



ISAAC ADT Implementation Guide

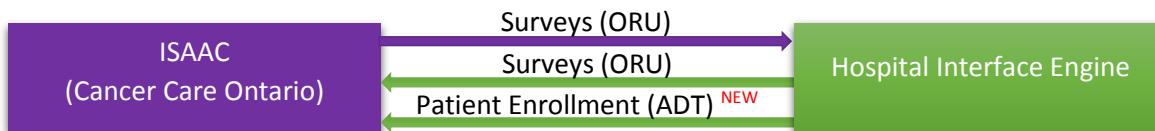
The following is an introductory guide to sites that would like to establish a HL7 interface that submits ADT messages to the ISAAC application in order to automatically enroll new and update existing patients. Throughout the implementation process, additional questions can be directed to the ISAAC@cancercare.on.ca mailbox. The integration process breaks down into the following Steps.

1. Network Connectivity
 - a. VPN tunnel setup and testing
 - b. Authentication GUID from CCO
 - c. MSH segment setup and testing
2. Interface Development
 - a. Site development
 - b. Conformance testing to CCO spec
3. Production Readiness
 - a. Define ADT triggers for ISAAC patients
 - b. Readiness Checklist
4. Go-Live
 - a. Turn on Live interfaces
 - b. Monitor

All testing will occur in the Test environment using test patient data. No Patient Health Information (PHI) should ever be submitted to the Test environment. If for some reason this occurs, please notify the ISAAC team so it can be removed properly.

Network Connectivity

The first step to establishing an interface with CCO is to enable connection between CCO and your site. Many sites that are connected to ISAAC already have a connection to ISAAC to send assessment data between CCO and your EMR. ISAAC is capable of sending/receiving the following data:



The ADT Interface will connect to CCO with the following IP and Port:

UAT:	IP: 10.11.12.225	Port: 12000
PRD:	IP: 10.11.12.226	Port: 12000

This is the same IP that is used for previous integration with ISAAC, however the port is different. As such regardless if you have a VPN established between your site and CCO, you must complete a CCO VPN form so that the appropriate firewall changes can be made.

The form is available in the package you have received from CCO. The filename is '[CCO_VPN_Change_Form_ISAAC_ADT.doc](#)'. Upon submission of the form, we will make the appropriate changes on the CCO site and we can begin connectivity testing.

If your site is already interfaced with ISAAC, you will not need support in developing the MSH segment as the current segment you submit with the ORU messages should be the same. If you are a new site to be interfaced with CCO, we will provide you with a security token to put in the MSH segment. ISAAC uses a combination of the MSH-4 and MSH-8 fields to verify if a site is valid to submit HL7 messages to ISAAC. MSH-4 is your site master number and MSH-8 is the CCO provided security token which must be populated in all HL7 messages from your site. We will provide you with this token after VPN connectivity has been achieved.

Interface Development

This stage of the process is where you have your IT staff or interface vendor develop the template for the ADT message you send to ISAAC. The specification for that template is provided in the package you have received from CCO. The filename is '[ISAAC HL7 ADT Interfaces Spec Sheet v0.2.xls](#)'. If you require assistance with the specifications or have questions, please reach out to the ISAAC@cancercare.on.ca mailbox.

There are 4 tabs within the excel document. The first tab represents specification for the ADT messages. Column "I" displays the expected content for the message where values that we predefine are in black and other values that you can/must populate are in red. Please note the optionality of each field. If you include fields that are not used from the spec, they will still be validated by the BizTalk engine before being ignored by the application. These fields are allowed, but may cause issues and are preferred to have been omitted from HL7 messages where ever it is possible. The second tab is the segment structure. All segments listed are required except the **DG1** segment. Other segments not listed will cause the message to fail. The third and fourth tabs have sample HL7 messages that you can use as a template or to compare to your own messages.

When developing the ADT messages, a site should use test data in the test environment. When testing has completed in the UAT environment, please let us know through the ISAAC mailbox so that we can review the messages in order to assure there are no concerns from a CCO conformance standpoint. If you have concerns with the specs or notice an issue from the CCO end, please let us know so that we can make corrections.

ISAAC processes an ADT message in any of three ways. A message can generate a new patient, update an existing patient already enrolled in the ISAAC application or reject the message and do nothing. The branches to the logic are available in '[ISAAC ADT Diagrams Final.pdf](#)' document that came in the package from CCO.

Below explains each of the segments and fields outlined in the Specification document. The first segment in the HL7 message and Specifications is the MSH segment which is the Message Header.

```
MSH|^~\&|ISAAC_HIS|^4*||^7*|^8*|^9*|^10*|D^T|2.4
```

MSH-1 to MSH3 should be input as above as MSH-3 is validated for the application (incorrectly transmitting MSH-3 as above will confuse the BizTalk Accelerator). MSH-4 should be populated with your 4 digit master number. MSH-7 should be the date/time that the message was generated. MSH-8 is a security token which will be supplied by CCO. This token is unique between each site and the application environments. This means that the UAT token will not work in Production or in reverse. MSH-9 is the type of ADT being sent and expects either ADT^A28 or ADT^A31. ADT^A28 is standard for New Patient Information when enrolling new patients. ADT^A31 is for an update in patient information which would apply to scenarios where the patient demographics, MRN, or HCN are being updated. MSH-10 is the Message Control ID of the HL7 message being sent. This value can be referred to when looking for the status of a specific message previously transmitted.

Note: if a required field is missing from the MSH segment, the ISAAC BizTalk server will not generate a NACK and the message will timeout. This is due to the fact that BizTalk does not have sufficient detail to generate the appropriate responding NACK. The error will be logged in the ISAAC exception database and CCO application team can assist with troubleshooting if needed.

The EVN segment is the Event Segment. Although the segment has no valuable fields for ISAAC, some of the fields are mandatory to be processed through the BizTalk Engine before ISAAC processes the message.

EVN|*1*|20000101

The EVN1 field expects either A28 or A31 depending on the ADT type. EVN-2 field requires a date be entered but it can be any date/time value as filler and will not be recorded.

The PID segment contains all of the Patient Information.

PID|1||*3.1a*^^^^PI~*3.1b*^^^^HC|(*5.1*^*5.2*||*7*|*8*|||||||*18*

PID-3 is the Patient Identifier and ISAAC uses two. These are the site-specific Medical Record Number (MRN) and the Health Card Number (HCN). Please submit the MRN in the PID-3.1a field above. It is a mandatory field. The HCN is optional, however if you are not submitting the HCN, you must put in a placeholder. If the reason the HCN is not being included is that it is unavailable, use the value '0' in PID-3.1b. If the health card is an out of province health card, please include a value of '1' in the PID-3.1b field.

Note: ISAAC application validates HCN values in PID-3.1b using the OHIP check digit verification. A guide for generating test patients is attached below:



HCN Check Digit Validator.xlsx

PID-5.1 is the patient's surname. PID-5.2 is the patient's given name. All other name values will be ignored for PID-5.3+. PID-7 is the patient's date of birth and PID-8 is the patient's gender. PID-18 is the Patient Account Number. This is not a value used in most cases by ISAAC. If your EMR requires a Patient Account Number to be populated in order to receive HL7 survey scores such as Grand River, this field would be valuable to you. However, of all the sites currently interfaced with ISAAC, they are the only site.

Note: Provincial and territorial Health Card Numbers values have been standardized to the following formats:

Province	Format	ISAAC input
ON	10 numeric (additional 1-2 alpha character version code if applicable); a valid MOD 10 check digit	10 numeric (no version code)
NS	10 numeric; a valid MOD 10 check digit	= 1
BC	10 numeric; the 10th digit as the check digit for unique algorithm	= 1
NL	12 numeric; a valid MOD 10 check digit	= 1
QC	12 digits (4 alpha, 8 numeric)	= 1
NB	9 numeric; a valid MOD 10 check digit	= 1
MB	9 numeric	= 1
SK	9 numeric; validation is done via a lookup table	= 1
AB	9 numeric; the 5th digit is the check digit for unique algorithm	= 1
YT	9 numeric; a valid MOD 10 check digit	= 1
NU	9 numeric; first digit must be 1; last digit must be in (3,4,5,6,7,8) and the 2nd through 8th digits of the HCN must be a valid MOD 10 check digit	= 1
NT	8 digits (1 alpha (N, M, T, D, H), 7 numeric; MOD 10 validation	= 1
PE	8 numeric; a valid MOD 10 check digit	= 1

Enroll New Patient

Patient does not exist. Complete the form below and click the "Enroll" button.

* Health Card Number: 0 = Insured resident of province, but HCN not available at time of registration
1 = Not Applicable PID3.1b

* Medical Record Number: PID3.1a

* Surname: PID5.1

* First Name: PID5.2

* Gender: PID5.1

* Birth Date: PID5.1

The PV1 segment is similar to the EVN segment in that it is required but does not have content that is valuable to the ISAAC application.

PV1|1|O

Please submit the above values for the PV1 segment. Other standard outputs for this segment may be accepted but will require testing to confirm as it will be ignored upon being processed by the CCO BizTalk engine.

The DG1 segment is the only optional segment ISAAC will accept.

DG1|1||*3.1*^^*3.3*|*4*|*5*|A

Diagnosis information currently recorded in ISAAC is minimal and optional. There is the Primary Site field and the Disease Group dropdown. ISAAC will be improving this in the near future so the ADT logic that has been implemented will associate to the future state of the diagnosis fields. DG1-3.1 stores the Diagnosis Code value with respect to the DG1-3.3 value which is the Coding System. ISAAC currently accepts 'ICD10AM', 'ICD10CA', or 'ICDO' as the values for the DG1-3.3 field. DG1-4 values will populate the Primary Site field on the patient page. DG1-5 stores the Diagnosis Date. DG1-6 is not used by ISAAC but will accept A -admitting, W - waiting, and F – final.

Production Readiness

There are three tasks in the Production Readiness stage of the process. The first task is to define what factors will trigger an ADT message to send to ISAAC. When defining the ADT submission trigger, please submit ADTs for only patients that would normally be enrolled in ISAAC. The second task is to prepare production interfaces and connectivity to switch from the test environment. The third task is to review the readiness checklist provided by CCO. If everything has been completed, the interface will be ready to Go Live.

ADT logic from the CCO side has only been applied to the test environment while we pilot the feature to the first few sites to assure we have implemented the feature properly. Upon receiving the HL7 message, there is application logic that has been developed to handle the ADT message depending on factors of the patient information received compared with what already exists in the ISAAC database. This logic is available in the package received from CCO and has the filename: '[ISAAC ADT Diagrams Final.pdf](#)'. If you have any concerns with this logic please inform the CCO team so we can clarify or make corrections to how the application processes messages. When one or multiple sites are ready to go live and we

have completed testing, we will push the ADT functionality to the production environment. The current schedule for doing this deployment is early March depending on the results of testing. Once that has been pushed, we will confirm connectivity to the ISAAC production environment before completing the checklist and going live.

Go-Live

Going live will activate the trigger that you have defined in the Production Readiness phase of the process. Please note to ensure that the production interface is sending to the appropriate production IP and Port with the correct production Security Token. Monitoring should take place from both sides until there is confidence that there will be no issues and that all of the bugs have been ironed out.