.1.113883.3.239.23.270 ^ISO
4.1	Namespace ID		NS		IS		
4.2	Universal ID		R		ST		2.16.840.1.113883.3.239.23.270
4.3	Universal ID Type		R		ID	0301	ISO
5	Receiving Application	180	R		HD		^ 2.16.840.1.113883.3.239.2 ^ISO
5.1	Namespace ID		NS		IS		
5.2	Universal ID		R		ST		2.16.840.1.113883.3.239.2
5.3	Universal ID Type		R		ID	0301	ISO
6	Receiving Facility	180	R		HD		^2.16.840.1.113883.3.239^ISO
6.1	Namespace ID		O		IS		
6.2	Universal ID		R		ST		2.16.840.1.113883.3.239

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
6.3	Universal ID Type		R		ID	0301	ISO
7	Date/Time Of Message	* 19	R		TS		201403141002-0500^
7.1	Date/Time of Event	19	R		DTM		201403141002-0500
7.2	Degree of Precision		NS		ID		
8	Security	40	NS		ST		
9	Message Type	13	R		* MSG		QBP^Q23^QBP_Q21
9.1	Message Type	3	R		ID	0076	QBP
9.2	Trigger Event	3	R		ID	0003	Q23
9.3	Message Structure	7	R		ID	0354	QBP_Q21
10	Message Control ID	20	R		ST		123456789
11	Processing ID	3	R		PT		P^T
11.1	Processing ID	1	R		ID	0103	P
11.2	Processing Mode	1	R		ID	0207	T
12	Version ID	60	R		VID		
12.1	Version ID		R		ID		2.5
13	Sequence Number	15	NS		NM		
14	Continuation Pointer	180	NS		ST		
15	Accept Acknowledgment Type	2	NS		ID		
16	Application Acknowledgment Type	2	NS		ID		
17	Country Code	3	NS		ID		
18	Character Set	16	* O	Y	ID		UTF-8
19	Principal Language Of Message	250	NS		CE		

Seq	Name	Len	IHE Opt	RP/ #	Type	Table	Example Value
20	Alt Char Set Handling Scheme	20	NS		ID		
21	Message Profile Identifier	427	NS		EI		

MSH Segment –Example

EMR McMaster Family Practice sends a PIX query message with the message header:

MSH|^~\&|^2.16.840.1.113883.3.239.35.1.2.1.2^ISO|^2.16.840.1.113883.3.239.23.270^ISO|^2.16.840.1.113883.3.239.2^ISO|^2.16.840.1.113883.3.239^ISO|201403141002-0500||QBP^Q23^QBP_Q21|1235421946|P^T|2.5||||||| UTF-8

The table below resolves the OIDs used in the example.

Segment Name	OID	OID Description
MSH.3 - Sending Application	2.16.840.1.113883.3.239.35.1.2.1.2	Oscar EMR McMaster Family Practice Application
MSH.4 - Sending Facility	2.16.840.1.113883.3.239.23.270	McMaster Family Practice
MSH.5 - Receiving Application	2.16.840.1.113883.3.239.2	eHealth Ontario Integration Facility Application
MSH.6 - Receiving Facility	2.16.840.1.113883.3.239	eHealth Ontario

2.6.2.1 Field Definitions and Business Rules

MSH.o Segment ID – MSH

Always populate this field with the static value “**MSH**”.

MSH.1 Field Separator

Always populate this field with the static value “|”.

MSH.2 Encoding Characters

Always populate this field with the static values “^~\&”.

MSH.3 Sending Application

This field uniquely identifies the sending application among all other applications within the network enterprise. This

OID has to be assigned by eHealth Ontario to all systems that participate in the exchange of messages with PCR. Please contact architecture@ehealthontario.on.ca to request an OID.

The Namespace ID component of this field is not supported.

Populate OID in the Universal ID component of this field and indicate “**ISO**” in the Universal ID Type component, e.g., “^2.16.840.1.113883.3.239.1^ISO”.

In outbound messages from Provincial Client Registry, this field will contain the application identified in the MSH.5 *Receiving Application* field of the inbound message.

MSH.4 Sending Facility

This field further describes the sending application, MSH-3 – sending application. With the promotion of this field to an HD data type, the usage has been broadened to include not just the sending facility but other organizational

entities such as a) the organizational entity responsible for sending application; b) the responsible unit; c) a product or vendor's identifier.

The Namespace ID component of this field is not supported.

Populate OID in the Universal ID component of this field and indicate "ISO" in the Universal ID Type component, e.g., "**^2.16.840.1.113883.3.239.2^ISO**".

MSH.5 Receiving Application

This field uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise.

The Namespace ID component of this field is not supported.

Populate OID in the Universal ID component of this field and indicate "ISO" in the Universal ID Type component, e.g., "**^2.16.840.1.113883.3.239^ISO**".

In outbound messages from Provincial Client Registry, this field will contain the application identified in the MSH.3 *Sending Application* field of the inbound message.

MSH.6 Receiving Facility

This field identifies the receiving

The Namespace ID component of this field is not supported.

Populate OID in the Universal ID component of this field and indicate "ISO" in the Universal ID Type component, e.g., "**^2.16.840.1.113883.3.239^ISO**".

MSH.7 Date/Time of Message

Always populate this field with the date and time that the message was created, including the universal coordinated time (UTC) offset, e.g., "**201403141002-0500**" represents one second before midnight in the Eastern Standard Time zone.

Format:

CCYYMMDDHHMMSS-*ZZZZ*

MSH.9 Message Type v

This field specifies what type of message is being transmitted (ADT, ORM, ORU, ACK, etc.) and what the trigger event is. Table below shows the message types that should be used for queries that are discussed in this interface specification and their responses.

Description	Initiating Message Type	Response Message Type
ITI-9 PIX Query	QBP^Q23^QBP_Q21	RSP^K23^RSP_K23
ITI-21 PDQ Query	QBP^Q22^QBP_Q21	RSP^K22^RSP_K21

MSH.10 Message Control ID

Populate this field with an identifier that uniquely identifies the message among all messages sent to the Provincial Client Registry. The Provincial Client Registry echoes this value in the MSA segment of the response message so that it clearly identifies which inbound message is being acknowledged.

Any approach to creating a local valid unique identifier may be used. Often the current date and a serial number are combined produce a unique Message Control ID, e.g., “**20140314-000001**”. Alternatively, a globally unique identifier (GUID) may be generated for each message, e.g., “**018fd1f1-c544-404f-b228-5dbdfa76a962**”.

MSH.11 Processing ID

The processing ID indicates whether the message is intended for the Provincial Client Registry production or training/testing environment. In the production environment, provide the value “**P**” in this field.

MSH.12 Version ID

Always populate this field with the static value “**2.5**”.

MSH.18 Character Set

If this field is populated, it should have the static value “**UTF-8**”.

2.6.3 QPD – Query Parameter Definition

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-QPD	3	R				QPD
1	Message Query Name	250	R		CE		
1.1	Identifier		R		ST		IHE PIX Query
2	Query Tag	32	R		ST		Q231235421946
3	Person Identifier	250	R		CX		
3.1	Patient Identifier		R				12345678
	(components 3.2-3.3)		X				
3.4	Assigning Authority		R				
3.4.1	Namespace ID		NS		IS		
3.4.2	Universal ID		R		ST		2.16.840.1.113883.3.239.15.3
3.4.3	Universal ID Type		R		ID	0301	ISO
8	What Domains Returned		NS		CX		

QPD Segment –Example

QPD|IHE PIX Query|Q231235421946|L101^^^&1.3.6.1.4.1.21367.2009.1.2.310&ISO|

2.6.3.1 Field Definitions and Business Rules

QPD.o Segment ID – QPD

Always populate this field with the static value “**QPD**”.

QPD.1 Message Query Name

Specify "IHE PIX Query" for QPD-1 Message Query Name

QPD.2 Query Tag

This field shall be valued by the initiating system to identify the query, and shall be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QPD.3 Person Identifier

This message shall use the field QPD-3 Person Identifier to convey a single Patient ID uniquely identifying the patient within a given Patient Identification Domain (e.g. hospital MRN, OHIP).

The Patient Identifier Cross-reference Consumer Actor shall provide the patient identifier in the ID component (first component) of the QPD-3 field (QPD-3.1).

QPD.4 Assigning Authority

This field identifies the organization that assigned the identifier. For instance, if this identifier is an MRN from a specific hospital, this field will be the MRN root OID for that hospital.

2.6.4 RCP – Response Control Parameter

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-RCP						RCP
1	Query Priority	1	R		ID		I
2	Quantity Limited Request	10	NS		CQ	0126	
3	Response Modality	250	NS		CE	0394	
4	Execution and Delivery Time	26	NS		TS		
5	Modify Indicator	1	NS		ID	0395	
6	Sort-by Field	512	NS	Y	SRT		
7	Segment group inclusion	256	NS	Y	ID		

RCP Segment –Example

RCP|I|

2.6.4.1 Field Definitions and Business Rules

RCP.o Segment ID – RCP

Always populate this field with the static value “**RCP**”.

RCP.1 Query Priority

Field *RCP-1-Query Priority* shall always contain "**I**", signifying that the response to the query is to be returned in 'Immediate' mode.

2.7 Response Message- RSP^K23

2.7.1 Message-Level Profile

RSP	Segment Pattern Response	Chapter in HL7 2.5
MSH	Message Header	2
MSA	Message Acknowledgement	2
[ERR]	Error segment	2
QAK	Query Acknowledgement	5
QPD	Query Parameter Definition	5
[PID]	Patient Identification	3

PIX Query response message- Example

```
MSH|^~\&|^2.16.840.1.113883.3.239.2^ISO|^2.16.840.1.113883.3.239^ISO|^2.16.840.1.113883.3.239.35.1.2.1.2^ISO|^2.16.840.1.113883.3.239.23.270^ISO|20090223154549-0500||RSP^K23^RSP_K23|1235421946|P|2.5|||||
UTF-8
MSA|AA|1235421946
QAK|Q231235421946|OK||8|5|7
QPD|IHE PIX Query|Q231235421946|L101^^^&1.3.6.1.4.1.21367.2009.1.2.310&ISO
PID|||101^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO~645^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO||~^^^^^S
```

2.7.2 MSH - Message Header Segment

Refer to the MSH segment in the PIX query message in section 2.6.2. The only difference for the query response is that field MSH-9-MessageType shall have all three components populated with a value. The first component shall have a value of RSP; the second component shall have the value of K23. The third component shall have a value of RSP_K23.

2.7.3 MSA - Message Acknowledgement Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-MSA	3	R		ST		MSA
1	Acknowledgment Code	2	R		ID	0008	AA
2	Message Control ID	20	R		ST		1235421946
3	Text Message	80	NS		ST		
4	Expected Sequence Number	15	NS		NM		
5	Delayed Acknowledgment Type		NS				
6	Error Condition	250	NS		CE	035Z	

MSA Segment –Example

MSA|AA|1235421946

2.7.3.1 Field Definitions and Business Rules

MSA.o Segment ID – MSA

Always populate this field with the static value **MSA**.

MSA.1 Acknowledgment Code

Provincial Client Registry will populate this field with **AA** or **AE**.

Note that **AA** is the only acknowledgement code that indicates that the message has been accepted. A value **AE** means that the message contents have not been accepted. Refer to the ERR segment for details.

MSA.2 Message Control ID

Provincial Client Registry will populate this field with the value from MSH.10 *Message Control ID* of the QBP^Q23 message sent by the initiating system.

2.7.4 ERR – Error Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-ERR	3	R		ST		ERR
1	Error Code and Location	493	NS	Y	ELD		
2	Error Location	18	NS	Y	ERL		
3	HL7 Error Code	705	R		CWE	0357	
3.1	Identifier				ID		NS200
3.2	Text				ST		unsupported interaction
4	Severity	2	R		ID	0516	
5	Application Error Code	705	O		CWE	0533	BUS
6	Application Error Parameter	80	NS	Y/10	ST		
7	Diagnostic Information	2048	NS		TX		
8	User Message	250	O		TX		
9	Inform Person Indicator	20	NS	Y	IS		
10	Override Type	705	NS		CWE		
11	Override Reason Code	705	NS	Y	CWE		
12	Help Desk Contact Point	652	NS	Y	XTN		

ERR Segment –Example

ERR|||NS200^unsupported interaction|E|BUS|||business constraint violation

2.7.4.1 Field Definitions and Business Rules

ERR.o Segment ID – ERR

Always populate this field with the static value **ERR**.

ERR.3 HL7 Error Code

Identifies the HL7 (communications) error code. Refer to [HL7 Table 0357 – Message Error Condition Codes](#) for valid values.

ERR.4 Severity

Identifies the severity of an application error. Determining if something is Error, Warning or Information is intrinsic to how an application handles the content. Refer to [HL7 Table 0516 - Error severity](#) for valid values. If ERR-3 has a value of "O", ERR-4 will have a value of "I".

ERR.5 Application Error Code

Application specific code identifying the specific error that occurred. Refer to [User-Defined Table 0533 – Application Error Code](#) for suggested values.

ERR.8 User Message

The text message to be displayed to the application user.

2.7.5 QAK – Query Acknowledgement Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-QAK	3	R		ST		QAK
1	Query Tag	32	R		ST		
2	Query Response Status	2	R		ID	0208	OK
3	Message Query Name	250	NS		CE	0471	
4	Hit Count	10	O		NM		8
5	This payload	10	O		NM		5
6	Hits remaining	10	O		NM		7

QAK Segment –Example

QAK|Q231235421946|OK||8|5|7

2.7.5.1 Field Definitions and Business Rules

QAK.o Segment ID – QAK

Always populate this field with the static value **QAK**.

QAK.1 Query Tag

The Provincial Client Registry will return the query tag submitted by the external system in QPD.2 *Query Tag* to allow the external system to match response messages to the originating query message.

QAK.2 Query Response Status

This field indicates whether the result set is present (return value “OK”), empty (return value “NF”).

QAK.4 Hit Count

This field, when used, contains the total number of records found by the Server that matched the query. The response will return all records up to system define limit.

QAK.5 This Payload

This field, when used, contains the total number of matching records that the Server sent in the current response.

QAK.6 Hits Remaining

This field shows the number of remaining elements in the hit list that can be returned using subsequent queries.

2.7.6 QPD – Query Parameter Definition Segment

Refer to the QPD segment in the PIX query message in section 2.7.6. The only difference is that the Patient Identifier Cross-reference Manager Actor shall echo the QPD Segment value that was sent in the QBP^Q23 message.

2.7.7 PID – Patient Identification Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-PID	3	R		ST		PID
1	Set ID - PID	4	NS		SI		
2	Patient ID	20	NS		CX		
3	Patient Identifier List	250	R	Y	CX		101^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO
3.1	ID Number		R		ST		101
3.2	Check Digit		NS				
3.3	Check Digit Scheme		NS				
3.4	Assigning Authority		R		HD		
3.4.1	Namespace ID		O		IS		
3.4.2	Universal ID		R		ST		1.3.6.1.4.1.21367.2009.1.2.300
3.4.3	Universal ID Type		R		ID	0301	ISO

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
4	Alternate Patient ID - PID	20	NS	Y	CX		
5	Patient Name	250	R	Y	XPN		~^~^~^~^S
6	Mother's Maiden Name	250	O	Y	XPN		
7	Date/Time of Birth	26	NS		TS		
8	Administrative Sex	1	NS		IS	0001	
9	Patient Alias	250	NS	Y	XPN		
10	Race	250	NS	Y	CE	0005	
11	Patient Address	250	NS	Y	XAD		
12	County Code	4	NS		IS	0289	
13	Phone Number - Home	250	NS	Y	XTN		
14	Phone Number - Business	250	NS	Y	XTN		
15	Primary Language	250	NS		CE	0296	
16	Marital Status	250	NS		CE	0002	
17	Religion	250	NS		CE	0006	
18	Patient Account Number	250	NS		CX		
19	SSN Number - Patient	16	NS		ST		
20	Driver's License Number - Patient	25	NS		DLN		
21	Mother's Identifier	250	NS	Y	CX		
22	Ethnic Group	250	NS	Y	CE	0189	
23	Birth Place	250	NS		ST		
24	Multiple Birth Indicator	1	NS		ID	0136	
25	Birth Order	2	NS		NM		
26	Citizenship	250	NS	Y	CE	0171	
27	Veterans Military Status	250	NS		CE	0172	
28	Nationality	250	NS		CE	0212	
29	Patient Death Date and Time	26	NS		TS		
30	Patient Death Indicator	1	NS		ID	0136	
31	Identity Unknown Indicator	1	NS		ID	0136	

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
32	Identity Reliability Code	20	NS	Y	IS	<u>0445</u>	
33	Last Update Date/Time	26	NS		TS		
34	Last Update Facility	241	NS		HD		
35	Species Code	250	NS		CE	<u>0446</u>	
36	Breed Code	250	NS		CE	<u>0447</u>	
37	Strain	80	NS		ST		
38	Production Class Code	250	NS	2	CE	<u>0429</u>	
39	Tribal Citizenship	250	NS	Y	CWE	<u>0171</u>	

PID Segment –Example

PID|||101^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO||~^^^^^S

2.7.7.1 Field Definitions and Business Rules

PID.o Segment ID – PID

Always populate this field with the static value **PID**.

PID.3 Patient Identifier List

The Patient Identifier Cross-reference Manager Actor shall use the field PID-3 Patient Identifier List to convey the Patient ID uniquely identifying the patient within each Patient Identification Domain for which a Patient ID exists for the specified patient. The Assigning Authority component returned shall include subcomponents Universal ID and Universal ID type.

PID.5 Patient Name

Always populate this field with the static value "**~^^^^^S**".

3 Patient Demographics Query (PDQ)

3.1 ITI-21 Patient Demographics Query

The PDQ (Patient Demographics Query) integration profile lets applications query the PCR in order to uniquely identify patients using their demographics information.

3.2 Scope

This section corresponds to Transaction ITI-21 of the IHE IT Infrastructure Technical Framework. Transaction ITI-21 is used by the Patient Demographics Consumer and Patient Demographics Supplier actors.

This transaction involves a request by the Patient Demographics Consumer Actor for information about patients whose demographic data match data provided in the query message. The request is received by the Patient Demographics Supplier Actor. The Patient Demographics Supplier Actor immediately processes the request and returns a response in the form of demographic information for matching patients.

For example, a responsive patient is brought to hospital ABC's emergency department without a health card. In order to access patient health records in repositories in Ontario, the patient must be uniquely identified. Since the patient is responsive, he is able to provide the health care professionals with information such as his name, DOB, etc. The Patient Demographics Consumer (hospital ABC) uses this information to compose a PDQ query and send it to the Patient Demographics Supplier (the PCR). The response by PCR will include a list of patients with their demographics and identifiers. The Patient Demographics Consumer will review the returned patients and choose the correct patient.

3.3 Referenced Standards

- HL7: Version 2.5, Chapter 2 – Control
- Version 2.5, Chapter 3 – Patient Administration
- Version 2.5, Chapter 5 – Query

3.4 Interaction Diagrams

The following diagram is created by IHE to illustrate the high level interaction between a Patient Identifier Cross-reference Consumer and Patient Identifier Cross-reference Manager.

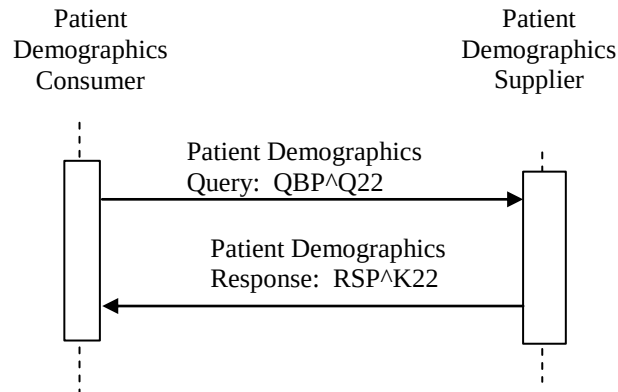


Figure 2: Patient Demographics Query / Response

Actor: Patient Demographics Consumer

Role: Requests a list of patients matching a minimal set of demographic criteria (e.g. ID or partial name) from the Patient Demographics Supplier. Populates its attributes with demographic information received from the Patient Demographics Supplier.

Actor: Patient Demographics Supplier

Role: Returns demographic information for all patients matching the demographic criteria provided by the Patient Demographics Consumer.

3.5 Trigger Events

The Patient Demographics Consumer's need for identifiers associated with a healthcare client will trigger the following message:

- Q22 – Patient Demographics Query

The Patient Demographics Supplier's response to the Patient Demographics Query will trigger the following message:

- K22 – Patient Demographics Response

3.6 PDQ Query [ITI-21] message- QBP^Q22

3.6.1 Message Level

The Patient Demographics Query is conducted by the HL7 QBP^Q22 message. The Patient Demographics Consumer actor will generate the query message whenever it needs to select from a list of patients whose information matches a minimal set of demographic data. The segments of the message listed below are required, and their detailed descriptions are provided in the following subsections.

QBP	Query by Parameter	Chapter in HL7 2.5
MSH	Message Header	2
QPD	Query Parameter Definition	5
RCP	Response Control Parameter	5

[DSC]	Continuation Pointer	2
-------	----------------------	---

PDQ Query Request Message- Example

MSH|^~\&|^2.16.840.1.113883.3.239.35.1.2.1.2^ISO|^2.16.840.1.113883.3.239.23.270^ISO|^2.16.840.1.113883.3.239.2^ISO|^2.16.840.1.113883.3.239^ISO|201403141002-0500||QBP^Q22^QBP_Q21|1235421946|P|2.5|||||
 UTF-8
 QPD|IHE PDQ Query|4870964660388599565096567512128|@PID.5.1.1^MOORE~@PID.7.1^19380224
 RCP|I|10^RD

3.6.2 MSH-Message Header Segment

Refer to the MSH segment in the PIX query message in section 2.6.2

Field *MSH-9-Message Type* shall have all three components populated with a value. The first component shall have a value of QBP; the second component shall have the value of Q22. The third component shall have a value of QBP_Q21.

3.6.3 QPD-Query Parameter Definition

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-QPD	3	R				QPD
1	Message Query Name	250	R		CE		
1.1	Identifier		R		ST		IHE PDQ Query
2	Query Tag	32	R		ST		Q231235421946
3	Demographics Fields	250	R	Y	QIP		@PID.5.1.1^MOORE
3.1	Component Name		R				@PID.5.1.1
3.2	Component Value		R				MOORE
8	What Domains Returned		NS		CX		

QPD Segment –Example

QPD|IHE PDQ Query|4870964660388599565096567512128|@PID.5.1.1^MOORE~@PID.7.1^19380224

3.6.3.1 Field Definitions and Business Rules

QPD.0 Segment ID – QPD

Always populate this field with the static value “**QPD**”.

QPD.1 Message Query Name

Specify "IHE PDQ Query" for QPD-1 Message Query Name

QPD.2 Query Tag

This field may be valued by the initiating system to identify the query, and may be used to match response messages to the originating query. If this field is valued, the responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QPD.3 Demographics Fields

Field *QPD-3-Demographics Fields* consists of one or more repetitions, each of which contains two components that together contain the name and value of a distinct parameter to the query. Acceptable segments are PID and PD1.

The first component of each parameter contains the name of an HL7 element in the form:

@<seg>.<field no>.<component no>.<subcomponent no>

The above format is populated according to common HL7 usage for specifying elements used in query parameters, as follows:

<seg> represents a 3-character segment ID from the HL7 Standard.

<field no> is the number of a field within the segment as shown in the SEQ column of the segment attribute table for the segment selected.

<component no>, for fields whose data types contain multiple components, shall contain the cardinal number of the component being valued. For fields whose data types do not contain multiple components, <component no> shall not be valued and its preceding period shall not appear.

<subcomponent no>, for components whose data types contain multiple subcomponents, shall contain the cardinal number of the subcomponent being valued. For components whose data types do not contain multiple subcomponents, <subcomponent no> shall not be valued and its preceding period shall not appear.

The second subcomponent of each parameter contains the value that is to be matched. If it is desired to constrain the quality of a match within the bounds of an algorithm known to the Supplier, the algorithm and constraint values may be specified in Fields QPD-4 through QPD-7.

The Patient Demographics Consumer may specify, and the Patient Demographics Supplier shall support, the fields in the table below.

The Patient Demographics Supplier shall return demographic records that reflect the best fit to all of the search criteria.

QPD-3 fields required to be supported as search parameters

Fld	Element Name	Comments
PID.3	Patient Identifier List	
PID.5	Patient Name	
PID.6	Mother's Maiden Name	

PID.7	Date/Time of Birth	
PID.8	Administrative Sex	
PID.11	Patient Address	
PID.13	Phone Number - Home	
PID.18	Patient Account Number	Not supported by Provincial Client Registry

An example of parameter expressions in QPD-3:

@PID.5.1.1^SMITH~@PID.8.1^F

Requests all patients whose family name (first subcomponent (data type ST) of the first component (data type FN) of PID-5-Patient Name (data type XPN)) matches the value 'SMITH' and whose sex (PID-8-Sex (data type IS)) matches the value 'female'.

3.6.4 RCP-Response Control Parameter

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-RCP						RCP
1	Query Priority	1	* O		ID		I
2	Quantity Limited Request	10	O		CQ		10^RD
2.1	Quantity				NM		10
2.2	Units				CE		RD
3	Response Modality	250	NS		CE	0394	
4	Execution and Delivery Time	26	NS		TS		
5	Modify Indicator	1	NS		ID	0395	
6	Sort-by Field	512	NS	Y	SRT		
7	Segment group inclusion	256		Y	ID		

RCP Segment –Example

RCP|I|10^RD

3.6.4.1 Field Definitions and Business Rules

RCP.0 Segment ID – RCP

Always populate this field with the static value “RCP”.

RCP.1 Query Priority

If populated, the RCP-1 -Query Priority field should always contain "I", signifying that the response to the query is to be returned in 'Immediate' mode.

RCP.2 Quantity Limited Request

The Patient Demographics Consumer Actor may request that responses to the query be sent, using the HL7 Continuation Protocol, in increments of a specified number of patient records. (In the context of the HL7 query, a patient record is defined as the PID segment and any segments accompanying it for each patient.) It is desirable to request an incremental response if the query could result in hundreds or thousands of matches or "hits."

The Patient Demographics Supplier Actor shall support the HL7 Continuation Protocol.

Field RCP-2 is of data type CQ, which contains two components. The first component contains the number of increments, always expressed as an integer greater than 0, while the second component contains the kind of increment, always RD to signify that incremental replies are specified in terms of records.

For example, 50^RD requests 50 records at a time.

3.6.5 DSC-Continuation Pointer

The Patient Demographics Supplier sends a DSC segment containing a continuation pointer value if there are additional increments of data that will be available upon request by the consumer.

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-DSC						DSC
1	Continuation Pointer	180	NS		ST		
2	Continuation Style	1	NS		ID		

3.7 Response Message- RSP^K22

In response to a PDQ query the response discussed in this section is returned back to the requester.

3.7.1 Message-Level Profile

RSP	Segment Pattern Response	Chapter in HL7 2.5
MSH	Message Header	2
MSA	Message Acknowledgement	2
[{ERR}]	Error	2
QAK	Query Acknowledgement	5
QPD	Query Parameter Definition	5
[{ PID	Patient Identification	3
[PD1]		
[QRI] }	Query Response Instance	5
]		
[DSC]	Continuation Pointer	2

PDQ Query Response Message- Example

```
MSH|^~\&|^2.16.840.1.113883.3.239.2^ISO|^2.16.840.1.113883.3.239^ISO|^2.16.840.1.113883.3.239.35.1.2.1.2^ISO|^2.16.840.1.113883.3.239.23.270^ISO|20090223154549-0500||RSP^K22^RSP_K21|1235421946|P|2.5|||||
UTF-8
MSA|AA|7965847682428535543
QAK|4870964660388599565096567512128|OK||6|6|0
QPD|IHE PDQ Query|Q231235421946234|@PID.5.1.1^MOORE~@PID.7.1^19380224
PID|1||12345^^^&1.3.6.1.4.1.21367.2009.1.2.310&ISO~PDQ113XX04^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO~TE
MP000025^^^&1.3.6.1.4.1.21367.2009.1.2.348&ISO||MOORE^WARREN^STEVEN^JR^DR^MD^L||19380224|M
||1000 CLAYTON RD^2nd FLOOR^TORONTO^CA-ON^M7K7T5^CAN^H|
|^PRN^^First.Last@mail.com^1^416^555555^1234||ENG|||||Y|N||||N
PID1|||||||Y
QRI|2
PID|2||TEMP000020^^^&1.3.6.1.4.1.21367.2009.1.2.348&ISO||MOORE^MARK^A||19380224|F
PID1|||||||Y
QRI|1.22
```

3.7.2 MSH - Message Header Segment

Refer to the MSH segment in the PIX query message in section 2.6.2. The only difference is that field *MSH-3-Sending Application* specifies the patient information source that processed the query. The Patient Demographics Supplier shall use Field *MSH-3-Sending Application* of the RSP^K22 message to return the value it received from the Patient Demographics Consumer in Field *MSH-5-Receiving Application* of the QBP^Q22 message.

Field *MSH-9-Message Type* shall have all three components populated with a value. The first component shall have a value of **RSP**; the second component shall have a value of **K22**. The third component shall have a value of **RSP_K21**.

3.7.3 MSA - Message Acknowledgement Segment

Refer to the MSA segment in the PIX response query message in section 2.7.3

3.7.4 ERR – Error Segment

Refer to the ERR segment in the PIX response query message in section 2.7.4.

3.7.5 QAK – Query Acknowledgement Segment

Refer to the QAK segment in the PIX response query message in section 2.7.5

3.7.6 QPD – Query Parameter Definition Segment

Refer to the QPD segment in the PIX query message in section 2.7.6

The Patient Demographics Supplier shall echo the QPD Segment value that was sent in the QBP^Q22 message.

3.7.7 PID – Patient Identification Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-PID	3	R		ST		PID
1	Set ID - PID	4	O		SI		1
2	Patient ID	20	NS		CX		
3	Patient Identifier List	250	R	* Y	CX		101^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO
3.1	ID Number		R		ST		101
3.2	Check Digit		NS				
3.3	Check Digit Scheme		NS				
3.4	Assigning Authority		R		HD		
3.4.1	Namespace ID		O		IS		
3.4.2	Universal ID		R		ST		1.3.6.1.4.1.21367.2009.1.2.300
3.4.3	Universal ID Type		R		ID	0301	ISO
4	Alternate Patient ID - PID	20	NS	Y	CX		
5	Patient Name	250	R	* Y	XPN		
5.1	Last Name		RE		FN		Smith
5.2	First Name		O		ST		John
5.3	Second Name		O		ST		Steven

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
5.4	Suffix		O		ST		JR
5.5	Prefix		O		ST		DR
5.6	Degree		X		IS		MD
5.7	Name Type Code		R		ID	0200	L
6	Mother's Maiden Name	250	O	Y	XPN		
6.1	Last Name		RE		FN		Jason
6.2	First Name		O		ST		Mary
6.3	Second Name		O		ST		Ann
6.4	Suffix		O		ST		
6.5	Prefix		O		ST		
6.6	Degree		X		IS		
7	Date/Time of Birth	26	R2		TS		
8	Administrative Sex	1	R2		IS	0001	
9	Patient Alias	250	NS	Y	XPN		
10	Race	250	NS	Y	CE	0005	
11	Patient Address	250	R2	Y	XAD		
11.1	Street Address		O		SAD		777 Bay Street
11.2	Other Designation		R		ST		3rd Floor
11.3	City		R		ST		Toronto
11.4	State or Province		R		ST	0347	CA-ON
11.5	Zip or Postal Code		R		ST		M5W 7E6
11.6	Country		R		ID	0399	CAN
11.7	Address Type		R		ID	0190	H
12	County Code	4	B		IS	0289	
13	Phone Number - Home	250	O	Y	XTN		
13.1	Telephone Number		NS				
13.2	Telecom Use Code		R		ID	0201	PRN
13.3	Telecom ment Type		NS		ID		
13.4	Email Address		O		ST		First.Last@mail.com
13.5	Country Code		O		NM		1
13.6	Area/City Code		O		NM		416
13.7	Local Number		R		NM		5555555
13.8	Extension		O		NM		1234

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
14	Phone Number - Business	250	NS	Y	XTN		
15	Primary Language	250	O		CE	0296	
16	Marital Status	250	NS		CE	0002	
17	Religion	250	NS		CE	0006	
18	Patient Account Number	250	NS		CX		
19	SSN Number - Patient	16	NS		ST		
20	Driver's License Number - Patient	25	NS		DLN		
21	Mother's Identifier	250	NS	Y	CX		
22	Ethnic Group	250	NS	Y	CE	0189	
23	Birth Place	250	NS		ST		
24	Multiple Birth Indicator	1	O		ID	0136	Y
25	Birth Order	2	O		NM		2
26	Citizenship	250	NS	Y	CE	0171	
27	Veterans Military Status	250	NS		CE	0172	
28	Nationality	250	NS		CE	0212	
29	Patient Death Date and Time	26	O		TS		
30	Patient Death Indicator	1	O		ID	0136	
31	Identity Unknown Indicator	1	NS		ID	0136	
32	Identity Reliability Code	20	NS	Y	IS	0445	
33	Last Update Date/Time	26	NS		TS		
34	Last Update Facility	241	NS		HD		
35	Species Code	250	NS		CE	0446	
36	Breed Code	250	NS		CE	0447	
37	Strain	80	NS		ST		
38	Production Class Code	250	NS	2	CE	0429	
39	Tribal Citizenship	250	NS	Y	CWE	0171	

PID Segment –Example

```
PID|1||12345^^^&1.3.6.1.4.1.21367.2009.1.2.310&ISO~PDQ113XX04^^^&1.3.6.1.4.1.21367.2009.1.2.300&ISO~TE  
MP000025^^^&1.3.6.1.4.1.21367.2009.1.2.348&ISO||MOODY^WARREN^STEVEN^JR^DR^MD^L|JASON^MAR  
Y^ANN|19780820|M||1000CLAYTON RD^2nd FLOOR^TORONTO^CA-ON^M7K7T5^CAN^H|^PRN^^  
First.Last@mail.com^1^416^5555555^1234||ENG|||||||Y|N||||N  
PID|2||TEMP000020^^^&1.3.6.1.4.1.21367.2009.1.2.348&ISO||MOORE^MARK^A||19380224|F
```

3.7.7.1 Field Definitions and Business Rules

PID.o Segment ID – PID

Always populate this field with the static value **PID**.

PID.1 Set ID

In the RSP^K2.2 message, each instance of the PID segment will contain a sequential number in this field, starting with “1”.

PID.3 Patient Identifier List

This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, health number, alternative identifier, EMPI entity ID, Member ID).

PID.5 Patient Name

This field contains the names of the patient. The primary or legal name of the patient is reported first. Therefore, the name type code in this field for the first name returned shall be “L - Legal”. Repetition of this field is allowed for representing the same name in different character sets.

PID.6 Mother's Maiden Name

This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name. Note: As per current Privacy Policy Mother's Maiden Name information will be masked in the response message.

PID.7 Date/Time of Birth

Format: CCYYMMDD

PID.8 Sex

This field contains the patient's sex. Refer to [User-defined Table 0001 - Administrative Sex](#) for suggested values.

PID.11 Patient Address

This field contains the mailing address of the patient. Address type codes are defined by [HL7 Table 0190 - Address Type](#). Multiple addresses for the same person may be sent in the following sequence: The primary mailing address

must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

PID.13 Phone Number - Home

This field contains the patient's personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Refer to [HL7 Table 0201 - Telecommunication Use Code](#) for valid values.

Example (telephone number):

^PRN^^^1^416^5551212^1234

Example (e-mail address):

^NET^^first.last@mailbox.com

PID.15 Primary Language

This field contains the patient's primary language.

PID.24 Multiple Birth Indicator

This field indicates whether the patient was part of a multiple birth.

Refer to [HL7 Table 0136 - Yes/No Indicator](#) for valid values.

Y the patient was part of a multiple birth
N the patient was a single birth

PID.25 Birth Order

When patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field.

PID.29 Patient Death Date and Time

Populate if known when Patient Death Indicator field indicates that patient is deceased.

Format: CCYYMMDD

Examples: **20130815**

PID.30 Patient Death Indicator

Refer to [HL7 Table 0136 - Yes/No Indicator](#) for valid values.

Y the patient is deceased
N the patient is not deceased

3.7.8 PD1- Patient Additional Demographic Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-PD1						PD1
1	Living Dependency	2	NS	Y	IS	0223	
2	Living Arrangement	2	NS		IS	0220	
3	Patient Primary Facility	250	NS	Y	XON		
4	Patient Primary Care Provider Name & ID No.	250	NS	Y	XCN		
5	Student Indicator	2	NS		IS	0231	
6	Handicap	2	NS		IS	0295	
7	Living Will Code	2	NS		IS	0315	
8	Organ Donor Code	2	NS		IS	0316	
9	Separate Bill	1	NS		ID	0136	
10	Duplicate Patient	250	NS	Y	CX		
11	Publicity Code	250	NS		CE	0215	
12	Protection Indicator	1	O		ID	0136	
13	Protection Indicator Effective Date	8	NS		DT		
14	Place of Worship	250	NS	Y	XON		
15	Advance Directive Code	250	NS	Y	CE	0435	
16	Immunization Registry Status	1	NS		IS	0441	
17	Immunization Registry Status Effective Date	8	NS		DT		
18	Publicity Code Effective Date	8	NS		DT		
19	Military Branch	5	NS		IS	0140	
20	Military Rank/Grade	2	NS		IS	0141	
21	Military Status	3	NS		IS	0142	

PD1 Segment –Example

PID1|||||||Y

3.7.8.1 Field Definitions and Business Rules

PD1.0 Segment ID – PD1

Always populate this field with the static value **PID1**.

PD1.12 Protection Indicator

This field identifies the patient's protection that determines, in turn, whether access to information about this person should be kept from users who do not have adequate authority for the patient. Refer to [HL7 Table 0136 - Yes/No Indicator](#) for valid values.

Y protect access to information
N normal access

3.7.9 QRI- Query Response Instance Segment

Seq	Name	Len	IHE Opt	RP/#	Type	Table	Example Value
0	Segment ID-QRI						QRI
1	Candidate Confidence	10	O		NM		1.22
2	Match Reason Code	2	NS	Y	IS	0392	
3	Algorithm Descriptor	250	NS		CE	0393	

QRI Segment –Example

[QRI|1.22](#)

3.7.9.1 Field Definitions and Business Rules

QRI.0 Segment ID – QRI

Always populate this field with the static value [QRI](#).

QRI.1 Candidate Confidence

This field contains a numeric value indicating the match weight or confidence level associated with the record.

Example: [|0.88|](#) or [|12.32|](#)

One use of this optional field is in Patient Look-up transactions where the searching system employs a numeric algorithm for determining potential matches to patient/person look-ups.

3.7.10 DSC- Continuation Pointer Segment

Refer to the DSC segment in the PDQ query message in section 3.6.5.

4 Data Definition Tables

Type	Table	Value	Description	Comments
User	0001	Administrative Sex		
	0001	F	Female	
	0001	M	Male	
	0001	U	Unknown	
HL7	0003	Event Type		
	0003	K22	RSP _ Find candidates response	
	0003	K23	RSP _ Get corresponding identifiers response	
	0003	Q21	QBP _ Get person demographics	
	0003	Q22	QBP _ Find candidates	
	0003	Q23	QBP _ Get corresponding identifiers	
HL7	0008	Acknowledgment Code		
	0008	AA	Original mode: Application Accept - Enhanced mode: Application acknowledgment: Accept	
	0008	AE	Original mode: Application Error - Enhanced mode: Application acknowledgment: Error	
	0008	AR	Original mode: Application Reject - Enhanced mode: Application acknowledgment: Reject	
	0008	CA	Enhanced mode: Accept acknowledgment: Commit Accept	
	0008	CE	Enhanced mode: Accept acknowledgment: Commit Error	
	0008	CR	Enhanced mode: Accept acknowledgment: Commit Reject	
HL7	0076	Message Type		
	0076	QBP	Query by parameter	
	0076	RSP	Segment pattern response	
HL7	0103	Processing ID		
	0103	P	Production	
	0103	T	Training	

HL7	0136	Yes/No Indicator		
	0136	Y	Yes	
	0136	N	No	
HL7	0190	Address Type		
	0190	H	Home	
	0190	M	Mailing	
	0190	C	Temporary Home/Mailing Address	The same code for temporary home and temporary mailing address
HL7	0200	Name Type		
	0200	A	Alias Name	
	0200	L	Legal Name	
HL7	0201	Telecommunication Use Code		
	0201	PRN	Home	
	0201	WPN	Work Phone	
	0201	EMG	Emergency Phone	
	0201	PRS	Mobile Phone	This code has been pre-adopted from HL7 v2.7
	0201	ORN	Other Phone	
	0201	NET	Home/Workplace Email	There is only one email address in HL7 v2 – no way to distinguish between home and workplace email address
HL7	0207	Processing Mode		
	0207	T	Current processing, transmitted at intervals (scheduled or on demand)	
HL7	0208	Query Response Status		
	0208	NF	No data found, no errors	
	0208	OK	Data found, no errors (this is the default)	
	0208	AE	Application error	
	0208	AR	Application reject	
User	0296	Primary Language		
	0296		The set of 3-characters language codes from the ISO-639-3 standard, e.g., eng, fra	http://www-01.sil.org/iso639-3/codes.asp

HL7	0301	Universal ID Type		
	0301	ISO	An International Standards Organization Object Identifier	
HL7	0347	State/Province		
	0347	CA-AB	Alberta	
	0347	CA-BC	British Columbia	
	0347	CA-MB	Manitoba	
	0347	CA-NB	New Brunswick	
	0347	CA-NL	Newfoundland and Labrador	
	0347	CA-NS	Nova Scotia	
	0347	CA-NT	Northwest Territories	
	0347	CA-NU	Nunavut	
	0347	CA-ON	Ontario	
	0347	CA-PE	Prince Edward Island	
	0347	CA-QC	Quebec	
	0347	CA-SK	Saskatchewan	
	0347	CA-YT	Yukon Territories	
	0347	US-AK	Alaska	
	0347	US-AL	Alabama	
	0347	US-AR	Arkansas	
	0347	US-AZ	Arizona	
	0347	US-CA	California	
	0347	US-CO	Colorado	
	0347	US-CT	Connecticut	
	0347	US-CZ	Canal Zone	
	0347	US-DC	District Of Columbia	
	0347	US-DE	Delaware	
	0347	US-FL	Florida	
	0347	US-GA	Georgia	
	0347	US-GU	Guam	
	0347	US-HI	Hawaii	

	0347	US-IA	Iowa	
	0347	US-ID	Idaho	
	0347	US-IL	Illinois	
	0347	US-IN	Indiana	
	0347	US-KS	Kansas	
	0347	US-KY	Kentucky	
	0347	US-LA	Louisiana	
	0347	US-MA	Massachusetts	
	0347	US-MD	Maryland	
	0347	US-ME	Maine	
	0347	US-MI	Michigan	
	0347	US-MN	Minnesota	
	0347	US-MO	Missouri	
	0347	US-MS	Mississippi	
	0347	US-MT	Montana	
	0347	US-NC	North Carolina	
	0347	US-ND	North Dakota	
	0347	US-NE	Nebraska	
	0347	US-NH	New Hampshire	
	0347	US-NJ	New Jersey	
	0347	US-NM	New Mexico	
	0347	US-NV	Nevada	
	0347	US-NY	New York	
	0347	US-OH	Ohio	
	0347	US-OK	Oklahoma	
	0347	US-OR	Oregon	
	0347	US-PA	Pennsylvania	
	0347	US-PR	Puerto Rico	
	0347	US-RI	Rhode Island	
	0347	US-SC	South Carolina	
	0347	US-SD	South Dakota	

	0347	US-TN	Tennessee	
	0347	US-TX	Texas	
	0347	US-UT	Utah	
	0347	US-VA	Virginia	
	0347	US-VI	Virgin Islands	
	0347	US-VT	Vermont	
	0347	US-WA	Washington	
	0347	US-WI	Wisconsin	
	0347	US-WV	West Virginia	
	0347	US-WY	Wyoming	
HL7	0357	Message Error Condition Codes		
	0357	NS200	Unsupported interaction	The interaction (or: this version of the interaction) is not supported.
	0357	NS202	Unsupported processing id	The Processing ID is not supported.
	0357	NS203	Unsupported version id	The Version ID is not supported.
	0357	NS250	Unsupported processing Mode	The processing mode is not supported.
	0357	NS260	Unknown sender	The Device ID of the sender is unknown.
	0357	NS261	Unrecognized attention line	The receiver requires information in the attention Lineclasses for routing purposes.
	0357	INTERR	Internal system error	An internal software component (database, application, queue mechanism, etc.) has failed, and it is leading to inability to process the message.
	0357	NOSTORE	No storage space for message	Rejection: The message can't be stored by the receiver due to an unspecified internal application issue. The message was neither processed nor stored by the receiving application.
	0357	RTEDEST	Message routing error, destination unreachable	Error: The destination of this message is known to the receiving application. Messages have been successfully routed to that destination in the past. The link to the destination application or an intermediate application is

				unavailable.
	0357	RTUDEST	Error: messengerouting error, unknown destination	The destination of this message is unknown to the receiving application. The receiving application in the message does not match the application which received the message. The message was neither routed/processed nor stored by the receiving application.
	0357	RTWDEST	Message routing warning, destination unreachable	Warning: The destination of this message is known to the receiving application. Messages have been successfully routed to that destination in the past. The link to the destination application or an intermediate application is (temporarily) unavailable. The receiving application will forward the message as soon as the destination can be reached again.
	0357	SYN	Syntax error	Reflect errors in the syntax, or structure of the communication.
	0357	SYN105	Required element missing	Required association or attribute missing in message; or the sequence of the classes is different than required by the standard or one of the conformance profiles identified in the message.
	0357	SYN100	Required association missing	Required association missing in message; or the sequence of the classes is different than required by the standard or one of the conformance profiles identified in the message.
	0357	SYN101	Required attribute missing	A required attribute is missing in a class.
	0357	SYN114	Insufficient repetitions	The number of repetitions of a group of association or attributes is less than the required minimum for the standard or of one of the conformance profiles or templates identified in the message.
	0357	SYN102	Data type error	The attribute contained data of the wrong data type, e.g. a numeric attribute contained "FOO".

	0357	SYN106	Terminology error	A coded attribute or data type property violates one of the terminology constraints specified in the standard or one of the conformance profiles or templates declared by the instance.
	0357	SYN103	Value not found in code system	An attribute value was compared against the corresponding code system, and no match was found.
	0357	SYN104	Invalid code system in CNE	An attribute value referenced a code system that is not valid for an attribute constrained to CNE.
	0357	SYN107	Deprecated Code	A coded attribute is referencing a code that has been deprecated by the owning code system.
	0357	SYN108	Number of repetitions exceeds limit	The number of repetitions of a (group of) association(s) or attribute(s) exceeds the limits of the standard or of one of the conformance profiles or templates identified in the message.
	0357	SYN110	Number of association repetitions exceeds limit	The number of repetitions of a (group of) association(s) exceeds the limits of the standard or of one of the conformance profiles identified in the message.
	0357	SYN112	Number of attribute repetitions exceeds limit	The number of repetitions of an attribute exceeds the limits of the standard or of one of the conformance profiles identified in the message.
	0357	SYN109	Mandatory element with null value	An attribute or association identified as mandatory in a specification or declared conformance profile or template has been specified with a null flavor.
	0357	SYN111	Value does not match fixed value	The value of an attribute or property differs from the fixed value asserted in the standard or one of the conformance profiles or templates declared in the message.
	0357	SYN113	Formal constraint violation	A formal constraint asserted in the standard or one of the conformance profiles or templates declared in the message has been violated.

HL7	0399	Country		
	0399		The set of 3-characters country codes from the ISO-3166-1 standard, e.g., CAN, USA	www.iso.org/iso/country_codes.htm
HL7	0354	Message Structure		
	0354	QBP_Q21	Q21, Q22, Q23	
HL7	0516	Error Severity		
	0516	E	Error	An issue which has prevented, or will prevent (unless a management is provided for the issue by the sender), the successful processing of an interaction. Response interactions which include an issue which is an Error are a 'rejection', indicating that the request was not successfully processed. E.g. "Unable to find specified patient".
	0516	I	Information	The message relates to an issue which has no bearing on the successful processing of the request. Information issues cannot be overridden by specifying a management. E.g. "Patient's coverage will expire in 5 days"
	0516	W	Warning	The message relates to an issue which cannot prevent the successful processing of a request, but which could result in the processing not having the ideal or intended effect. Managing a warning issue is not required for successful processing but will suppress the warning from being raised. E.g. "Unexpected additional repetitions of phone number have been ignored".

User	0533	Application Error Code		
	0533	NAT	Insufficient authorization	The requesting party has insufficient authorization to invoke the interaction.
	0533	VALIDAT	Validation issue	The specified element did not pass business-rule validation
	0533	BUS	Business constraint violation	A local business rule relating multiple elements has been violated
	0533	CODE_NVAL	Code is not valid	The specified code is not valid against the list of codes allowed for the element
	0533	CODE_DEPREC	Code has been deprecated	The specified code has been deprecated and should no longer be used. Select another code from the code system
	0533	FORMAT	Invalid format	The element does not follow the formatting or type rules defined for the field
	0533	ILLEGAL	Not legal	The request is missing elements or contains elements which cause it to not meet the legal standards for actioning
	0533	KEY204	Unknown key identifier	The ID of the patient, order, etc., was not found. Used for transactions other than additions, e.g. transfer of a non-existent patient.
	0533	KEY205	Duplicate key identifier	The ID of the patient, order, etc., already exists. Used in response to addition transactions (Admit, New Order, etc.).
	0533	LEN_RANGE	Length out of range	The length of the data specified falls out of the range defined for the element
	0533	LEN_SHORT	Length is too short	The length of the data specified is less than the minimum length defined for the element
	0533	LEN_LONG	Length is too long	The length of the data specified is greater than the maximum length defined for the element
	0533	MISSCOND	Conditional element missing	The specified element must be specified with a non-null value under certain conditions. In this case, the conditions are true but the element is still missing or null.

	0533	MISSMAND	Mandatory element missing	The specified element is mandatory and was not included in the instance
	0533	NODUPS	Duplicate values are not permitted	More than one element with the same value is not permitted within the set.
	0533	REP_RANGE	Repetitions out of range	The number of repeating elements falls outside the range of the allowed number of repetitions
	0533	MINOCCURS	Repetitions below minimum	The number of repeating elements is below the minimum number of repetitions allowed
	0533	MAXOCCURS	Repetitions above maximum	The number of repeating elements is above the maximum number of repetitions allowed
	0533	ALLDONE	Already performed	The requested action has already been performed and so this request has no effect
	0533	HELD	Held/Suspended alert	There should be no actions taken in fulfillment of a request which has been held or suspended.