



MIIC HL7 2.5.1 v1.5 Query Guide

SUBMITTING QBP MESSAGES

This document is designed for organizations interested in accessing the Minnesota Immunization Information Connection (MIIC) through HL7 query messages in order to obtain either a complete immunization history or evaluated immunization history and forecast for one client. It is based on the Centers for Disease Control and Prevention (CDC) “HL7 Version 2.5.1: Implementation Guide for Immunization Messaging,” Release 1.5. For general guidance on HL7 immunization messaging, see the CDC implementation guide at [IIS Health Level 7 \(HL7\) Implementation](http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html) (<http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html>).

Contents

Introduction	3
Purpose	3
HL7 Usage Codes	3
General Guidelines	4
Sample Messages	4
Detailed Segment Listings	6
MSH – Message Header Segment	6
QPD – Input Parameter Definition Segment	9
RCP – Response Control Parameter Segment	10
MIIC Responses to Different Query Outcomes	11

Introduction

Purpose

The purpose of this document is to provide a concise guide to the Health Level 7 (HL7) 2.5.1 Query by Parameter Query (QBP) messages accepted by the Minnesota Immunization Information Connection (MIIC). HL7 is a standard messaging protocol used to exchange data between health care data systems. Organizations based in Minnesota must follow the specifications outlined here to query MIIC's production environment.

Note: All organizations interested in starting or enhancing a data interface with MIIC must begin by completing the "MDH Data Exchange Registration" at [Process for Working on Data Exchange with MIIC](https://www.health.state.mn.us/people/immunize/miic/data/dxprocess.html) (<https://www.health.state.mn.us/people/immunize/miic/data/dxprocess.html>).

HL7 Usage Codes

Usage	Specifications
R	Data fields marked "R" are required and must be submitted to MIIC.
RE	Data fields marked "RE" are required if information is available and the field is applicable, but may be empty. MIIC strongly recommends the collection and submission of these data elements to ensure good data de-duplication and data quality.
C	Data fields marked "C" are conditional, which means that they are required if a field that they are related to contains a specific value.
O	Data fields marked "O" are optional. Data may be sent if you have them, but MIIC may not process them.
X	Data fields marked "X" are deprecated and data should not be sent in this portion of the message. Please DO NOT include Social Security Number (SSN) in messages sent to MIIC.

General Guidelines

When sending messages, either to request a complete immunization history or to request an evaluated immunization history and forecast, please be sure to follow the HL7 format below. You can see [sample messages](#) in this guide for reference.

Z34 Request Complete Immunization History and Z44 Request Evaluated Immunization History and Forecast Usages Table

QBP^Q11^QBP_Q11	Cardinality	Usage	Comment
MSH	[1..1]	R	Every message begins with an MSH.
QPD	[1..1]	R	Every QBP has one QPD segment.
RCP	[1..1]	R	Every QBP has one RCP segment.

Sample Messages

We will use the below scenarios and sample messages to show how to populate specific segments of an HL7 message throughout this guide.

Scenario 1

A male child, Mickey J. Mouse, comes to the clinic for an annual visit. A staff person locates his medical record in the EHR system. The staff person confirms demographic information, including address. The staff person triggers a request to the IIS for an evaluated history and forecast for the child. The IIS performs a search for Mickey J. Mouse and finds one high-confidence match. The IIS generates an evaluated history and forecast for Mickey and returns this to the EHR system.

Message 1

```
MSH|^~\&|MIICOrgCode|MIIC|MIIC|201705130822||QBP^Q11^QBP_Q11|12345|P|2.5.1|||ER|AL||||Z4
4^CDCPHINVS|^MIIC^SR^MIIC|MIIC
QPD|Z44^Request Evaluated Immunization History and
Forecast^CDCPHINVS|3162036||Mouse^Mickey^J||20060504|M|12345 testing
ave^^Minneapolis^MN^55407|^PRN^PH^^555^5555555|
RCP|I|10^RD^HL70126|R^real-time^HL70394|
```

Scenario 2

A male child, Mickey J. Mouse, comes to the clinic for an annual visit. A staff person locates his medical record in the EHR system. The staff person confirms demographic information, including address. The staff person triggers a request to the IIS for a complete immunization history for the child. The IIS performs a search for

Mickey J. Mouse and finds one high-confidence match. The IIS generates a complete immunization history for Mickey and returns this to the EHR system.

Message 2

```
MSH|^~\&|MIICOrgCode|MIIC|MIIC|201705130822||QBP^Q11^QBP_Q11|12345|P|2.5.1|||ER|AL|||Z3  
4^CDCPHINVS|^^^^MIIC^SR^^MIIC|MIIC  
QPD|Z34^Request Immunization History^CDCPHINVS|3162036||Mouse^Mickey^J||20060504|M|12345  
testing ave^^Minneapolis^MN^55407|^PRN^PH^^555^5555555|  
RCP||10^RD^HL70126|R^real-time^HL70394|
```

Detailed Segment Listings

MSH – Message Header Segment

This segment identifies the owner (provider) of information sent, receiver (MIIC), HL7 message type, and HL7 message version.

Field	Description	Usage	Comment
1	Field separator	R	Character used as field separator for rest of message. Always use the value of “ ”.
2	Encoding characters	R	Four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Always use the value of “^~\&”.
3	Sending application	RE	MIIC does not process this field.
4	Sending facility	RE	This field identifies the organization responsible for the operations of the sending application. This code, assigned by MIIC , is for the organization that has the direct connection to MIIC. This code should be the same for all immunizations being sent in by the same message feed. All new sites must be registered with MIIC prior to data submission.
5	Receiving application	RE	Always use the value of “MIIC”.
6	Receiving facility	RE	Always use the value of “MIIC”.
7	Date/time of message	R	Use the YYYYMMDDHHMM format.
8	Security	O	MIIC disregards
9	Message type	R	Always use the value of “QBP^Q11^QBP_Q11”.
10	Message control ID	R	Unique ID for message. This ID is used in MIIC responses to help match the original message with its response.
11	Processing ID	R	Always use “P” for production. If left blank, it will default to “P”.

Field	Description	Usage	Comment
12	Version ID	R	Always use the value of “2.5.1”.
13	Sequence number	O	MIIC disregards.
14	Continuation pointer	O	MIIC disregards.
15	Accept acknowledgement type	RE	Use values from HL70155 . MIIC recommends using the value of “ER” and if this is left blank will default to the value “AL”.
16	Application acknowledgement type	RE	Use values from HL70155 . MIIC recommends using the value of “AL” and if this is left blank will default to that value.
17	Country code	O	MIIC disregards.
18	Character set	O	MIIC disregards.
19	Principal language of message	O	MIIC disregards.
20	Alternate character set handling	O	MIIC disregards.
21	Message profile identifier	R	Request Complete Immunization History for an individual: Z34^CDCPHINVS Request Evaluate Immunization History and Forecast for an individual: Z44^CDCPHINVS If left blank it will be treated as Z34^CDCPHINVS
22	Sending Responsible Organization	R	Business organization (legal entity) that originated and is accountable for the content of the message. MIIC expects this to contain the organizational code of the child entity. 22.6 (Responsible Organization Assigning Authority) (Shall be MIIC) 22.7 (Responsible Organization Identifier Type Code) (Shall be SR) 22.10 (Responsible Organization Identifier) MIIC provided Short Code Provider HL7 data submissions to MIIC must include ALL site-specific organization codes.

Field	Description	Usage	Comment
23	Receiving Responsible Organization	RE	Always use the value of “MIIC”.

Complete Immunization History

```
MSH|^~\&||MIICOrgCode|MIIC|MIIC|201705130822||QBP^Q11^QBP_Q11|12345|P|2.5.1|||ER|AL|||||Z3
4^CDCPHINVS|^^^^^MIIC^SR^^^MIICC|MIIC
```

Evaluated Immunization History and Forecasting

```
MSH|^~\&||MIICOrgCode|MIIC|MIIC|201705130822||QBP^Q11^QBP_Q11|12345|P|2.5.1|||ER|AL|||||Z4
4^CDCPHINVS|^^^^^MIIC^SR^^^MIICC|MIIC
```


QPD – Input Parameter Definition Segment

The QPD segment defines the parameters of the query.

Field	Description	Usage	Comment
1	Message Query Name	RE	Request Immunization History: Z34 [^] <i>Request Complete Immunization History</i> [^] <i>CDCPHINVS</i> or Request Evaluate Immunization History and Forecast: Z44 [^] <i>Request Evaluated Immunization History and Forecast</i> [^] <i>CDCPHINVS</i>
2	Query Tag	R	Unique to each query message instance.
3	Patient List	RE	Medical record number Maximum length is 20 characters. If longer, only the first 20 characters will have been saved for use.
4	Patient Name	R	Last Name and First Name are required. MIIC does not accept placeholder names like “Baby” and “Baby Boy”. • Names can only contain letters, spaces, and the following three characters: . ‘ -
5	Mother’s Maiden Name	RE	MIIC strongly recommends collection and submission of this data element used in client matching.
6	Patient Date of Birth	R	Use the YYYYMMDD format.
7	Patient Sex (self-reported gender)	RE	F - Female, M - Male, U - Unknown/Undifferentiated MIIC strongly recommends collection and submission of this data element used in client matching.
8	Patient Address	RE	MIIC strongly recommends collection and submission of this data element used in client matching.
9	Phone Number	RE	MIIC strongly recommends collection and submission of this data element used in client matching.
10	Multiple Birth Indicator	RE	MIIC disregards.
11	Birth Order	RE	MIIC disregards.
12	Patient Last Updated Date	RE	MIIC disregards.
13	Patient Last Update Facility	RE	MIIC disregards.

Example:

```
QPD|Z34^Request Immunization History^CDCPHINVS|3162036||Mouse^Mickey^J||20060504|M|12345
testing ave^^Minneapolis^MN^55407|^PRN^PH^^^555^555555|
```

RCP – Response Control Parameter Segment

The RCP segment lists the segments that are expected to be returned in the response to the query.

Field	Description	Usage	Comment
1	Query Priority	RE	Use “I” for Immediate.
2	Quantity Limited Request	R	This field may contain a maximum number of records that may be returned. MIIC will return a maximum of 10 records if field is > 10.
3	Response Modality	O	Use “ R^real-time^HL70394 ” for real time.
4	Execution and Delivery Time	O	MIIC disregards.
5	Modify Indicator	O	MIIC disregards.
6	Sort-by Field	O	MIIC disregards.
7	Segment Group Inclusion	O	MIIC disregards.

Example:

```
RCP|I|10^RD^HL70126|R^real-time^HL70394|
```

MIIC Responses to Different Query Outcomes

Query Outcome	Response Message
No match found	<p>MIIC acknowledgement response will say that message was successfully processed but no clients matched the query criteria.</p> <ul style="list-style-type: none"> MIIC will send a Profile Z33 in Return Response (MSH-21) QAK 12345 NF Z34 (or Z44)
Exactly one high-confidence match found	<p>Response will include a complete immunization history:</p> <ul style="list-style-type: none"> MIIC will send a Profile Z32 in Return Response (MSH-21) or <p>Response will include an Evaluated History and Forecast:</p> <ul style="list-style-type: none"> MIIC will send a Profile Z42 in Return Response (MSH-21) QAK 12345 OK Z34 (or Z44)
A list of candidates is found, but <= maximum number allowed	<p>Response will return demographic information only for each potential match. No immunization history is returned.</p> <ul style="list-style-type: none"> MIIC will send a Profile Z31 in Return Response (MSH-21) QAK 12345 OK Z34 (or Z44)
More than maximum number of allowed candidates is found	<p>MIIC acknowledgement response will say that message was successfully processed but too many potential matches were found.</p> <ul style="list-style-type: none"> MIIC will send a Profile Z33 in Return Response (MSH-21) QAK 12345 TM Z34 (or Z44)
Message is not well formed and has fatal errors	<p>MIIC acknowledgement response will say that the message was not successfully processed and may indicate errors. No client information is returned.</p> <ul style="list-style-type: none"> MIIC will send a Profile Z23 in Return Response (MSH-21) No QAK returned
<p>Message was rejected because one of the following occurred:</p> <ul style="list-style-type: none"> Unsupported message type Unsupported event code Unsupported processing ID Unable to process for reasons unrelated to format or content 	<p>Return ACK message with errors.</p> <ul style="list-style-type: none"> MIIC will send a Profile Z23 in Return Response (MSH-21) No QAK returned

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Updated 09/04/19. Upon request, this material will be made available in an alternative format such as large print, Braille, or audio.