eConsult Implementation Guide

v2.1

March 29th 2019

Care. Connected.

Disclaimer

This interface specification, while leveraging HL7 FHIR terminology may not be fully compliant to FHIR standards. This specification is specific to services offered by OMD, OTN and eHealth Ontario in the province of Ontario. HL7 FHIR is a non-normalized standard and therefore errors, omissions and revisions may still occur.

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Authors

Name	Organization	Contact
Platform, Product, Integration	Ontario Telemedicine Network	apisupport@otn.ca
Architecture and Standards, eHealth Ontario	eHealth Ontario	architecture@eHealthontario.on.ca

Change Log

Version	Description	Author
V2 – July 31, 2018	▪ Added Managed Group Functionality ▪ Introduced new STU3 resources – HealthcareService, Task, Questionnaire, QuestionnaireResponse, Careteam ▪ Changed Group to CareTeam resource for delegates search ▪ Removed and renamed a number of extensions within ReferralRequest, Patient, Composition, Practitioner, Organization ▪ KPI questions are to be submitted within Composition as a contained QuestionnaireResponse ▪ Person resources has been replaced with Practitioner Resource ▪ Priority extension has been deprecated. ▪ Updated identifiers, valuesets, coding system naming conventions ▪ All URIs and Resources are now case sensitive ▪ The cancel state has been replaced with the return state ▪ A referrer can only return a case when it has not be acted upon by an assigner or specialist ▪ Specialist cannot cancel a case	OTN
V2 – Nov 15, 2018	▪ Added structure definitions for each resource (Section 4) separately in this specification rather than using Forge ▪ Added Referral_sort by status, recipient, lastUpdated ▪ Updated overall document based on feedback from eHO ▪ Added Appendix A listing known FHIR conformance issue	OTN
V2 – Dec 14, 2018	▪ Updated Section 4 Profiles to reflect accurate cardinality of certain fields showing what is mandatory vs optional ▪ Added new error code R_USER_DOES_NOT_EXIST HTTP 403 when the user does not have access to the eConsult ▪ Added specialty, sub-specialty extensions for ReferralRequest ▪ Added Billing Code, Billing Type extensions for ReferralRequest ▪ Replaced Billing Code Extension with HCN Version Code extension ▪ Added Practitioner Search by federated username ▪ Added Practitioner Search by Organization name ▪ Added Group Administrator contacts to HealthcareService ▪ Added statusReason to Task ▪ Added specialty, type to HealthCareService Details ▪ Added new table for new case creation in section 4 ▪ Updated Composition profiles to Referrer, specialist actions where they are required ▪ Updated Composition profiles to reflect the need for document attachments and notes ▪ Removed Reply to Request for Clarification from Table 50 ▪ Added Patient details to ReferralRequest as mandatory Table 27, 28	OTN

Version	Description	Author
	▪ Changed ReferralRequest.authoredOn to ReferralRequest.date for Get Details and Search to comply with STU2 standards ▪ Changed ReferralRequest.subject back to ReferralRequest.patient to comply with STU2 standards ▪ Added new section 3.3.2 Managed Group Specialties to clarify the relationship between specialty and sub-specialties ▪ Clarified cardinality of Composition, QuestionnaireResponse and documentReference resources ▪ Clarified when subsetted results occur for HealthcareService operations ▪ Removed Filter modifier ▪ Changed modifiers for lastUpdated range searches with modifiers le, ge instead of lt,gt ▪ Clarification for coverage resource when requiring group and other insurer ▪ Added state, postalcode, country fields to Practitioner Resource ▪ Changed DocumentReference.contentType to be optional in all composition use cases ▪ Practitioner specialty is provided in the display field to remain consistent in all profile definitions ▪ OperationOutcome Error Codes Table 12, 13, 15 tables updated ▪ Added Contained Practitioner Resource to Composition Profile ▪ Changed Given, Prefix elements in Practitioner to support multiple names and prefixes	
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1 Introduction

1.1 Background

An eConsult occurs when a Primary Care Provider (PCP) electronically sends a question to a specialist. This can be a simple question (e.g., about a drug dosage) or a more complex question following an initial assessment by the PCP (e.g., asking for a virtual dermatology assessment and providing images of the patient). An eConsult differs from an eReferral in that the patient does not have to go and see the specialist. This document can be used by point of service systems to integrate with the provincial eConsult platform. This enables health service providers to create, update and close eConsults within the point of service rather than logging into the OTN's eConsult platform. This interface is based on combination of DSTU2 specifications and FHIR STU3 (April 19, 2017 3.0.1). Previous versions of eConsult leveraged DSTU2 standards. Enhancements for the managed service model required the use of some STU3 resources. Known FHIR conformance issues are listed in Appendix A.

1.2 Package content

1.2.1 Resource Definitions

To describe the structure of resources, we use FHIR structure definition (https://www.hl7.org/fhir/structuredefinition) format. Each resource type are provided in JSON format. You will find examples throughout this document, however, additional example files are included in the examples folder in JSON format.

1.2.2 Terminology

A terminology worksheet has been provided that outlines the identifiers and valuesets used by eConsult

1.2.3 Examples

Several examples are included in the *Examples* folder. These examples include test data within each of the message bodies of the resources used by eConsult.

1.3 Identifier Policy

There are many places in this project that the use of OIDs or URLs is required. OIDs are object identifiers that serve as worldwide unique names for objects. All OIDs and URLs used in eHealth Ontario projects must conform to eHealth Ontario's OID and URL Policy.

For more information, or to obtain the proper URLs for use in this project, contact the Ontario Telemedicine Network Team at architecture@otn.ca

2 FHIR Specification

2.1 Introduction

This specification is based on resource definitions from FHIR DSTU2 (Oct 24, 2015 v1.0.2)and HL7 FHIR STU3 (April 19, 2017 3.0.1). The MIME type for HL7 FHIR resources in this project is *application/fhir+json; charset=utf-8*.

2.2 Resource Types

In this project, a small subset of HL7 FHIR resources needed for the eConsult solution is implemented. For a complete list of HL7 FHIR resources visit http://www.hl7.org/fhir/resourcelist.html. Below is the list of resources related to this project and their corresponding maturity levels in the parentheses (http://hl7.org/fhir/resourcelist.html#tabs-4) and STU version e.g. (2, DSTU2) refers to a maturity level of 2 and a resource version based on DSTU2).

- DocumentReference (2, DSTU2)
- OperationOutcome (2, DSTU2)
- ReferralRequest (1, DSTU2)
- Organization (1, DSTU2)
- Composition (2, DSTU2)
- Practitioner (1,DSTU2)
- Patient (3, DSTU2)
- Bundle (2, DSTU2)
- Task(2, STU3)
- HealthcareService(2, STU3)
- Questionnaire(3, STU3)
- QuestionnareResponse(3, STU3)
- CareTeam(2, STU3)

Since HL7 FHIR STU2 does not support all the data elements required for this project, we have created a customized HL7 FHIR profile. To do so, we have introduced new extensions, value sets and changed the cardinality of data elements in the abovementioned resources.

2.3 Resource IDs

All resources in this project will have IDs (path: [resourceType].id) when they are retrieved from the FHIR server. These IDs are generated by the HL7 FHIR server when the resources were created and are only recognized the HL7 FHIR server. These ID's can be used to perform GET, POST operations using the following generic URL: [base]/[resourceType]/[id].
To get access to other identifications that are recognized by other software systems or organizations, one should look at [resourceType].identifier. For example, below we see a part of the Practitioner/123 resource with a CPSO identifier:

```
{
        "resourceType": "Practitioner",
        "id": "123"
        ...
```

```
        "identifier":{
                "system": "https://fhir.infoway-inforoute.ca/NamingSystem/ca-on-license-physician",
                "value": "123123",
        }
        ...
}
```

IDs for independent resources of the same type should be unique. There are also resources that are contained in other resources. IDs of the contained resources need to be unique only in the contained resource. For example, two practitioners that are contained in a ReferralRequest may have IDs 1 and 2 even though [base]/Practitioner/1 and [base]/Practitioner/2 already exist. Note that practitioners 1 and 2 contained in a resource are not the same as [base]/Practitioner/1 and [base]/Practitioner/2.

2.4 Resource Operations

2.4.1 HTTP Operation

In this section, we list allowable HTTP operation on eConsult resources. [] and {} represent mandatory and optional parameters respectively in the table of this section.

Table 1 shows the allowed transactions on HL7 FHIR resources in this project and their corresponding HTTP operations:

Table 1 Supported HL7 FHIR HTTP operations

Transaction	HTTP Operations	URL	Response Body Resource	Explanation
Create	POST	[base]/[type]	An OperationOutcome	See section 2.5.1316
Read	GET	[base]/[type]/[id]	A Resource or an OperationOutcome	See section 2.5.1316
Search	GET	[base]/[type][?searchExpression]	A Bundle	Search expression is mandatory

Please note that the following transactions are not supported at the moment but may be considered for future:

Table 2 Unsupported HL7 FHIR HTTP operations

Transaction	HTP Operations	URL	Response Body Resource	Explanation
history	GET	[base]/[type]/[id]/_history/ {?searchExpression}	The return content is a Bundle containing the specified version history, sorted with oldest versions last	Search expression is optional.
Vread	GET	[base]/[type]/[id]/_history/[versionID]	A Resource	Reads a specific version of a resource
Update	PUT	[base]/[type]/[id]	An OperationOutcome	See section 2.5.13
Search	POST	[base]/[type][?searchExpression]	A Bundle	Search expression is mandatory

2.4.2 Searching

Searching is accomplished by performing a GET operation with a search expression in the URL: GET [base]/[type]?searchExpression.

Search Expression

A search expression is one or more parameter expressions in the following form:
searchExpression = parameterExpression&parameterExpression …

The parameter expression structure differs for different parameter types. **Table 3** below lists the searchable parameter types and their respective parameter expression structure:

Table 3 HL7 FHIR search parameter types

Parameter Type	Parameter Expression Structure	Example	Allowed "=" sign Modifiers
String	parameter=[value]	name=john name=john,jack//john or jack	
_lastUpdated	parameter ={comparator}[date]	birthdate=2010-10-01 birthdate=ge2010-10-01	le // less than and equal ge //greater than and equal
Number	parameter ={comparator}[number]	length=27// equal to 27 length=27,28//equal to 27 or 28 length=le27.6 length=ge27	Same as date

To check the membership of a parameter to set, value sets should be separated by comma. For instance, *Practitioner?name=john,jack* searches for Practitioner with either of these two names.

This project does not implement all HL7 FHIR search capabilities. Therefore, the search capabilities supported by the eConsult platform are a subset of those offered by HL7 FHIR. For more information about HL7 FHIR search capabilities refer to this page: https://www.hl7.org/fhir/search.html. In case of an erroneous search request, an operationOutcome resource describing the issues will be returned. For more information about this resource refer to section 2.5.1316.

Common Search Parameters

Each resource type has a specific set of parameters that can be used to search instances of that resource. There is also a list of parameters that can be used to search any of the resources. **Table 4** shows these parameters and their types:

Table 4 eConsult HL7 FHIR common search parameters

Name	Type	Explanation
_lastUpdated	Date/DateTime	Date resource last updated.

Example search for ReferralRequests that have been updated since 2010-10-01:
[base]/ReferralRequest?_lastUpdated=ge2010-10-01

The search prefixes such as 'ge', 'le' are supported to allow for searching based on a date range.

Summary

Performing a search may result in retrieval of a large number of resources bundled together. To reduce the size of each resource in the bundle, eConsult HL7 FHIR server has implemented the "_summary" search result parameter. If **_summary=true** is included in the search expression, parts (a summary) of the matching resources instead of the whole resources is returned. Examples:
GET [baseURL]/Organization?name=hospital&**_summary=true**
Server marks the resources with the tag SUBSETTED to ensure that the incomplete resource is not accidentally used to overwrite a complete resource as follows:


```
{
    "resourceType": "Organization",
    "id": "15617",
    "meta": {
      "versionId": "1",
      "lastUpdated": "2016-04-04T19:49:32.072-04:00",
      "tag": [
        {
          "system": "http://hl7.org/fhir/v3/ObservationValue",
          "code": "SUBSETTED",
          "display": "Resource encoded in summary mode"
        }
      ]
    },....
```


ID of the resource of the interest can be extracted from the summary and be used in a GET operation to retrieve the whole resource.
Organization is the only resource that supports summary. This resource does not support regular search. This means that if _summary=true is not a part of the search expression for this resource, the HL7 FHIR server will return an error message indicating that regular search is not supported.

Pagination

Performing a search may result in retrieval of a large number of resources bundled together. To reduce the number of resources in a bundle, eConsult server may choose to do pagination. In such a scenario, Bundle.total will be greater than the total number of resources returned in the search response bundle. To retrieve the next page of the resources, one needs to look at the URL at this path bundle.link[?(@.relation==“next”)].url . A GET operation on this URL retrieves the next page. The first page of the results will be available at this path: bundle.link[?(@.relation==“first”)].url .There are no requirements as to how these URLs are formatted and whether this call is stateful or stateless. If there is no link with the “next” relation in a search result bundle, we have reached the last page and no resources are left to be retrieved.
Please note that each page only has a link to the immediate next page (like a linked list). Retrieving the next page should be performed recursively in order to retrieve all the requested resources.
As an example, imagine 50 resources match our practitioner search criteria and server is including less than 50 resources in each bundle. Bundle below shows an example of what is returned by the server in this scenario when we do the search:

```
{
        "bundle": {
            …
                "type": "searchset",
                "total": 50,
                "link": [
                        {
                                "relation": "self",
                                "url": "https://example.com/base/Patient?family=smith"
                        }, {
                                "relation": "next",
                                "url": "https://example.com/base/nextpageurl"
                        },
                        {
                                "relation": "first",
                                "url": "https://example.com/base/firstpageurl"
                        }
                ]
        }       …
}
```

To retrieve the next page, user needs to perform a get on this URL:
https://example.com/base/nextpage_url

If the client requires more than 50 results per page, the ***_count*** parameter may be added in a search query to specify the number of matches per page. In order to manage server performance, the number of matches can range between 0 to 200.

To support indexing of multiple pages, the ***_offset*** and ***_count*** parameters can be used to customize the subset. Offset refers to the number of records and count refers to the number of records per page. Offset and count is currently supported for *ReferralRequest*, *Practitioner* and *Organization* searches only.

2.5 Resources

Resources in this section are constrained version of HL7 FHIR STU2 or STU3 resources. In sections below, [ehoExtensions] should be replaced with the following URL:
http://ehealthontario.ca/fhir/eConsult/StructureDefintions/[name of the extension]

Note that some resources may not exist independently and be contained in another resource. For example, resource patient is always contained in a ReferralRequest instance. Description of each resource points out these containments.

Table 5 shows the allowed transactions on resources in this server.

Table 5 Allowed HL7 FHIR operations on each resource

Resource	Create	Update	Read	Regular Search	_summary Search
DocumentReference					
OperationOutcome					

Resource	Create	Update	Read	Regular Search	_summary Search
ReferralRequest	*		*	*	
Organization			*		*
Composition	*				
Practitioner			*	*	
Patient					
Bundle					
HealthcareService			*	*	*
Task			*		
Questionnaire			*		
QuestionnaireResponse	*		*		
CareTeam			*		

Search parameters that are customized proprietary to this project are *italicized* in the following tables in this section.

2.5.1 ReferralRequest

Since there are no resources defined in the HL7 FHIR specification for eConsults, we use the closest resource to this concept called ReferralRequest. Note that we use the words *case* and *eConsult* interchangeably. This resource is used to share relevant information required to support an eConsult request from a practitioner or an organization to another. For more information about the structure of this resource refer to the corresponding StructureDefinition files. The following HTTP operations are allowed on a ReferralRequest: Create, Read and Search. A ReferralRequest is available through the following URL: *[base]/ReferralRequest*. Table 6 shows the possible ReferralRequest search parameters that can be used in a Search operation.

Table 6 Referral Request Search Parameters

Name	Type	Description	Paths
recipient	reference	The person that the referral was sent to.	ReferralRequest.recipient (Organization, Practitioner) e.g. ReferralRequest?recipient=username@otn.ca
requester	reference	Requester of referral /transfer of care.	ReferralRequest.requester (Organization, Practitioner) e.g. ReferralRequest?requester=username@otn.ca
status	token	The status of the referral which is equal to the last action performed on it.	ReferralRequest.status
date	date	Creation or activation date.	ReferralRequest.date
_lastUpdated	date	Last updated date.	ReferralRequest?_lastUpdated

Name	Type	Description	Paths
tags	*string*	*Search the tag extension as follows: ?tags=tagname%3Dtagvalue.*	*ReferralRequest.extension[?(@.url=="[ehoExtensions]/tag")].valueString*
Patient	string	Search by Patient Ontario Health Card Number.	ReferralRequest?patient.identifier=fhir.infoway-inforoute.ca/NamingSystem/ca-on-patient-hcn|22222

Patient, composition and document reference resources are always contained in a referral request. Organizations and practitioners may be contained in a ReferralRequest or exist independently.

Please note that ReferralRequest search results may be paginated by the server.

2.5.2 Task

In order to manage a consultation from initiation to completion, the task based resource allows systems to track and update the states of an activity. Please reference section 5 of this document for the state transition workflows. The task resource will be read access only and is maintained by the server.

2.5.3 Practitioner

In this project, both PCP and the specialist are represented using Practitioner resource. Practitioner covers all individuals who are engaged in the healthcare process and healthcare-related services For more information about the structure of this resource refer provided structureDefinition files. Please note that Practitioner resource is compliant with HL7 FHIR DSTU2. The only allowed HTTP operation on this resource is GET. The table below shows the possible practitioner search parameters that can be used in a Search operation.

Table 7 Practitioner Search Parameters

Name	Type	Description	Paths
identifier	string	*Search by federated username e.g. john@oneid.on.ca*	*Practitioner.identifier*
family	string	*Searches given and family name.*	*Practitioner.name.family*
address-city	string	A Practitioner's City.	Practitioner.address.city
specialty	*string*	*The practitioner has this specialty at an organization.*	*Practitioner.specialty* *To search by specialty: Practitioner?specialty=cardiology. The identifier-valueset is not required.*
organization	*string*	*Searches PractitionerRole's Managed Organization. PractitionerRole is a contained Resource in STU2.*	*Practitioner.PractitionerRole.managingOrganization*

Name	Type	Description	Paths
keyword	*string*	*Keyword(s), e.g. name, specialty, address, organization. If multiple keywords are provided, the & operator will be used. A keyword may be matched anywhere in the resource except for reference and contained resources.*	*No path*

Practitioner may be contained in a ReferralRequest or exist independently. Independent practitioner resources are searchable via the following URL: *[baseURL]/Practitioner*. BaseURLs are to be provided to onboarded partners.

2.5.4 Organization

This resource represents specialty groups that provide eConsult services. For more information about the structure of this resource refer to the provided structureDefinition files. The only allowed HTTP operation on this resource is read and search. **Table** shows the possible search parameters that can be used in a Search operation.

Table 8 Organization Search Parameters

Name	Type	Description	Paths
specialty	*string*	Specialty offered by this specialty group.	*organization.extension[?(@.url == "[ehoExtensions]/specialty")].valueCoding.code* *To search by specialty: Organzation?speciaity=cardiology. The identifier-valueset is not required.*
name	string	A portion of the organization's name.	organization.name
keyword	*string*	Keyword(s), e.g. name, specialty, address, city, organization. If multiple keywords are provided, the AND operator will be used. A keyword may be matched anywhere in the resource except for reference and contained resources.	*No path*

Organization may be contained in a ReferralRequest or exist independently. Independent organizations resources are searchable via the following URL: *[base]/Organization*. *The _summary=true* search expression is required for the Organization resource.

2.5.5 HealthcareService

This resource represents the details of service and can be accessed with the Read and Search operation. The HealthcaresService resource is used to describe a single healthcare service or category of services that are offered by a practitioner at an organization or location.

The HealthcareService resource is used in the eConsult workflow by returning information about groups that offer eConsult specialities and sub-specialties. For example, a referrer can search for cardiology as a service type and pediatrics as a sub-specialty within a geographic region. The results will return a bundle of HealthcareServices with programs that offer that service.

HealthcareService, while providing a broad set of information, will be used specifically for users who choose the managed group model.

Table 9 HealthcareService Search Parameters

Name	Type	Description	Paths
type	*Token*	Describes the service type e.g. broad specialty used by eConsult.	Healthcareservice.type
specialty	*Token*	*Describes sub-specialities or options included in this service.*	*Healthcareservice.specialty*
_elements=specialty,type	*Token*	*The _elements search expression is specifically used to get the Taxonomy list to obtain a list of specialities and sub-specialities offered through eConsult.*	*Healthcareservice.type, Healthcareservice.specialty*

HealthcareService resource is used for managed groups and is broken down by two search functions. Searching for Organizations that offer a service pair (type, specialty) and retrieving an up to date list of available services using the *_elements* search expression.

2.5.6 CareTeam

The CareTeam resource is used to manage a list of delegates and delegators relationships. Delegators and their delegates are pre-provisioned upon signup. Delegates are allowed to respond to cases on behalf of their delegators. Since delegates can have more than one delegator, it is necessary to choose which delegator you will be acting on behalf before you retrieve and respond to cases.

To support this functionality, a CareTeam search operation allows the delegate to retrieve a list of delegators, associated logical reference identifiers and ONEID user identifiers.

2.5.7 Patient

This resource covers data about patients in the eConsult related activities. For more information about the structure of this resource refer the provided structureDefinition files. This resource is always contained in a referral request and no HTTP operations are allowed on this resource.

2.5.8 Composition

A HL7 FHIR composition represents notes (by the referrer, requester or delegates) on an eConsult (represented by the ReferralRequest). For more information about the structure of this resource refer to the provided structureDefinition files. A composition is always contained in a ReferralRequest. The following HTTP operations are defined on this resource: POST.Compositions are accessible using the following URL: [base]/ReferralRequest/[id]/Composition.

2.5.9 DocumentReference

A DocumentReference resource is used to describe a document that is made available to a healthcare system. This resource does not have an endpoint and no HTTP operations are defined in this resource. For more information about the structure of this resource refer to the provided XML or JSON files. Note that this resource only provides a link to a document in a document repository. This HL7 FHIR specification does not provide resources to upload and download files. This resource is always contained in a ReferralRequest resource.

2.5.10 Bundle

When a search operation is performed on the eConsult server, a bundle containing resources that match the search criteria is returned. No endpoints or HTTP operations are defined for this resource. For more information about the structure of this resource refer to corresponding StructureDefinition xml file accompanied by this guide. This resource is not contained in other resources.

2.5.11 Questionnaire

The Questionnaire resource will contain a list of key performance questions relating to the billing and utilization of the service. These questions are read only and provides the predefined list of answers to choose from. GET [baseURL]/Questionnaire/ will retrieve a list of updated questions and answers.

2.5.12 QuestionnaireResponse

The QuestionnaireResponse resource will contain the results of the questionnaire and will reference the questionnaire and eConsult case. It is a non-searchable resource and is to be used to respond to the questions in the questionnaire.

The QuestionnaireResponse resource will reference the eConsult case and the questionnaire resource. Specific questions in the questionnaire will be referenced by the item.linkId. QuestionnaireResponse is a contained resource within the ReferralRequest/Composition.

2.5.13 OperationOutcome

An operation outcome is a collection of errors, warning or information messages that result from an HTTP operation. An operationOutcome resource instance is returned by the HL7 FHIR server in the following scenarios:

1. In response to any PUT or POST operations
2. In response to a GET operations when there is an error

This resource does not have an endpoint and no HTTP operations are defined in this resource. For more information about the structure of this resource refer to

the provided XML or JSON files. This resource does not contain other resources and is not contained in other resources.

In case of a successful POST, a location header and the identifier of the resource will be returned. Depending on the resource that the operation is performed on, the HL7 FHIR server returns a different set of error codes in operationOutcome.issue.details.coding. Table to Table below show the codes, description sand also HTTP codes of the HL7 FHIR server response in case of an error.

Practitioner and Organization Errors:

Table 10 Search Practitioner Error List

Description	Code	HTTP Code
Keyword is less than two characters	R_KEYWORD_TOO_SHORT	400
Specialty is less than two characters	R_SPECIALTY_TOO_SHORT	400
Last Name is less than two characters	R_LASTNAME_TOO_SHORT	400
Search Criteria not Supported	R_SEARCH_CRITERIA_NOT_SUPPORTED	400
City is less than two characters	R_CITY_TOO_SHORT	400
Organization is less than two characters	R_ORGANIZATION_TOO_SHORT	400
No search criteria provided	R_MANDATORY_FIELD_MISSING	400
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
User not found in eConsult	R_USER_NOT_FOUND	404
Internal error	R_INTERNAL_ERROR	500

Table 11 Search Organization Error List

Description	Code	HTTP Code
Keyword is less than two characters	R_KEYWORD_TOO_SHORT	400
Specialty is less than two characters	R_SPECIALTY_TOO_SHORT	400
Organization is less than two characters	R_ORGANIZATION_TOO_SHORT	400
Search Criteria not Supported	R_SEARCH_CRITERIA_NOT_SUPPORTED	400

Description	Code	HTTP Code
No search criteria provided	R_MANDATORY_FIELD_MISSING	400
Organization not found in eConsult	R_ORGANIZATION_NOT_FOUND	404
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Internal error	R_INTERNAL_ERROR	500

Table 12 Search HealthcareService Error List

Description	Code	HTTP Code
Search Criteria not Supported	R_SEARCH_CRITERIA_NOT_SUPPORTED	400
No search criteria provided	R_MANDATORY_FIELD_MISSING	400
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Service Not Found	R_SERVICE_NOT_FOUND	404
Internal error	R_INTERNAL_ERROR	500

Table 13 Search Task Error List

Description	Code	HTTP Code
Mandatory Fields Missing	R_MANDATORY_FIELD_MISSING	400
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Task Not Found	R_TASK_NOT_FOUND	404
Internal error	R_INTERNAL_ERROR	500

ReferralRequest Errors:

Table 14 POST, PUT ReferralRequest Error List

Description	Code	HTTP Code
Mandatory fields missing. Missing field name will be returned	R_MANDATORY_FIELD_MISSING	400
Invalid recipient	R_INVALID_RECIPIENT	400
Invalid requester	R_INVALID_REQUESTER	400

Description	Code	HTTP Code
Validation error	R_VALIDATION_ERROR	400
No permission to send cases to the specialty group. Certain specialty groups only accept cases from referrers on the "allowed list".	R_PERMISSION_REQUIRED_ FOR_SPECIALTY_GROUP	400
User does not have permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Specialty group has been unpublished/removed.	R_SPECIALTY_GROUP_NOT_PUBLISHED	400
During the "re-assign" action, the original case is cancelled and a new case is created and should be submitted to a different recipient.	R_RECIPIENT_CANNOT_BE_THE_SAME	400
Internal error	R_INTERNAL_ERROR	500

Table 15 Search (GET) ReferralRequest Error List

Description	Code	HTTP Code
Case state from input is not a valid state	R_INVALID_STATE	400
Mandatory fields missing	R_MANDATORY_FIELD_MISSING	400
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Search Criteria not Supported	R_SEARCH_CRITERIA_NOT_SUPPORTED	400
Validation Error	R_VALIDATION_ERROR	400
Internal error	R_INTERNAL_ERROR	500

Table 16 Retrieve (GET) ReferralRequest Error List

Description	Code	HTTP Code
PracticeID doesn't have proper permission to invoke this API	R_PRACTICE_ID_INSUFFICIENT_PERMISSION	403
Case not found	R_CASE_NOT_FOUND	404
User does not have permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Internal error	R_INTERNAL_ERROR	500

Composition Errors:

Table 17 POST, PUT Composition Error List

Description	Code	HTTP Code
PracticeID doesn't have proper permission to invoke this API	R_PRACTICE_ID_INSUFFICIENT_PERMISSION	403
User doesn't have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
User does not exist	R_USER_DOES_NOT_EXIST	403
Mandatory fields missing	R_MANDATORY_FIELD_MISSING	400
Action not allowed in the current state	R_ACTION_NOT_ALLOWED_IN_CURRENT_STATE	400
User not found in eConsult	R_USER_NOT_FOUND	404
User input exceeds limit on field	R_FIELD_EXCEEDS_LIMIT	400
Internal error	R_INTERNAL_ERROR	500

File operations:

These operations are customized and do not conform to the HL7 FHIR standard. Therefore, an operationOutcome will NOT be returned by the HL7 FHIR sever. In case of an error, these operations will return a customized JSON format. For more information and a complete list of possible returned error messages refer to section 0

3 eConsult HL7 FHIR Server Functionalities

In this section, a list the eConsult server functionalities are presented and then it is shown how each of them is handled by a RESTful operation.

3.1 Assumptions

- Delegates can perform all actions their delegators can perform
- To re-assign an eConsult, the EMR system should return a case and then resubmit a new one. The following element provides a reference to the original case: referralRequest.supportingInformation[@display="originalCase"].reference
- Each user would be able to access all eConsult cases associated with him from his EMR system; and regardless whether the patient in the case exists or in the EMR. Residue data will only exist in the EMR if the patient exists and if the user has associated the eConsult case with the patient in the EMR.
- Draft eConsults cannot be submitted to the eConsult server and should reside on the EMR.

3.2 Delivery Models

The Ontario eConsult Service will allow users to send cases to one of two eConsult delivery models: Managed Service (BASE™ Managed Specialty) or Specific Provider or Group.

- The BASE™ Managed Specialty will have different regions hosted on OTNhub, including a provincial hub ('provincial umbrella service') to ensure all regions have equal access to specialty services;
- The Specific Provider or Group option will ensure all specialists have access to providing eConsults and to facilitate PCP choice to an individual specialist or self-organized programs

3.3 Functionalities

3.3.1 Search HealthcareService

In the blended model, the referring EMR will need to decide if they wish to search under the direct model or the managed service model. If the user wants to search using the direct model, they may continue to search for practitioners and/or organizations directly with their respective HL7 FHIR resources.

In the BASE™ Managed service model, the EMR will be required to search the HealthcareService resource before creating a new consult case.

Before selecting a managed group, the user will be required to request a list of updated specialties and options or sub-specialties. For example, cardiology or endocrinology would be the specialty and the option would be pediatrics.

Note: The taxonomy and coding for specialty and specialty type will be based on a codeset mutually defined by Champlain BASE™ and eConsult clinical working groups.

The workflow to retrieve a list of specialties and select a managed service provider are as follows:

1. Get a complete taxonomy list of specialties and options when the managed group option has been selected

   *GET [baseURL]/**HealthcareService**?_elements=type,specialty*

2. Search by specialty and sub-specialty based on the chosen type and specialty from the list above.

   *GET [baseURL]/**HealthcareService**?type*=cardiology&specialty=pediatrics

   Where *type is the* specialty *and specialty* is the sub-specialty. *Note: both type and specialty fields are mandatory for this search. Please refer to table 10 for supported search parameters.*

3. *Get Managed Group Details to for information about the location and identifiers of a specific service provider.*

   *GET [baseURL]/**HealthcareService**?1234, where 1234 is the absolute identifier of the managed group.*

4. When creating a new case, the recipient of the ReferralRequest will be a reference to the HealthcareService. There are also two extensions that specifies the specialty and sub-specialty. Please see the examples folder.

3.3.2 Managed Group Specialties

As mentioned earlier, there two specialty categories. HealthcareService.type is used for the primary specialty offered by the group and HealthcareService.specialty is used for sub-specialties. There is a one to many relationships between specialty and sub-specialties. A pair of specialty and sub-specialty makes up an "option" that the referrer can choose to create a case.

In order to correlate the two arrays, the elements within type and specialty are mapped by their relative index positions. This applies to step 2 and 3 in section 3.3.1.

For example:

"type": [
{
"coding": [
{
"system": //First item in type array →
"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-code",
"code": "CARDIOLOGY",
"display": "Cardiology"
},
{
"system": //second item in type array →
"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-code",
"code": "BARIATRIC_CARE",
"display": "Bariatric Care"
},
{
"system": //third is the same in second but is repeated to match the third item in the specialties array →
"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-code",
"code": "BARIATRIC_CARE",
"display": "Bariatric Care"
}
	"specialty": [
	{
	"coding": [
	{
	"system": // matches first item in specialty array
	"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-specialty",
	"code": "CARDIOLOGY_SUB02",
	"display": "Cardiology - option 1 (2)"
	},
	{
	"system": //matches 2nd item in specialty array
	"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-specialty",
	"code": "BARIATRIC_CARE_SUB05",
	"display": "Options for Bariatric Care"
	},
	{
	"system": //this type has multiple sub-specialties
	"http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-specialty",
	"code": "BARIATRIC_CARE_SUB04",
	"display": "Another option for Bariatric Care"
	}
	]

3.3.3 Search Delegators

Practitioners can register delegates that can perform all actions of the delegator. Registration and maintenance of the delegation relationship is handled by business processes. During an eConsult transaction, it is sometimes necessary to verify these relationships. Based on the login credentials of the delegate, the search delegator function provides a list of delegator relationships.

5. Retrieve list of eligible delegators that the user can act on behalf of

*GET [baseURL]/**CareTeam** {no parameters are required}*

3.3.4 Patient Needs to be Seen

When a specialist receives a new case, they have the option to indicate that the patient needs to be seen which may result in a referral or transition of care. The specialist can set a flag to true when sending a response in a composition.

Please see section 4.12.3 Provide Consult for the FHIR extension: http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-patient-needs-to-be-seen.

3.3.5 Retrieving a user's practitioner id

If an EMR system should need to retrieve the practitioner's HL7 FHIR logical id in order to map the HL7 FHIR logical id of the practitioner to a user in the EMR system, the system may retrieve this id as follows:

*GET [baseURL]/**Practitioner**?identitfier=http://otn.ca/FHIR/username|<federated-credential-uid>*

If the user is found, a Practitioner resource will be returned and the id parameter will house the HL7 FHIR logical id of the Practitioner. Otherwise an error with a corresponding OutcomeOperation will be returned.

3.3.6 Search Recipient

Searchable resources are broken down into the following categories: practitioners, healthcare services and organization. Practitioners are health care providers such as physicians, nurses and allied health care providers. Healthcare services refer to specialty services offered by Managed Groups. The organization resource refers to programs or specialty groups that comprise of one or more practitioners offering similar services.

Here are some examples:

6. List of all organizations (specialty groups) that provide a specific specialty

   *GET [baseURL]/**Organization**?specialty=cardiology*

7. Find a recipient based on the user identification

   *GET [baseURL]/**Practitioner**?identifier=http://otn.ca/FHIR/username|username@otn.ca*

   Where the practitioner identifier is the username of the provisioned OTN user.

8. Find a recipient based on their absolute FHIR id.

   *GET [baseURL]/**Practitioner**/1234*

   Where 1234 is the absolute ID of the Practitioner or Organization resource.

3.3.7 Search Practitioner Specialties

The Practitioner resource contains information about the practitioner's specialties and services. At this time, Practitioner will be limited specialty information and additional healthcare services.

9. List of all cardiologist who have the word “Toronto” **and** “Hamilton” in their information:

   *GET [baseURL]/**Practitioner**?specialty=cardiology**&** keyword=Toronto&keyword=Hamilton*

   Keyword is a custom attribute to eConsult allowing for quicker access to key parameters associated with other resources such as location without having to do an additional search.

   The response will return a bundle of practitioner resources that meet the search criteria.

3.3.8 Create eConsult

A post will create an eConsult:

*POST [baseURL]/**ReferralRequest** –d ‘{data goes here}’*. An example eConsult is included in *Examples* folder in this package.

Referrer's EMR can put ReferralRequest.requester={“reference”:"practitioner/@self"} in the ReferralRequest at creation times instead of a reference to the actual referrer. HL7 FHIR server will resolve @self and insert the correct reference to the current user who is creating the eConsult. This is custom to eConsult.

3.3.9 Read Task Details of a Case

*GET [baseURL]/**Task**/[id]. Where the id is the logical identifier of the case.*

3.3.10 Read eConsult Details

*GET [baseURL]/**ReferralRequest**/[id]*

3.3.11 Search eConsult

For allowed search parameters refer to section 2.5.12. Below examples searches for referral requests that are created after 2010-12-12, their status is “requested” and the recipient is practitioner/123

*GET [baseURL]/**ReferralRequest**?date=gt2010-12-12&status=requested&recipient= practitioner/123*

Tags are treated similar to allowable search parameters. For instance, if a ReferralRequest has a tag (MRN=123), we can use the following search URL to find this referral request:

*GET [baseURL]/**ReferralRequest**?tags= MRN**%3D**132*

(**%3D** is URL encoding of “=”). Tags are custom to eConsult. This is not to be confused with meta.tag within the FHIR standard.

3.3.12 Search Case by Patient Identifier

Searching by patient can be accomplished by searching the patient identifier within ReferralRequest. Currently, the patient identifier supported is Ontario HCN. The identifier valueset needs to specified in the search query to be valid. For example:

*GET [baseURL]/**ReferralRequest**?Patient.identifier=fhir.infoway-inforoute.ca/NamingSystem/ca-on-patient-hcn|2222222 where 222222 is the HCN.*

3.3.13 Add Note, Provide More info, Request Clarification, Cancel eConsult, Request More Info, Return eConsult, Reply (specialist), Complete eConsult

The common task states that are reflected in STU3 are not all supported. Please see the state table in section 6 mapping HL7 FHIR states with eConsult actions.

To perform eConsult specific actions e.g. add note, provide more info, the composition resource is used and performed by a POST to the following URL: *[baseURL]/**ReferralRequest**/[id]/Composition*

A custom extension (http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state) is used to manage state information specific to eConsult. These states are captured in the Composition Resource and updated when the composition is modified.

3.3.14 Adding Tags

Additional meta data in the form of tags can be added to a case. Tags can be anything related to the case that isn't already captured in the notes. When creating a new case, tags can be optionally attached with the tags extension to help categorize the type of case (refer to ReferralRequest Profile in section 4).

Additional tags can be added to every new composition with the same extension and accessible with a ReferralRequest search operation.

3.3.15 Complete eConsult

To complete a case, a new composition should be posted to *[base]/**ReferralRequest**/[id]/Composition*.

3.3.16 Provide Consult (specialist/respondent)

Consult is provided by posting to the following URL: *[base]/**ReferralRequest**/[id]/Composition*

3.3.17 Unsuccessful POST

An unsuccessfully attempt at creating an eConsult request with a missing field will result in return of the following operation outcome by the HL7 FHIR server:

```
{
        "resourceType": "OperationOutcome",
        "issue": {
                "severity": "error",
                "details": {
                        "coding": {
                    "system": "https://ehealthontario.ca/fhir/NamingSystem/eConsult/1/eConsultErrors",
                                "code": "R_MANDATORY_FIELD_MISSING",
                                "display": "Mandatory fields missing"
                        }
                }
        }
}
```

3.3.18 Retrieving multiple resources

When searching for resources, multiple resources might be returned in a bundle resource instance. Example below is returned in response to this search:

*Get [baseURL]/**Organization**?specialty=cardiology,paedatrics*

```
{       "resourceType": "Bundle",
        "type": "searchset",
        "total": 2,
        "link": [
                {
                        "relation": "self",
                        "url": "[baseURL]/Organization?specialty=cardiology,paedatrics
                }
              ],
        "entry": [
                {
                        "fullURL": "[baseURL]/Organization/1",
                        "resource": {
                                "_comment": "complete resource goes here"
                        }
                }, {
                        "fullURL": "[baseURL]/Organization/333",
                        "resource": {
                                "_comment": "complete resource goes here"
                        }
                }
        ]
}
```

3.3.19 Sorting Search Results

The default sorting order will be by task state and then by chronologically. For example, active cases will appear first sorted by the newest case on top. To modify this behavior, additional sorting parameters may be passed.

Here are some examples:

10. *Sort by date only in ascending order (newest cases appear first)*

*GET [baseURL]/**ReferralRequest**?_sort=lastupdated*

11. *Sort by last updated date, status and then recipient name in alphabetical order*

*GET [baseURL]/**ReferralRequest**?_sort=lastupdated,status,recipient*

3.3.20 Performing actions on behalf of a delegator

Physicians may have a number of delegates that can perform all the same actions on a case. To act on case, the delegate must already have a delegate relationship provisioned.

Referrer's EMR can put ReferralRequest.requester={“reference”:"Practitioner/@self"} in the ReferralRequest at creation times instead of a reference to the actual referrer. HL7 FHIR server will resolve @self and insert the correct reference to the current user who is creating the eConsult.

"requester": { "reference": "Practitioner/@self" }

If the logged in user is acting on behalf of the delegate, the delegator userid needs to be specified. The userids of the delegators can be obtained from the CareTeam resource.

"requester": { "reference": "Practitioner/@delegator/mrReferrer@otn.ca"}

The eConsult server will resolve all references based on the credentials of the logged in user.

3.3.21 File operations

In order to upload or download a file, a temporary URL should be requested. These custom operations are **not** part of the HL7 FHIR standard. See below the pertaining URLs, error messages:

Request URL for file upload

POST the file name using this format {“fileName":"file123.docx"} to
http://api.otn.ca/hub/v2/documents/

If this operation is successful, a response similar to following is returned:

```
{
        "url":" http://api.otn.ca/hub/v2/files/XcLBv57ifQGt_vB4YkYJfX5CNtW1Ozm7UzawNs-r5WF",
        "expiresInMin":xyz
}
```

If this operation fails an error form table below is returned :

Table 18 Request URL to upload file error list

Description	Code	HTTP Code
User not found in eConsult	R_USER_NOT_FOUND	404
User doesn’t have proper permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
Mandatory field missing	R_MANDATORY_FIELD_MISSING	400
Internal error	R_INTERNAL_ERROR	500

Here is an error example:

ERROR example:

```
{
        "status":403,
        "app":"FILES",
        "error":"R_MANDATORY_FIELD_MISSING",
        "reference":"R-8a32fcd3-03d2-42a0-90f4-1c28cdfc7c79",
        "details":"File type is not supported",
}
```

Upload file

Using temporary URL retreived in the previous step, a file may be uploaded as follows:
POST http://api.otn.ca/hub/v2/files/XcLBv57ifQGt_vB4YkYJfX5CNtW1Ozm7UzawNs-r5WF file123.docx

Response example of a succesful operation:

```
{
        "id":24192867,
        "fileName":" file123.docx ",
        "contentType":"application/vnd.openxmlformats-officedocument.wordprocessingml.document",
        "createdBy":"username",
        "fileSize":12784
}
```

If the above operation fails on of the error message in the table below is returbed:

Table 19 Upload file error list

Description	Code	HTTP Code
Non-supported file types	R_FILE_TYPE_NOT_SUPPORTED	400
File size exceeds 500MB	R_FILE_SIZE_TOO_LARGE	400
Virus detected	R_VIRUS_DETECTED	400
File description exceeds 50 characters	R_FIELD_EXCEEDS_LIMIT	400
File upload URL expired. The expiration period is 30 seconds.	R_EXPIRED_FILE_URL	403
File content is missing or file size is 0	R_EMPTY_FILE	400
The uploaded file name does not match the record	R_INVALID_FILE_NAME	400
The url is invalid	R_INVALID_URL	400
Non-supported file types	R_FILE_TYPE_NOT_SUPPORTED	400
Internal error	R_INTERNAL_ERROR	500

Error example:


```
{
        "status":403,
        "app":"FILES",
        "error":"R_EXPIRED_FILE_URL",
        "reference":"R-8a32fcd3-03d2-42a0-90f4-1c28cdfc7c79",
        "details":"File upload URL expired. The expiration period is 30 seconds.
}
```


Request URL for file download

GET http://api.otn.ca/hub/v2/documents/24192867 where 24192867 is file ID from the previous step. See below a Sucessful response example:


```
{
        "url": " http://api.otn.ca/hub/v2/files/XcLBv57ifQGDILHY8VHo214t_X",
        "expiresInMin": 15
}
```


Table below lists possible error codes of the above operation should it fail:

Table 20 Request URL for file download error list

Description	Code	HTTP Code
User not found in eConsult	R_USER_NOT_FOUND	404
User does not have permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
File ID Missing	R_MANDATORY_FIELD_MISSING	400
File not found	R_FILE_NOT_FOUND	404
Internal error	R_INTERNAL_ERROR	500

Download file

GET http://api.otn.ca/hub/v2/files/ XcLBv57ifQGDILHY8VH0214t_X
Response will be the file streamed.If this operation fails, one of the error message in the table below will be returned:

Table 21 Download file error list

Description	Code	HTTP Code
PracticeID doesn't have proper permission to invoke this API	R_PRACTICE_ID_INSUFFICIENT_PERMISSION	403 For future use only, not returned in POC
User not found in eConsult	R_USER_NOT_FOUND	404
User does not have permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
The url is invalid	R_INVALID_URL	400
File not found	R_FILE_NOT_FOUND	404
File url expired. The expiration period is 30 seconds	R_EXPIRED_FILE_URL	403
Internal error	R_INTERNAL_ERROR	500

3.3.21.1 Download Activity Report

GET *http://api.otn.ca/hub/v2/ReferralRequest/activity/export?mode=REFERRER&startdate=2018-01-01&enddate=2018-02-21*

Activity reports provides a summary of the encounters based on role type. The roles that are supported included: Referrer, Specialist. Response will be the file streamed. If this operation fails, one of the error message in the table below will be returned:

Table 22 Download file error list

Description	Code	HTTP Code
User not found in eConsult	R_USER_NOT_FOUND	404
User does not have permission to invoke this API	R_USER_INSUFFICIENT_PERMISSIONS	403
File not found	R_FILE_NOT_FOUND	404
Invalid date reference	R_DATE_INVALID	404

3.3.21.2 HIAL Operations

eHealth Ontario's HIAL provides a secured gateway that validates the who the user is and proxies request's to eConsult servers.

All FHIR operations will be proxied by the HIAL with some exceptions. These exceptions are limited to file operations.

To upload an attachment, the following steps are required:

1. Request a URL for upload. This operation is proxied by the HIAL.
2. Send File to URL. This operation is done out of band (not through the HIAL).
3. Add File ID to a New Composition to link the file to the eConsult Case.

To download an attachment:

1. Request a URL for download with the File ID. This operation is proxied by the HIAL.
2. Get the file from the URL provided in step 1. This operation is done out of band (not through the HIAL).

Activity Reports must be done via the HIAL.

3.3.22 Key Performance Indicators (Survey Questions)

At the end of every consult, a set of KPI questions are required to be completed for billing and analytics purposes. This requirement existed in previous versions of eConsult, however, these KPIs were custom extensions as part of ReferralRequest and Composition resources. These KPIs questions have been moved to its own resources. Completing these KPIs is mandatory as part of the eConsult workflow.

12. To get a list of questions

GET *[baseURL]/Questionnaire?*

This will return an itemized list of questions with a corresponding questionnaire IDs and linkID numbers.

13. To respond to the questionnaire

POST *[baseURL]/ReferralRequest/[id]/Composition*

The questionnaire response is a contained resource within a Referral request composition. Questionnaire responses are mandatory based on specific states of the case. The text labels for the name of the questionnaire and responses must match the text provided in the questionnaire API.

There are currently 4 questionnaires. The table below describes the contents of the questionnaires, who is required to respond to them (Referrer or Specialist) and when they are required to be presented to the user.

Table 23 Questionnaire Mapping

Questionnaire	Questions	Answers	Role	Action Required
Time Spent	Time spent on consult:	• 0 • 1-5 • 6-10 • 11-15 • 16-20 • 21-25 ▪ 26+ (if selected, User is prompted to enter the minutes spent and comments and both fields are mandatory)	Specialist	provide consult, request more info, add note, return case (all specialist actions)
Complete Case KPI Question	Q1. Which of the following best describes the outcome of this eConsult for your patient:	• I was able to confirm a course of action that I originally had in mind • I got good advice for a new or additional course of action • I did not find the response very useful • None of the above (please comment) – *free text	Referrer	Complete Case
	Q2. As a result of this eConsult, would you say that:	• Referral was originally contemplated but now avoided at this stage • Referral was originally contemplated and is still needed • Referral was not originally contemplated and is still not needed • Referral was not originally contemplated, but eConsult process resulted in a referral being initiated • There was no particular benefit to using eConsult in this case • Other (please comment)		

Questionnaire	Questions	Answers	Role	Action Required
	Q3. We would value any additional feedback you provide on the system/application: (The third referrer question must be presented to the user, but the response is optional. All other questions/responses are mandatory.)	*Free Text		

4 FHIR Resources

Resources in this section are constrained from FHIR DSTU2 (v1.0.2) and FHIR STU3 (v3.0.1).

Reminder: the sections below will use the URI variables defined in section <insert reference here>, for maintainability purposes.

Note that some resources may not exist independently and be contained in another resource. For example, resource patient is always contained in a ReferralRequest instance. Section 4.4 will display the containments and relationships between resources.

4.1 How to Read this Section

4.1.1 Supported Attributes

Only attributes described in the subsections below will be supported by eConsult in the current release. For some elements, cardinality has a superscripted asterisk symbol to the right, e.g. 0..1*: it means that this element has been constraint from “repeating” in the general FHIR spec (e.g. 0..*) to a single instance, but despite this constraint, this element should still be represented as an array in a FHIR JSON message, e.g. “element [{}]”.

4.1.2 Format

In this release, eConsult will only support the JSON format. The content type must be application/fhir+json; otherwise a HTTP 415 unsupported media type error will occur.

4.1.3 Slicing

One common feature of constraining Structure Definitions is to take an element that may occur more than once (e.g. in a list), and split the list into a series of sublists, each with different restrictions on the elements in the sublist with associated additional meaning. In FHIR, this operation is known as "Slicing" a list. It is common to "slice" a list into sub-lists each containing just one element, effectively putting constraints on each element in the list. This technique can also be used on elements that do not repeat, but that have a choice of data types.

A number in the brackets after the element name refers to its slicing number.

4.2 Data Type Notes

4.2.1 Date, Date Time

When performing POSTS and GETS, the date format supported is YYYY-MM-DD. Responses will support UTC datetime format with the following format: YYYY-MM-DDThh:mm:ssZ.

Examples: "2017-11-29"; "2017-09-03", "2013-06-08T09:57:34Z"

4.2.2 URI

A Uniform Resource Identifier Reference (RFC 3986). Note: URIs are case sensitive. When adding URIs in a query string, please ensure that the URI is UTF-8 encoded.

4.3 Infrastructure Resources

4.3.1 Resource - Base Resource Definitions

Table 24 Base Resource Definition

Based on http://hl7.org/fhir/STU3/resource.html

Name	Card	Type	Value/Vocab	Description	Comments
id	0..1	id	Unique ID set by FHIR server.	Logical id of this artifact.	
meta	0..1	Meta		Metadata about the resource	
lastUpdated	0..1	instant	Only "lastUpdated" element to be populated by FHIR server.	This value changes each time the content of the resource changes.	
tag	0..1	BackboneElement			

Name		Card	Type	Value/Vocab	Description	Comments
	system	1..1	String	Organization: http://hl7.org/fhir/v3/ObservationValue HealthcareService: http://hl7.org/fhir/v3/ObservationValue Practitioner: http://ehealthontario.ca/fhir/NamingSystem/CoverageArea	For Organization, summary mode is always on indicated by the subsetted state for Organization searches. For HealthcareService, taxonomy search with _elements always returned a summary of HealthcareService. For Practitioner, the system code can also include LHIN data.	
	code	1..1	String	SUBSETTED or LHIN1 to LHIN14.		
	display	0..1	string	"Resource encoded in summary mode" Or Full name of LHIN e.g. Erie St. Claire.	Text label for the code.	
language		0..1	code	ValueSet:http://hl7.org/fhir/ValueSet/languages. Used only for Bundle and fixed to "en" in the current release.	Language of the resource content.	

4.3.2 Bundle Resource

Based on https://www.hl7.org/fhir/DSTU2/bundle.html

A special type of resource for collections of resources.

A set of search results (type = "searchset") consists of a series of zero or more entries. Each entry element will contain a resource.

Bundle.total may be used to return the total number of resources that match the search, and that may be returned by following the "next" link.

Table 25 Bundle Resource Definition

Name	Card	Type	Value/Vocab	Description	Comments
type	1..1	code	Fixed to "searchset"	Type of bundle	
total	0..1	unsignedInt		The total number of matches	
link	0..*	BackboneElement		Links related to this Bundle	
relation	1..1	string	"self" for the link to the this Bundle "next" for the link to the next page	ValueSet: http://www.iana.org/assignments/link-relations/link-relations.xhtml	
url	1..1	uri		Reference details for the link	
entry	0..*	BackboneElement		Entry in the bundle - will have a resource, or information.	
fullUrl	0..1	uri	The fullUrl element must be present when a resource is present, and not present otherwise	Absolute URL for resource (server address, or UUID/OID).	
resource	0..1	Resource		A resource in the bundle	

4.3.3 OperationOutcome Resource

Based on https://www.hl7.org/fhir/DSTU2/operationoutcome.html

Operation Outcomes are sets of error, warning and information messages that provide detailed information about the outcome of some attempted system operation. They are provided as a direct system response, or component of one, where they provide information about the outcome of the operation.

OperationOutcomes are used in the following circumstances:

- When an RESTful operation fails
- As the response on a validation operation, to provide information about the outcomes
- As part of a message response, usually when the message has not been processed correctly

This resource is not used for reporting clinical or workflow issues associated with a proposed or ongoing action. The resource is not designed to be persisted or referenced from other parts of the workflow.

Table 26 OperationOutcome Resource Definition

Name	Card	Type	Value/Vocab	Description	Comments
issue	0..*	BackboneElement		A single issue associated with the action	
severity	1..1	code	ValueSet: http://hl7.org/fhir/ValueSet/issue-severity	fatal | error | warning | information	
code	1..1	code	ValueSet: http://hl7.org/fhir/ValueSet/issue-type	Error or warning code	
details	0..1	CodeableConcept	ValueSet: http://hl7.org/fhir/ValueSet/operation-outcome	Additional details about the error	
coding	0..1*	Coding		A reference to a code defined by a terminology system	
system	0..1	uri		Identity of the terminology system	
code	0..1	code		Symbol in syntax defined by the system	
display	0..1	string		Representation defined by the system	
text	0..1	string		Plain text representation of the concept	
diagnostics	0..1	string		Additional diagnostic information about the issue	
location	0..*	string		XPath of element(s) related to issue	

Using Operation Outcome Resources

On the RESTful interface, operation outcome resources are only relevant when a level of computable detail is required that is more granular than that provided by the HTTP response codes. This granularity could include:

- more detail about the location of an issue
- the ability to identify multiple distinct issues
- provision of finer error codes that connect to known business failure states

4.3.4 DomainResource Resource

Based on http://hl7.org/fhir/STU3/domainresource.html

A resource with narrative, extensions, and contained resources

- If a resource is contained in another resource, it SHALL NOT have a meta.versionId or a meta.lastUpdated
- If the resource is contained in another resource, it SHALL be referred to from elsewhere in the resource
- If the resource is contained in another resource, it SHALL NOT contain nested Resources
- If the resource is contained in another resource, it SHALL NOT contain any narrative

Most resources are derived from Domain Resources - so they also can contain text, contained resources, extensions, and data elements specific to the particular domain of the resource.

Table 27 DomainResource Resource Definition

Name	Card	Type	Value/Vocab	Description	Comments
text	0..1	Narrative		Text summary of the resource, for human interpretation	Not used in the current release.
contained	0..*	Resource		Contained, inline Resources	
extension	0..*	Extension		Additional Content defined by implementations	
modifierExtension	0..*	Extension		Extensions that cannot be ignored	Not used in the current release.

4.4 ReferralRequest Profile

The ReferralRequest resource has several references to other resources, e.g. the relevant subject (Patient resource), the requester (Practitioner resource), the recipient (Practitioner resource), and additional supporting documentation (Composition resources). The diagram below illustrates the resources that are referenced or contained by the ReferralRequest resource, which are contained in the eConsult ReferralRequest response.

4.4.1 ReferralRequest Profile

ca-on-econsult-profile-referralrequest-ReferralRequest profile based on http://hl7.org/fhir/dstu2/referralrequest.html

Table 28 ReferralRequest Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	Id	1..1	string		Unique logical identifier of the FHIR resource.	
2	date	1..1	datetime		Creation date of the case.	
3	Meta	0.1			Used for transient and additional data about the Referral Request.	
4	lastUpdated	0..1	datetime	2018-11-01T22:04:00Z	Datetime when case was last updated e.g. 2018-11-01T22:04:00Z.	
5	Security	0..1				
6	Extension	1..1	BackboneElement			
7	url	1..1	string	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-limited-patient-consent-note	Limited patient consent identifier.	
8	valueString	1..1	string		Patient consent directives.	
9	System	1..1	string	http://hl7.org/fhir/v3/ActCode	HL7 FHIR Activity Code used to describe consent directive.	

	Name	Card	Type	Value/Vocab	Description	Comments
10	Code	1..1	string	CPLYCD	Comply with consent directive.	No other codes are supported.
11	Display	0..1	String	Comply with consent directive.	Display text description of the code.	
12	Status	1..1	code	Requested Submitted Unassigned More Info Requested More Info Provided Consult Provided Clarification Requested Returned Completed Cancelled	The workflow status of the referral or transfer of care request.	The status valueset is non FHIR conformant and follows eConsult case note states. The exception here is when the case is created and the status = requested.
13	Patient	1..1	Reference (Patient)	Contained ca-on-econsult-profile-referralrequest-Patient (Patient) resource	A link to a resource representing the person for whom the referral request is for	
14	reference	1..1	string		A reference to a location at which the other resource is found.	Patient reference is local to the ReferralRequest instance.
15	Requester	1..1	Contained Reference (Practitioner)	Contained ca-on-econsult-profile-referralrequest-(Practitioner) resource		

	Name	Card	Type	Value/Vocab	Description	Comments
16	reference	1..1	string		A reference to a location at which the other resource is found.	Practitioner reference is local to the ReferralRequest instance.
17	display	1..1	String			
18	Recipient	1..1	Contained Reference (Practitioner)	Contained ca-on-econsult-profile-referralrequest-Resource (Practitioner, Organization, HealthcareService) resource	The ID of the recipient who can be a Practitioner, Organization or HealthcareService.	
19	reference	1..1	string		A reference to a location at which the other resource is found.	
20	display	1..1	String		Name of Recipient	
21	description	1..1	string		ReferralRequest.description is also used to for the title of the Referral Request.	
22	serviceRequested)	1..1	code			
23	Coding	1..1				
24	system			2.16.840.1.113883.6.96	This is a fixed coding system used by eConsult.	
25	Code			11429006	No other codes are supported.	
26	display	1..1	string	Consultation		
27	supportingInformation	0..*	Reference (Composition)	Contained ca-on-econsult-profile-referralrequest-Composition (Composition) resource		Please note that when creating a new case, notes will not be captured.
28	reference	1..1	string	contained/Composition/id	Local reference to composition resource.	

	Name	Card	Type	Value/Vocab	Description	Comments
29	Display	1..1	String	notes, attachment, OriginalCase	Identify the type of composition.	
30	_comments	0..1	String		Author of the composition.	
31	Contained	1..1	String			
32	Patient	1..1	Resource			
33	Id	1..1	string		A logical identifier for this patient.	
34	name	1..*	HumanName		A name associated with the individual.	
35	family	1..1	string		Patient Last Name.	
36	given	1..1	string		Patient First Name.	
37	gender	1..1	code	“male”, “female”, “other”, “unknown” (http://hl7.org/fhir/ValueSet/administrative-gender)	The gender of a person used for administrative purposes.	
38	birthDate	1..1	date		The date of birth for the individual.	
39	contained	1..1	BackboneElement			
40	Coverage		Resource			Coverage Resource
41	Id	1..1	String			Logical ID for Coverage.
42	text	1..1	String		OHIP, Other Insurer	Identify if the coverage is for OHIP or another Insurer.
43	Issuer	0..1	Reference			Name of the Insurance company if OHIP is not available

	Name	Card	Type	Value/Vocab	Description	Comments
44	Display	0..1	String			
45	Group	0..1	String			Name of group plan if OHIP is not available
46	Extension	0..1	BackboneElement			
47	url	0..1	String	https://fhir.infoway-inforoute.ca/NamingSystem/ca-on-patient-hcn		
48	valueString	0..1	String		Patient Health Card Number.	
49	url	0..1	Sting	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-health-card-version-code		
50	valueString	0..1	String		Patient Ontario Health Card Version Code.	
51	Composition	0..*	Resource		Contained compositions are only included when a new case is created.	
52	Id	1..1	String			
53	Author	1..1	String		Reference to contained Practitioner Resource.	
54	Contained	0..1	BackboneElement			
55	DocumentReference	0..1	resource		Document attachments are included in this resource.	
56	id	1..1	string			
57	content	0..1	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
58	attachment	1..*	Attachment			
59	contentType	0..1	BackboneElement	application/octet-stream	Mime Type of the Document.	
60	url	1..1	String		URL where the file is hosted.	
61	title	0..1	String		Title of the document.	
62	creation	0..1	DateTime		Creation date.	
63	Practitioner	1..1	Resource		The contained Practitioner resource who is also the author of the composition.	
64	Id	1..1	String		Local identifier of the Practitioner. This identifier is used as a contained reference, however, the id is also the absolute reference id of the resource.	
65	name	1..1	HumanName		A name associated with the individual.	
66	family	1..1	string		Practitioner Last Name	
67	given	1..*	string		Practitioner First Name	
68	prefix	1..*	string		Practitioner Prefix i.e. Dr.	
69	Extension	0..1	BackboneElement		Extensions within the Composition Resource.	
70	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		

	Name		Card	Type	Value/Vocab	Description	Comments
71		valueString	0..1	String	Submitted Unassigned More Info Requested More Info Provided Consult Provided Clarification Requested Returned Completed Cancelled	Business states based on changes to the case and composition.	
72		url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
73		valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
74		url	0..1	string	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-patient-needs-to-be-seen	Does this patient need to be seen?	
75		valueBoolean	0..1	Boolean	True or False		
76	extension		0..1	BackboneElement		Additional details used by eConsult. These extensions are under ReferralRequest.	

	Name	Card	Type	Value/Vocab	Description	Comments
77	url	1..1		https://www.ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult_title	The title of the case is mandatory and is used describe and identity the case.	Title is limited to 1000 characters. Additional "notes" can be added within compositions and the ReferralRequest.description field.
78	valueString	1..1	String			
79	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-last_action_performed_by	Local reference to the practitioner that performed the last action.	
80	valueReference	1..1	Reference		Local reference to practitioner resource.	
81	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Tags are custom attributes to the case that the users can add to the case. These tags are searchable.	Tags may also contained otn.flag amongst other system generated tags.
82	valueString	0..*	String		Any additional information desired by the EMR or User.	

	Name	Card	Type	Value/Vocab	Description	Comments
83	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-econsult-specialty	Managed group specialty.	Managed group extensions are only required if the service selected is a managed group.
84	valueString	0..1	String		The value of the specialty is chosen from the Taxonomy list of specialties.	
85	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-econsult-sub-specialty		Managed group extensions are only required if the service selected is a managed group.
86	valueString	0..1	String		The value of the specialty is chosen from the Taxonomy list of sub-specialties.	

4.4.1.1 ReferralRequest Profile (Create Case)

When a new case is created, a POST ReferralRequest is required with the message body containing the following profile. An optional composition resource can be contained for attachments only when creating a new case. The case description and title goes into the ReferralRequest.decription and subsequent notes are actioned through the composition as separate actions i.e. add note.

ca-on-econsult-profile-createReferralRequest-ReferralRequest profile based on http://hl7.org/fhir/dstu2/referralrequest.html

Table 29 ReferralRequest Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	date	1..1	string	DateTime	DateTime in String format.	This field is ignored when creating a new case. The server time will be used instead.
2	Meta	0..1			Used for transient and additional data about the Referral Request.	
3	Security	0..1				
4	Extension	1..1	url	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-limited-patient-consent-note	Limited patient consent identifier.	
5	valueString	1..1	string		Patient consent directives.	
6	System	1..1	string	http://hl7.org/fhir/v3/ActCode	HL7 FHIR Activity Code used to describe consent directive.	
7	Code	1..1	string	CPLYCD	Comply with consent directive.	No other codes are supported.
8	Display	0..1	String	Comply with consent directive.	Display text description of the code.	

	Name	Card	Type	Value/Vocab	Description	Comments
9	Status	1..1	code	requested	Status = requested.	Please use note extension state for business level states. Status Requested is only used when the case is created for the first time. Requested code must be lowercase.
10	Patient	1..1	Reference (Patient)	Reference to local contained Patient/id	A link to a resource representing the person for whom the referral request is for.	
11	reference	1..1	string		A reference to a location at which the other resource is found.	Patient reference is local to the ReferralRequest instance.
12	Requester	1..1	Contained Reference (Practitioner)	Contained ca-on-econsult-profile-referralrequest-Practitioner (Practitioner) resource		
13	reference	1..1	string		A reference to a location at which the other resource is found.	Practitioner reference is local to the ReferralRequest instance.
14	display	0..1	String		Name of Requester.	
15	Recipient	1..1	Contained Reference (Practitioner)	Contained ca-on-econsult-profile-referralrequest-Resource (Practitioner, Organization, HealthcareService) resource	The ID of the recipient who can be a Practitioner, Organization or HealthcareService.	

	Name	Card	Type	Value/Vocab	Description	Comments
16	reference	1..1	string		A reference to a location at which the other resource is found.	
17	display	0..1	String		Name of Recipient.	
18	description	1..1	string		ReferralRequest.description is used when a case is first created. It will contain the details of the case.	Limited to 4000 characters.
19	serviceRequested)	1..1	code			
20	Coding	1..1				
21	system			2.16.840.1.113883.6.96	This is a fixed coding system used by eConsult.	
22	Code			11429006	No other codes are supported.	
23	display	1..1	string	Consultation		
24	Contained	1..*				
25	Patient	1..1	Resource			
26	Id	1..1	string		A logical identifier for this patient.	
27	Identifier	0..1	code		Currently not used.	Please refer to the identifier extensions under the coverage resource.
28	name	1..*	HumanName		A name associated with the individual.	
29	family	1..1	string		Patient Last Name.	
30	given	1..1	string		Patient First Name.	
31	gender	1..1	code	“male”, “female”, “other”, “unknown” (http://hl7.org/fhir/ValueSet/administrative-gender)	The gender of a person used for administrative purposes.	

	Name	Card	Type	Value/Vocab	Description	Comments
32	birthDate	1..1	date		The date of birth for the individual.	
33	contained	1..1	BackboneElement			
	Coverage	1..1	Resource			Coverage Resource
34	Id	1..1	String			Logical ID for Coverage.
35	text	1..1	String		OHIP, Other Insurer	Identify if the coverage is for OHIP or another Insurer. If OHIP is chosen, the patient HCN extension become mandatory. If Other insurer is specified, issuer.display and group is required.
36	Issuer	0..1	Reference		This is mandatory only when OHIP is not available.	Name of the Insurance company if OHIP is not available.
37	display	0..1	String			
38	Group	0..1	String		This is mandatory only when OHIP is not available.	Name of group plan if OHIP is not available
39	extension	0..1	BackboneElement			
40	url	0..1	String	https://fhir.infoway-inforoute.ca/NamingSystem/ca-on-patient-hcn		Patient Ontario Health Card Number

	Name	Card	Type	Value/Vocab	Description	Comments
41	valueString	0..1	String		Patient Health Card Number.	
42	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-health-card-version-code		Patient Ontario Health Card Version Code
43	valueString	0..1	String		Patient Health Card Version code.	
44	Composition	0..1	Resource		Attach a document to a new case.	
45	Id	1..1	String			
46	Contained	0..1	BackboneElement			
47	DocumentReference	0..1	resource		Document attachments are included in this resource.	Attachments are optional.
48	id	1..1	string			
49	content	0..1	BackboneElement			
50	attachment	1..*	Attachment			You can add multiple attachments by specifying multiple attachment objects.
51	contentType	0..1		application/octet-stream	Mime Type of the Document	
52	url	1..1	String		URL where the file is hosted	
53	title	0..1	String		Title of the document	
54	creation	0..1	DateTime		Creation date	

	Name	Card	Type	Value/Vocab	Description	Comments
55	supportingInformation	0..1	Reference (Composition)	Reference to local contained Composition/id		Please note that when creating a new case, notes will not be captured.
56	reference	1..1	string	contained/Composition/id	Local reference to composition resource.	The composition can only be a document when creating a new case. Do not attach notes when creating a new case.
57	display	1..1	String	attachment	When a new case is created, the display field must be included and be equal to “attachment”.	Only attachments are supported when creating new case.
58	_comments	0..1	String		Author of the composition.	
59	extension	0..*	Extension		Additional details used by eConsult.	
60	url	1..1		https://www.ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult_title	The title of the case is mandatory and is used describe and identity the case.	Title is limited to 1000 characters. Additional “notes” can be added within compositions and the ReferralRequest.description field.
61	valueString	1..1	String			

	Name	Card	Type	Value/Vocab	Description	Comments
62	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-econsult-specialty	Managed group specialty.	Managed group extensions are only required if the service selected is a managed group i.e. the recipient is a healthcareService.
63	valueString	0..1	String		The value of the specialty is chosen from the Taxomony list of specialties.	
64	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-econsult-sub-specialty		Managed group extensions are only required if the service selected is a managed group. i.e. the recipient is a healthcareService.
65	valueString	0..1	String		The value of the specialty is chosen from the Taxomony list of sub-specialties.	
66	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Additional tags that can be added by the user.	
67	valueString	0..*	String		Any additional information desired by the EMR or User.	

4.4.2 Patient Profile

Note: This Patient profile will always be a contained resource within the ReferralRequest resource.

ca-on-econsult-profile-referralrequest-Patient profile based on http://hl7.org/fhir/dstu2/patient.html

Table 30 Patient Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	Id	1..1	string		A logical identifier for this patient.	
2	name	1..*	HumanName		A name associated with the individual.	
3	family	1..1	string		Patient Last Name	
4	given	1..1	string		Patient First Name	
5	gender	1..1	code	"male", "female", "other", "unknown" (http://hl7.org/fhir/ValueSet/administrative-gender)	The gender of a person used for administrative purposes.	
6	birthDate	1..1	date		The date of birth for the individual.	
7	contained	1..1	BackboneElement			
8	Coverage	1..1	Resource		Coverage Resource	
9	Id	1..1	String		Logical ID for Coverage.	
10	text	1..1	String	OHIP, Other Insurer	Identify if the coverage is for OHIP or another Insurer.	
11	Issuer	0..1	String		Name of the Insurance company if OHIP is not available. This is mandatory only when OHIP is not available.	If Other Insurer is selected, then issuer and group is mandatory.

	Name	Card	Type	Value/Vocab	Description	Comments
12	Group	0..1	String		Name of group plan if OHIP is not available. This is mandatory only when OHIP is not available.	
13	extension	0..1				
14	url	0..1	String	https://fhir.infoway-inforoute.ca/NamingSystem/ca-on-patient-hcn	Patient Ontario Health Card Number	
15	valueString	0..1	String		Value of extension.	
16	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-identifier-health-card-version-code	Patient Ontario Health Card Version Code	
17	valueStrign	0..1	String		Value of extension.	

4.4.3 Practitioner Profile (Contained)

Note: The Practitioner Resource is often contained within a ReferralRequest Resource. When this occurs, a summary version of the practitioner is provided instead. The Practitioner resource is also given a local id and referenced to elements such as requester, and recipient.

ca-on-econsult-profile-referralrequest-Practitioner profile based on http://hl7.org/fhir/dstu2/practitioner.html

Table 31 Practitioner Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	1..1	string		A local identifier for this practitioner.	
2	meta	0..1	Meta		Metadata about the resource	
3	lastUpdated	0..1	instant	Only “lastUpdated” element to be populated by FHIR server.	This value changes each time the content of the resource changes.	

	Name	Card	Type	Value/Vocab	Description	Comments
4	tag	0..1	Backbone Element			
5	system	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/CoverageArea	LHIN coverage area.	
6	code	1..1	String	LHIN1 to LHIN14		
7	display	0..1	string	Full name of LHIN e.g. Erie St. Claire.	Text label for the code.	
8	name	1..1	HumanName		A name associated with the individual.	
9	family	1..1	string		Practitioner Last Name	
10	given	1..*	string		Practitioner First Name	
11	prefix	1..*	string		Practitioner Prefix i.e. Dr.	
12	telecom	1..*	contactPoint			
13	system	1..*	string	phone,fax,email,url	Contact Point System (phone, fax, email, url)	
14	value	1..*	string		The actual contact point details	
15	address	1..*	address			
16	line	1..1	string		Text description for the primary address	Multiple addresses can be included. It is assumed that the first address is the primary address unless otherwise noted.
17	city	1..1	String		City for primary address	
18	state	1..1	String		Province.	
19	postalCode	1..1	String		Postal code.	
20	Country	1..1	String		Country.	

	Name	Card	Type	Value/Vocab	Description	Comments
21	PractitionerRole	1..1	Backbone Element			
22	managingOrganization	1..1	String		Name of the Primary Organization	The managing organization is current a text string. In the future, this will reference an organization resource.
23	specialty	1..*	code			
24	System	1..*	string	Empty	Coding system is to be defined. This field will be empty in the current release.	Specialties in eConsult will use a dynamic list of services that are being developed with Champlain LHIN.
25	code	1..*	string			
26	display	1..1	string		Text of the specialty.	

4.4.4 Composition Profile

Note: This Composition profile will always be a contained resource within ReferralRequest. The Composition resource can be actioned directly to ReferralRequest/[id]/Composition.

ca-on-econsult-profile-referralrequest-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 32 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	**1..1**	**Identifier**		**Local identifier for the resource.**	
2	Date	1..1	date		Creation date	Date field is mandatory, however, the server time will be used.
3	author	1..1	reference		Reference to a contained Practitioner Author	
4	text	0..1	string		Note contents in text	
5	Contained	0..*				
6	DocumentReference	0..1	resource		Document attachments are included in this resource.	
7	id	1..1	string			
8	content	0..1	BackboneElement			
9	attachment	1..1	Attachment			
10	contentType	0..1		application/octet-stream	Mime Type of the Document	
11	url	1..1	String		URL where the file is hosted	
12	title	0..1	String		Title of the document	
13	creation	0..1	DateTime		Creation date	
14	extension	0..1	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
15	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
16	valueString	0..1	String	Submitted Unassigned More Info Requested More Info Provided Consult Provided Clarification Requested Returned Completed Cancelled	Business states based on changes to the case and composition.	
17	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
18	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
19	Practitioner	1..1	Resource		The contained Practitioner resource who is also the author of the composition.	
20	Id	1..1	String		Local identifier of the Practitioner. This identifier is used as a contained reference, however, the id is also the absolute reference id of the resource.	
21	name	1..1	HumanName		A name associated with the individual.	
22	family	1..1	string		Practitioner Last Name	
23	given	1..*	string		Practitioner First Name	
24	prefix	1..*	string		Practitioner Prefix i.e. Dr.	

4.5 Practitioner Profile

Note: This Practitioner profile is a response to the "Read Practitioner Details" and "Search Practitioner" RESTFul interactions.

ca-on-econsult-profile-referralrequest-Practitioner profile based on http://hl7.org/fhir/dstu2/practitioner.html

Table 33 Practitioner Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	1..1	string		A logical identifier for this practitioner.	
2	Identifier	0..1	code			
3	system	0..1	uri	https://fhir.infoway-inforoute.ca/NamingSystem/ca-on-license-physician		
4	value	0..1	string		Ontario Licensed Physician Identification Number	
5	meta	0.1			Used for transient and additional data about the Referral Request.	
6	tag	0..1	code			
7	system	0..1	string	http://ehealthontario.ca/fhir/NamingSystem/CoverageArea		
8	code	0..1	string	LHIN1 to LHIN14	Practitioner's Home Local Health Integration Network	
9	display	0..1	string		Text deprescription of the LHIN e.g. Erie St. Claire	
10	name	1..1	HumanName		A name associated with the individual.	
11	family	1..1	string		Practitioner Last Name	
12	given	1..*	string		Practitioner First Name	
13	prefix	1..*	string		Practitioner Prefix i.e. Dr.	
14	telecom	1..*	contactPoint			
15	system	1..*	string	phone,fax,email,url	Contact Point System (phone, fax, email, url)	

	Name	Card	Type	Value/Vocab	Description	Comments
16	value	1..*	string		The actual contact point details	
17	address	1..*	address			
18	line	1..1	string		Text description for the primary address	Multiple addresses can be included. It is assumed that the first address is the primary address unless otherwise noted.
19	city	1..1	String		City for primary address	
20	State	1..1	String		Province.	
21	postalCode	1..1	String		Postal Code.	
22	country	1..1	String		Country.	
23	PractitionerRole	1..1	BackboneElement			
24	managingOrganization	1..1	String		Name of the Primary Organization.	The managing organization is current a text string. In the future, this will reference an organization resource.
25	specialty	1..*	codeableconcept			
26	Coding	1..1	code			

	Name	Card	Type	Value/Vocab	Description	Comments
27	System	1..1	string	Null	Coding system is to be defined. This field will be empty in the current release.	Specialties in eConsult will use a dynamic list of services that are being developed with Champlain LHIN.
28	code	1..1	String	Null	Reserved for future use.	
29	display	1..1	String		Text of the specialty.	
30	extension	0..*	BackboneElement			
31	url	0..1	String	https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/services		
32	valuecoding	0..*	Code			
33	system	0..*	String	https://www.ehealthontario.ca/API/FHIR/ValueSet/eConsult/1/eConsultServices	Telemedicine services offered	
34	code	0..*	String	ECONSULT,VIDEOCONSULTS,SECUREMESSAGING	Telemedicine service code	
35	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-telemedicine-service	Telemedicine services specific to a specialty	
36	valuestring	0..*	String		Text of the Service	
37	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-telemedicine-service-details	Telemedicine Service Details --- Instructions for specific areas of practice	
38	valuestring	0..*	String		Text telemedicine service details.	

	Name		Card	Type	Value/Vocab	Description	Comments
39		url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-patient-eligibility	Patient Eligibility criteria	
40		valuestring	0..*	String		Text for Patient Eligibility	
41		url	0..*	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-case-acceptance-conditions	Case acceptance conditions e.g. Geographic constraints.	
42		valuestring	0..*	String		Text f or case acceptance conditions.	
43		url	0..*	String	https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/out_of_office_date_range	Out of Office Date Range	
44		valuestring	0..*	String		Text for Out of Office Date Range	

4.6 Organization Profile

This Organization profile is a response to the “Read Organization” and “Search Organization” RESTFul interactions.

4.6.1Organization Profile

ca-on-econsult-profile-Organization profile based on http://hl7.org/fhir/dstu2/organization.html

Table 34 Organization Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	1..1	code		The logical id of the organization	
2	name	1..1	string		Organization name	
3	text	1..1	String		Program description, highlights, team	
4	extension	1..1	BackboneElement			
5	url	1..*	String	https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/eConsult_services_provided		
6	valueCoding	1..*	string			
7	System	1..1		https://www.ehealthontario.ca/API/FHIR/ValueSet/eConsult/1/eConsultServices	Telemedicine services	
8	code	1..1	Integer	ECONSULT, VIDEOCONSULT, SECUREMESSAGING		
9	url	1..*	String	https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/specialty		

	Name		Card	Type	Value/Vocab	Description	Comments
10		value Coding	1..1	string			
11		System	1..1	String	Null	Coding system is to be defined. This field will be empty in the current release.	Specialties in eConsult will use a dynamic list of services that are being developed with Champlain LHIN.
12		code	1..1	String	Null	Reserved for future use.	
13		display	1..1	String		Text of the specialty.	
14		url	0..1	string	https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/case_acceptance_conditions	Case acceptance conditions	
15		valueString	0..1	String			
16		url	1..*	string	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-specialty-group-administrator		
17		valueReference	1..*	reference		Reference to contained practitioner who is the group administrator.	
18		url	1..1		https://www.ehealthontario.ca/API/FHIR/StructureDefinition/eConsult/1/extension/homepage_url		
19		valueString	1..1	string			

4.7 HealthcareService Profile

This HealthcareService profile is a response to the “Read HealthcareService” and “Search HealthcareService” RESTFul interactions.

4.7.1 HealthcareService Profile

ca-on-econsult-profile-HealthcareService profile based on http://hl7.org/fhir/stu3/healthcareservice.html

For taxonomy search, the HealthcareService profile is subsetted meaning not all fields are available. Please refer to table 23 for the base definitions.

Table 35 HealthcareService Profile

	Name		Card	Type	Value/Vocab	Description	Comments
1	id		0..1	String		Unique identifier for this resource	
2	identifier		1..1	code		Logical identifier of this Healthcare service	
3		System	1..1	String	http://hl7.org/API/FHIR/eConsult/v2/HealthcareService		
4		value	1..1	String			
5	Active		1..1	Boolean	True, False	Whether this healthcareservice is in active use	
6	Name		1..1	String		Name of Healthcare service	
7	Comment		1..1	String		Service description	
8	extraDetails		1..1	String		Service highlights	

	Name	Card	Type	Value/Vocab	Description	Comments
9	type	0..*	Codeable Concept		A list of specialties offered.	Please note that the list of specialties and sub-specialties is being developed. A draft set of specialties is available upon request.
10	Coding	1..1	Backbone Element			
11	system	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-code		
12	code	1..1	String	Codes are available upon request.	Specialty codes defined for eConsult Managed Groups.	
13	display	1..1	string		Specialty	Please use display field for specialty info.
14	specialty	0..*	Codeable Concept		Sub-specialties or options offered by the managed group.	
15	Coding	1..1	Backbone Element			
16	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-specialty		
17	Code	1..1	String	Codes are available upon request.		
18	Display	1..1	string		Text description of the sub-specialty.	Please use display for sub-specialty info.
19	ReferralMethod	0..1	Code		Ways consults are accepted	

	Name	Card	Type	Value/Vocab	Description	Comments
20	Coding		Backbone Element			
21	System	0..*	String	www.ehealthontario.ca/fhir/eConsult/available_services	Telemedicine services	
22	Code	0..*	String	ECONSULT, VIDEOCONSULT, SECUREMESSAGING		
23	Display	0.*	string		Text description of the service	
24	location	1..1	reference		Reference to contained Location Resource	
25	contained	1..*	Backbone Element			
26	location	0..*	Resource			
27	id	1..1	String			
28	Identifier	1..1	Code		Base managed group region identifier	
29	System	1..1	String	www.ehealthontario.ca/fhir/eConsult/region		
30	Value	1..1	String	Name of the Region	Value of the Region	
31	name	1..1	String		Name of the Region	
32	address	1..*	address		Address of the managed group	
33	line	1..*			Address Text	
34	position		Backbone Element			
35	longitude	0..1	decimal		Longitude with WGS84 datum	
36	Latitude	0..1	decimal		Latitude with WGS84 datum	
37	extension	1..*				

	Name	Card	Type	Value/Vocab	Description	Comments
38	url	1..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ext-LHIN	LHIN	
39	valueString	1..*	string	LHIN1 to LHIN14		
40	telecom	0..*	ContactPoint			
41	System	1..1	Code	Phone,email,fax	Contact type.	
42	Value	1..1	String		Value of the contact type.	
43	Extension	1..1	Backbone Element			
44	url	1..*	String	Slice Element, discriminator url: http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-managed-group-contact		
45	family	0..1				
46	url	1..1	String	Slice 1: family	Family name.	
47	valueString	1..1	string		Value of the extension.	
48	given	0..1		Slice 2: given	Given name.	
49	url	1..1	String			
50	valueString	1..1	string		Value of the extension.	
51	title	0..1	Backbone Element	Slice 3: title		
52	url	1..1	String		Title e.g. Group Coordinator.	
53	ValueString	1..1	String		Value of the extension.	
54	Extension	1..1	Backbone Element			

	Name	Card	Type	Value/Vocab	Description	Comments
55	url	1..*	String	Slice element, discriminator: url: http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-managed-group-administrator		
56	ValueReference	0..*	Reference	Absolute Reference to a Practitioner Resource.	Reference to Practitioner Resource if available. [BaseURL]/Practitioner/[id]	
57	family	0..1				
58	url	1..1	String	Slice 1: family	Family name.	
59	ValueString	1..1	String			
60	middle	0..1				
61	url	1..1	String	Slice 2: middle	Middle name.	
62	ValueString	1..1	String		Value of the extension.	
63	given	0..1				
64	url	1..1	String	Slice 3: Given	Given name.	
65	ValueString	1..1	String		Value of the extension.	
66	title	0..1				
67	url	1..1	String	Slice 4: title	Title i.e. administrator.	
68	ValueString	1..1	String		Value of the extension.	
69	email	0..1				
70	url	1..1	String	Slice 5: email	Email address.	
71	ValueString	1..1	String		Value of the extension.	
72	phone	0..1				
73	url	1..1	String	Slice 6: phone	Phone number.	

	Name		Card	Type	Value/Vocab	Description	Comments
74		ValueString	1..1	String		Value of the extension.	

4.7.2 HealthcareService Profile (Get Taxonomy)

When Healthcareservice is queried for a list of specialities and sub-specialities i.e. taxonomy, the structure of the profile will differ from the base profile.

ca-on-econsult-profile-HealthcareService profile based on http://hl7.org/fhir/stu3/healthcareservice.html

Table 36 HealthcareService Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	identifier	1..1	code		Logical identifier of the specialty, sub-specialty list.	
2	System	1..1	String	http://hl7.org/API/FHIR/eConsult/v2/HealthcareService		
3	value	1..1	String			
4	type	1..*	Codeable Concept		A list of specialties offered.	Please note that the list of specialties and sub-specialties is being developed. A draft set of specialties is available upon request.
5	Coding	1..1	Backbone Element		For future development.	
6	system	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-code		
7	code	1..1	String	Codes are available upon request.	Specialty codes defined for eConsult Managed Groups.	
8	display	1..1	string			

	Name	Card	Type	Value/Vocab	Description	Comments
9	specialty	1..*	Codeable Concept		Sub-specialties or options offered by the managed group.	
10	Coding	1..1	Backbon eElement			
11	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-taxonomy-specialty		
12	Code	1..1	String	Codes are available upon request.		
13	Display	1..1	string		Text description of the sub-specialty.	

4.8 Task Profile

This Task profile is a response to the "GET Task" details RESTFul interactions.

4.8.1Task Profile

ca-on-econsult-profile-Task profile based on https://www.hl7.org/fhir/task.html

Table 37 Task Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	identifier	1..1	code		Logical identifier of the task.	
2	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/econsult-task-identifier		
3	value	1..1	String			
4	status	1..1	String	http://hl7.org/fhir/task-status	Task state of the Consult Case.	
5	businessStatus	1..1	Codeable concept		eConsult Note State.	
6	Coding	1..1	Code			
7	System	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
8	Code	1..1	string	Submitted Unassigned More Info Requested More Info Provided Consult Provided Clarification Requested Returned Completed Cancelled	Business states based on changes to the case and composition.	
9	Intent	1..1	String	Order	For eConsult the intent will always be order.	

	Name	Card	Type	Value/Vocab	Description	Comments
10	lastModified	1..1	datetime		Datetime when case was last modified.	
11	authoredOn	1..1	datetime		Creation date of the case.	
12	statusReason	0..1	Codeable concept		When the status is rejected, a status reason is provided.	
13	coding	1..1	Code			
14	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-status-reason		
15	value	1..1	String	Incorrect Specialty, Not Available Other	Reason when status is rejected.	
16	requester		BackboneElement			
17	agent	1..1	BackboneElement			
18	reference	1..1	Reference		Reference practitioner resource.	
19	display	1..1	String		Name of the referrer.	
20	restriction	1..1	BackboneElement			
21	recipient	1..1	BackboneElement			
22	reference	1..1	Reference		Reference recipient resource.	
23	display	1..1	String		Name of recipient.	
24	for	1..1	BackboneElement			
25	reference	1..1	Reference		Reference to Patient resource.	
26	display	1..1	String		Patient Name.	
27	basedOn	1..1	BackboneElement		Reference to ReferralRequest Resource this task fulfills.	

	Name	Card	Type	Value/Vocab	Description	Comments
28	reference	1..1	Reference			
29	display	1..1	String		Title of the eConsult case.	
30	input	0..1	BackboneElement		Allowable actions based on role type.	
31	type	1..1	Codeable concept			
32	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-allowed-actions		
33	code	1..1	String	referrer-actions specialist-actions	Identify role type.	
34	valueString	1..1	String		Actions Allowed.	
35	extension	0..1	BackboneElement			
36	url	0..1	String	http://ehealthontario.ca/fhir/NamingSystem/eConsult-last-performer	Role who performed that last action.	
37	valueString	0..1	String	REFERRER, SPECIALIST		

4.9 CareTeam Profile

This CareTeam profile is a response to the "Search CareTeam" (Get My Delegates) RESTFul interactions.

4.9.1CareTeam Profile

ca-on-econsult-profile-CareTeam profile based on https://www.hl7.org/fhir/careteam.html

Table 38 CareTeam Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	1..1	string		Logical identifier of the care team.	
2	identifier	1..1	code		Business identifier of the Care Team.	
3	System	1..1	String	http://www.ehealthontario.ca/FHIR/NamingSystem/ca-on-delegates		
4	value	1..1	String	Current User and Delegate Relationships	Current User and Delegate Relationships.	
5	status	1..1	String	http://hl7.org/fhir/ValueSet/care-team-status	Care team status.	
6	participant	0..*	BackboneElement		Business identifier of the Care Team.	
7	role	0..1	Code			
8	text	0..1	String	REFERRER, SPECIALIST, DELEGATE	Role of the delegate.	
9	Coding	0..1	BackboneElement			
10	system	1..1	String	http://www.ehealthontario.ca/FHIR/NamingSystem/ca-on-identifier-oneid	The ONEID User ID of the team member.	
11	Code	1..1	String	ONEID	Single Code ONEID or null.	
12	display	1..1	String		ONEID email in the format name@oneid.on.ca	

	Name	Card	Type	Value/Vocab	Description	Comments
13	member	0..1	Reference		Reference to Practitioner resource.	
14	display	0..1	text		Practitioner's name and salutation.	

4.10 Questionnaire Profile

This Questionnaire profile is a response to the "Read Questionnaire" RESTFul interactions.

4.10.1 Questionnaire Profile

ca-on-econsult-profile-Questionnaire profile based on http://hl7.org/fhir/stu3/questionnaire.html

Table 39 Questionnaire Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	identifier	1..1	code		Business identifier of the Questionnaire.	
2	System	1..1	String	http://ehealthontario.ca/fhir/NamingSystem/Questionnaire		
3	value	1..1	String	KPI		
4	status	1..1	String	http://hl7.org/fhir/ValueSet/publication-status	Publication status.	
5	date	1..1	dateTime		DateTime when questionnaire was last updated.	
6	item	0..*	BackboneElement			
7	linkId	1..1	String		Question number.	
8	text	0..1	String		Question text.	
9	type	0..1	Reference	http://hl7.org/fhir/ValueSet/item-type	Questionnaire Item Type e.g. open-choice.	

	Name	Card	Type	Value/Vocab	Description	Comments
10	option	0..*	BackboneElement		Practitioner's name.	
11	valueString	0..1	String		Options.	

4.11 QuestionnaireResponse Profile

This QuestionnaireResponse profile is part of the body of the "Create QuestionnaireResponse" RESTFul interactions. The QuestionnaireResponse resource instance is posted are part of a Composition resource.

4.11.1 Composition Profile

ca-on-econsult-profile-questionnaireresponse-Composition profile based on http://hl7.org/fhir/stu3/Composition.html

The base composition profile

Table 40 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.

	Name	Card	Type	Value/Vocab	Description	Comments
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	
5	extension	0..*	BackboneElement			
6	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	0..1	string	Completed	Business states based on changes to the case and composition.	Change value to: “Completed”
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	

4.11.2 QuestionnaireResponse Profile (Contained)

ca-on-econsult-profile-questionnaireresponse-QuestionnaireResponse profile based on http://hl7.org/fhir/stu3/QuestionnaireResponse.html

Table 41 QuestionnaireResponse Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	1..1	string		Logical id of the questionnaire resource.	
2	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
3	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	
4	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	
5	authored	1..1	dateTime		Date the answers were gathered.	
6	author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
7	Item	0..*	BackboneElement			
8	linkId	1..1				
9	text	1..1	String		Question text.	
10	answer	1..*	BackboneElement			
11	valueString	1..*	string		Response.	
12	Item	0..*	BackboneElement		Nested responses for questions that also allow for additional comments.	

4.12 Composition Profile

This Composition profile is used to contribute additional information to the eConsult case, for the following actions of Create Composition RESTful Interactions:

1. Add Note
2. Provide Consult
3. Provide More Info
4. Request Clarification
5. Cancel eConsult
6. Request More Info
7. Return eConsult
8. Complete Consult

In all interactions, the user must POST a ***ReferralRequest/[id]/Composition*** and add additional notes. If an action is requested, the note status extension is updated to reflect the new state. A contained QuestionnaireResponse is mandatory for Add Note, Provide Consult, Request More Info, Return Case and Complete Case.

Please note that a contained Questionnaire is required when the Referrer "Completes Consult" and when a Specialist "Provides Consult, Request Clarification, or Returns a eConsult".

4.12.1 Composition Profile – Add Note (Referrer)

Referrer adds a note to the case.

ca-on-econsult-profile-addnoteReferrer-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 42 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	Id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	Text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	Extension	1..*	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	Submitted	Business states based on changes to the case and composition.	Adding a note requires the state to be “Submitted”
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	Contained	0..1				
11	DocumentReference	1..1	resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
12	Id	1..1	string			
13	content	0..1	BackboneElement			
14	attachment	1..*	Attachment			
15	contentType	0..1		application/octet-stream	Mime Type of the Document	
16	url	1..1	String		URL where the file is hosted	
17	Title	0..1	String		Title of the document	
18	creation	0..1	dateTime		Creation date	

4.12.2 Composition Profile – Add Note (Specialist)

Specialist adds a note to the case. Please note that the questionnaireResponse is mandatory.

ca-on-econsult-profile-addnoteSpecialist-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 43 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	extension	1..*	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	Submitted	Business states based on changes to the case and composition.	Adding a note requires the state to be "Submitted"
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Additional tags that can be added by the user.	
11	valueString	0..*	String		Any additional information desired by the EMR or User. E.g. otn.flag=OTHER,RESEARCH, EDUCATION	
12	contained	1..1	BackBoneElement			
13	QuestionnaireResponse	1..1	Resource			
14	id	1..1	string		Logical id of the questionnaire resource	
15	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
16	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	

	Name	Card	Type	Value/Vocab	Description	Comments
17	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	
18	authored	1..1	dateTime		Date the answers were gathered.	
19	author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
20	Item	0..*	BackboneElement			
21	linkId	1..1				
22	text	1..1	String		Question text.	
23	answer	1..*	BackboneElement			
24	valueString	1..*	string		Response text.	
25	Item	0..*	BackboneElement		Nested responses for questions that allow for additional comments.	
26	DocumentReference	0..1	resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
27	Id	1..1	string			
28	content	0..1	BackboneElement			
29	attachment	1..*	Attachment			
30	contentType	0..1	String	application/octet-stream	Mime Type of the Document	
31	url	1..1	String		URL where the file is hosted	
32	title	0..1	String		Title of the document	

	Name		Card	Type	Value/Vocab	Description	Comments
33		creation	0..1	DateTime		Creation date	

4.12.3 Composition Profile – Provide Consult (Specialist)

The specialist provides consultation for the case.

ca-on-econsult-profile-provideConsult-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 44 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	extension	1..*	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	Consult Provided	Business states based on changes to the case and composition.	Change state: "Consult Provided"
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	url	0..1	string	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-patient-needs-to-be-seen	Does this patient need to be seen?	
11	valueBoolean	0..1	Boolean	True or False		
12	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Additional tags that can be added by the user.	
13	valueString	0..*	String		Any additional information desired by the EMR or User. E.g. otn.flag=OTHER,RESEARCH, EDUCATION	
14	contained	1..*	BackBoneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
15	QuestionnaireResponse	1..1	Resource			
16	id	1..1	string		Logical id of the questionnaire resource	
17	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
18	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	
19	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	
20	authored	1..1	dateTime		Date the answers were gathered.	
21	author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
22	Item	0..*	BackboneElement			
23	linkId	1..1				
24	text	1..1	String		Question text.	
25	answer	1..*	BackboneElement			
26	valueString	1..*	string		Response text.	
27	Item	0..*	BackboneElement		Nested responses for questions that allow for additional comments.	
28	DocumentReference	0..1	resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
29	Id	1..1	string			

	Name		Card	Type	Value/Vocab	Description	Comments
30		content	0..1	BackboneElement			
31		attachment	1..*	Attachment			
32			contentType	0..1		application/octet-stream	Mime Type of the Document	
33			url	1..1	String		URL where the file is hosted	
34			title	0..1	String		Title of the document	
35			creation	0..1	DateTime		Creation date	

4.12.4 Composition Profile – Provide More Info (Referrer)

The referrer provides more information.

ca-on-econsult-profile-provideMoreInformation-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 45 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.

	Name	Card	Type	Value/Vocab	Description	Comments
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	extension	1..*	BackboneElement			
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	More Info Provided	Business states based on changes to the case and composition.	Change value to “More Info Provided”
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	Contained	0..1	BackboneElement			

	Name		Card	Type	Value/Vocab	Description	Comments
11		DocumentReference	1..1	resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
12		Id	1..1	String			
13		content	0..1	BackboneElement			
14		attachment	1..*	Attachment			
15		contentType	0..1		application/octet-stream	Mime Type of the Document	
16		url	1..1	String		URL where the file is hosted	
17		title	0..1	String		Title of the document	
18		Creation	0..1	DateTime		Creation date	

4.12.5 Composition Profile – Request Clarification

After the specialist provides consult on the case, the Requester sends additional clarification questions to the specialist.

ca-on-econsult-profile-requestClarification-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 46 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.

	Name	Card	Type	Value/Vocab	Description	Comments
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	extension	1..*	BackboneElement			
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	Clarification Requested	Business states based on changes to the case and composition.	Change value to: “Clarification Requested”
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	Contained	0..1	BackboneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
11	DocumentReference	1..1	resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
12	Id	1..1	string			
13	content	0..1	BackboneElement			
14	attachment	1..*	Attachment			
15	contentType	0..1		application/octet-stream	Mime Type of the Document	
16	url	1..1	String		URL where the file is hosted	
17	title	0..1	String		Title of the document	
18	creation	0..1	DateTime		Creation date	

4.12.6 Composition Profile – Cancel eConsult (Referrer)

Only the referrer can cancel a case if the case has not been actioned by the assigner or specialist.

ca-on-econsult-profile-cancelcase-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 47 Composition Profile

	Name		Card	Type	Value/Vocab	Description	Comments
1	id		0..1	Identifier		Local identifier for the resource.	
2	Date		1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author		1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text		0..1	String		Add Note Text.	Maximum 4000 characters.
5	extension		0..*	BackboneElement			
6		url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7		valueString	1..1	string	Cancelled	Business states based on changes to the case and composition.	Change value: “Cancelled”

	Name		Card	Type	Value/Vocab	Description	Comments
8		url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9		valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	

4.12.7 Composition Profile – Request More Information (Specialist)

The specialist requests more information from the Requester in order to provide consult.

ca-on-econsult-profile-requestmoreInformation-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 48 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"

	Name	Card	Type	Value/Vocab	Description	Comments
4	text	0..1	String		Add Note Text.	Either text notes or document must be included in any composition submission. Maximum 4000 characters.
5	extension	1..*	BackboneElement			
6	url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7	valueString	1..1	string	More Info Requested	Business states based on changes to the case and composition.	Change value to: "More Info Requested"
8	url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9	valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Additional tags that can be added by the user.	
11	valueString	0..*	String		Any additional information desired by the EMR or User. E.g. otn.flag=OTHER,RESEARCH,EDUCATION	

	Name	Card	Type	Value/Vocab	Description	Comments
12	Contained	1..1	BackboneElement			
13	DocumentReference	0..1	Resource		Document attachments are included in this resource.	Either text notes or document must be included in any composition submission.
14	Id	1..1	String			
15	content	0..1	BackboneElement			
16	attachment	1..*	Attachment			
17	contentType	0..1		application/octet-stream	Mime Type of the Document	
18	url	1..1	String		URL where the file is hosted	
19	title	0..1	String		Title of the document	
20	creation	0..1	DateTime		Creation date	
21	QuestionnaireResponse	1..1	Resource		This is NOT required when the decline reason is “not available”.	
22	id	1..1	String		Logical id of the questionnaire resource	
23	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
24	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	
25	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	

	Name		Card	Type	Value/Vocab	Description	Comments
26		authored	1..1	dateTime		Date the answers were gathered.	
27		author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
28		Item	0..*	BackboneElement			
29		linkId	1..1				
30		text	1..1	String		Question text.	
31		answer	1..*	BackboneElement			
32		valueString	1..*	string		Response text.	
33		Item	0..*	BackboneElement		Nested responses for questions that allow for additional comments.	

4.12.8 Composition Profile – Return eConsult (Specialist)

The specialist returns the case. QuestionnaireResponse is NOT required if the decline reason is "not available", otherwise it must be included in the response. If the decline reason is "other", the composition note utilized by the text field is necessary to provide additional comments.

ca-on-econsult-profile-returncase-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 49 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.
3	author	1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text	0..1	String		Add Note Text.	This is mandatory if the decline reason is "other". Maximum 4000 characters.
5	extension	1..*	BackboneElement			

	Name		Card	Type	Value/Vocab	Description	Comments
6		url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7		valueString	1..1	string	Returned	Business states based on changes to the case and composition.	Change value to: “Returned”
8		url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9		valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	This is used only in the response. Server will know the role automatically and is not required for new compositions.
10		url	1..1	string	http://www.ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-decline_reason	Decline or Return case reason.	
11		valueCoding	1..1	BackboneElement			
12		System	1..1		http://ehealthontario.ca/fhir/ValueSet/eConsult-Decline_Reason		
13		Code	1..1	String	Incorrect_Specialty Not_Available Other	Value of the extension.	

	Name	Card	Type	Value/Vocab	Description	Comments
14	url	0..*	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-tag	Additional tags that can be added by the user.	
15	valueString	0..*	String		Any additional information desired by the EMR or User. E.g. otn.flag=OTHER,RESEARCH,EDUCATION	
16	contained	1..1	BackBoneElement			
17	QuestionnaireResponse	0..1	Resource		This is NOT required when the decline reason is "not available".	
18	id	1..1	string		Logical id of the questionnaire resource	
19	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
20	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	
21	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	
22	authored	1..1	dateTime		Date the answers were gathered.	
23	author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
24	Item	0..*	BackboneElement			

	Name		Card	Type	Value/Vocab	Description	Comments
25		linkId	1..1				
26		text	1..1	String		Question text.	
27		answer	1..*	BackboneElement			
28		valueString	1..*	string		Response text.	
29		Item	0..*	BackboneElement		Nested responses for questions that allow for additional comments.	

4.12.9 Composition Profile – Complete eConsult (Referrer)

After the specialist provides consult on the case, the Requester is satisfied with the response and completes the case.

ca-on-econsult-profile-complete-Composition profile based on http://hl7.org/fhir/dstu2/composition.html

Table 50 Composition Profile

	Name	Card	Type	Value/Vocab	Description	Comments
1	Id	0..1	Identifier		Local identifier for the resource.	
2	Date	1..1	Date		Creation date.	Date field is mandatory, however, the server time will be used.

	Name		Card	Type	Value/Vocab	Description	Comments
3	author		1..1	Reference		Reference to a contained Practitioner Author.	If the user is logged in, the following data will identify the logged in user. "author": { "reference": "Practitioner/@self"
4	text		0..1	String		Add Note Text.	Maximum 4000 characters.
5	extension		1..*	BackboneElement			
6		url	1..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-state		
7		valueString	1..1	string	Completed	Business states based on changes to the case and composition.	Change value to: “Completed”
8		url	0..1	String	http://ehealthontario.ca/fhir/StructureDefinition/ca-on-eConsult-ext-note-author-role	The role of the author.	
9		valueString	0..1	string	REFERRER, SPECIALIST, DELEGATE	Author Role.	
10	contained		1..1	BackBoneElement			

	Name	Card	Type	Value/Vocab	Description	Comments
11	Questionnaire Response	1..1	Resource			
12	id	1..1	string		Logical id of the questionnaire resource	
13	basedOn	0..1	Reference		Reference to Case (ReferralRequest Resource)	
14	Questionnaire	1..1	Reference		Reference to Questionnaire Resource.	
15	Status	1..1	String	http://hl7.org/fhir/ValueSet/questionnaire-answers-status	Questionnaire answer status e.g. completed.	
16	authored	1..1	dateTime		Date the answers were gathered.	
17	author	1..1	Reference		Reference to the Practitioner resource that completed the response.	
18	Item	0..*	BackboneElement			
19	linkId	1..1				
20	text	1..1	String		Question text.	
21	answer	1..*	BackboneElement			
22	valueString	1..*	string		Response text.	
23	Item	0..*	BackboneElement		Nested responses for questions that allow for additional comments.	

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5 Functionality per User Role

The following table shows the mapping between the eConsult server functionalities and the user roles that are allowed to perform them.

Table 51 Mapping between eConsult server functionalties and RESTful operations

Functionality	Referrer	Specialist/ Respondent	RESTful Operation
Search Recipient	X	X	GET Organization, GET Practitioner
Search HealthcareService	X	X	Get HealthcareService
Create eConsult	X		POST ReferralRequest
Get eConsult	X	X	GET ReferralRequest
Add Note	X	X	POST ReferralRequest/[id]/Composition
Provide More Info	X		
Complete eConsult	X		
Request Clarification	X		
Cancel eConsult	X		
Request More Info		X	
Provide Consult		X	
Return eConsult		X	
Get Questionnaire	X	X	GET Questionnaire
Complete Questionnaire	X	X	POST ReferralRequest/[id]/Composition
Get Task State	X	X	Get Task
Upload Attachments*	X	X	POST /documents/
Download Attachments*	X	X	GET /documents/
Download Activity Report*	X	X	GET /activity/
* File attachments and activity reports are non-FHIR services described in section 3.3.21			

6 eConsult State Transition Diagram

Figure below shows eConsults' state transition diagram.

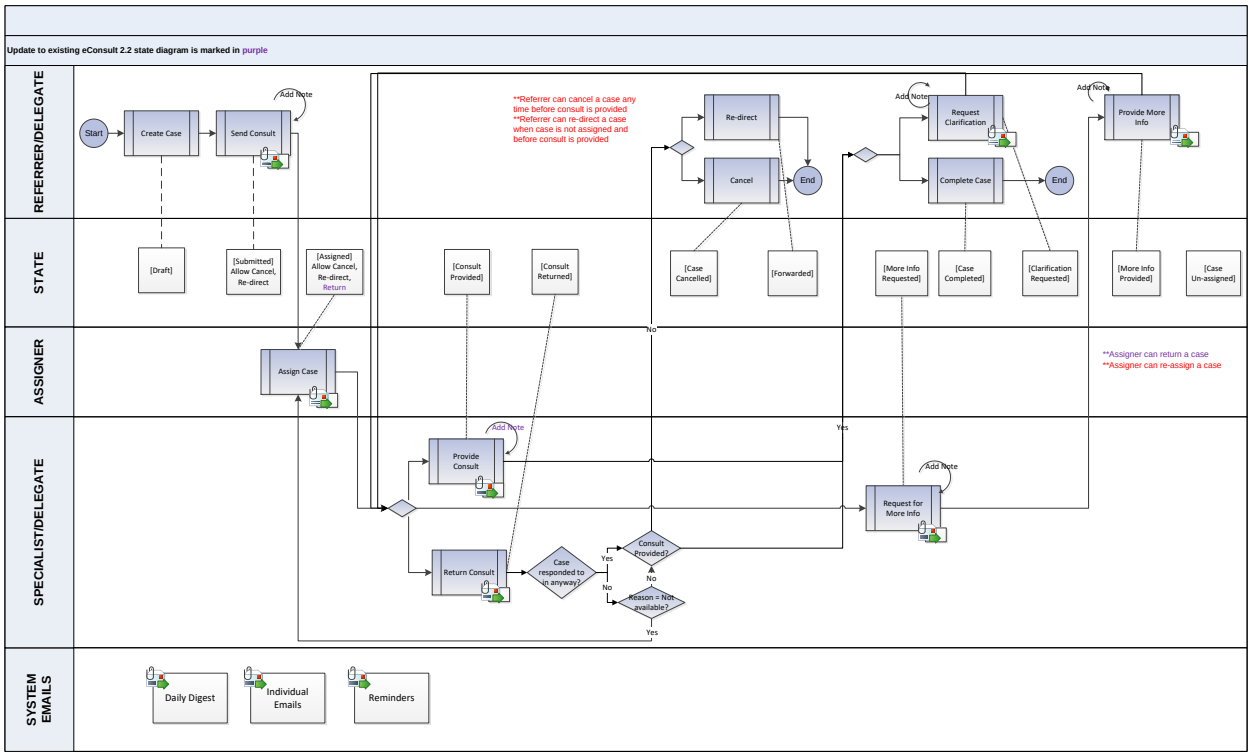


Figure 1 eConsult state transition diagram

Table 51 shows a list of eConsult states, their descriptions and a list of possible actions allowed by the referrer, specialist in each of these states. Please note that in the managed model, the assigner functions as a group dispatcher and currently does not act through an EMR API interface. The dispatcher is involved in assigning tasks to other participants.

Table 52 Allowed actions that can be performed on eConsults during their lifecycle states

Task State	eConsult Actions	State Description	Allowed Referrer Action	Allowed Specialist Action	Allowed Specialty Group Dispatcher Action	Allowed Specialty Group Specialist Action
Draft	Draft	This is a state before a case is submitted. It is not recognized by the eConsult solution and only exists within the EMR or Portal Application. The eConsult solution does not store drafts.	Submit eConsult Cancel eConsult	None	None	None
Requested	"Submitted"	Referrer submitted the eConsult to the recipient. The recipient could be either an individual specialist or a specialty group	Cancel eConsult Add Note Re-assign (only when case is not assigned and before consult is provided)	Decline eConsult Request More Info Provide Consult	Return eConsult Assign eConsult	
Cancelled	"Cancelled"	Referrer cancelled the eConsult	View eConsult	View eConsult	View eConsult	View eConsult
Requested	"Returned"	When a consult has not been assigned or the specialist can return the case if it has not been acted on yet.	Cancel eConsult Re-assign	Re-assign	Cancel eConsult Assign eConsult	View eConsult
Accepted	"Assigned"	If the recipient is a specialty group, the assigner assigned the eConsult to a specialist within the group	Cancel eConsult Add Note		Un-assign eConsult	Return eConsult Request More Info Provide Consult
Requested	"Un-assigned"	The assigner of the specialty group has unassigned the eConsult from the specialist; or the specialist in the specialty group has declined the eConsult back to the assigner. Now the eConsult is ready to be assigned again by the specialty group assigner.	Cancel eConsult Add Note Re-assign		Return eConsult Assign eConsult	

Task State	eConsult Actions	State Description	Allowed Referrer Action	Allowed Specialist Action	Allowed Specialty Group Dispatcher Action	Allowed Specialty Group Specialist Action
In-progress	"More Info Requested"	Specialist has requested more info from the referrer	Cancel eConsult Provide More Info	Decline eConsult Add Note Provide Consult	View eConsult	Return eConsult Add Note Provide Consult
In-progress	"More Info Provided"	Referrer has provided more info in response to specialist's request	Cancel eConsult Add Note	Decline eConsult Request More Info Provide Consult	View eConsult	Decline eConsult Request More Info Provide Consult
In-progress	"Consult Provided"	Specialist has provided consult for the eConsult	Complete eConsult Request Clarification	View eConsult	View eConsult	View eConsult
In-progress	"Clarification Requested"	After specialist provided consult, referrer has asked for additional clarification questions.	Add Note	Provide Consult Request for More Information	View eConsult	Provide Consult Request for More Information
Rejected	"Returned"	Specialist or specialty group has declined to consult on the eConsult	Cancel eConsult Re-assign	View eConsult	View eConsult Assign eConsult	View eConsult Assign eConsult
Completed	"Completed"	Referrer has completed the eConsult after specialist provided consult	View eConsult	View eConsult	View eConsult	View eConsult

Appendix A – Supported File Types

File Type	Description
JPG, JPEG, JFIF	Image File
EXIF	Exchangable Image File
TIFF	Image File
RAW	Image File
GIF	Image File
BMP	Image File
PNG	Image File
DCM	DICOM
DOC, DOCX	MS Word Document
PPT, PPTX, PPS, PPSX	PowerPoint
XLS, XLSX, CSV	Excel Document
TXT	Text Document
PDF	PDF File
XPS	Open XML Paper
WPD, WP, WP4, WP5, WP6, WP7	Word Perfect
WKS, WK1, WK2, WK3, WK4	Lotus 1-2-3
RTF	Rich Text File
MP3	Audio
WAV	Audio
WMA	Audio
M4A	Audio
OGG	Audio
MPG/MPEG	Video
FLV	Video
AVI	Video
MP4	Video
WMV	Video
MOV	Video
QT	Video
.3gp (3GPP), .3g2 (3GPP2)	Third Generation Partnership Project Multimedia
MKV	Video
.sia	medX Health file type for magnified view of files

Appendix B – FHIR Conformance

This release of the eConsult FHIR specification is based on a mix of FHIR DSTU2 and FHIR STU3 resources, and some of the specifications are inherited from an earlier non-normative release of FHIR. While the newer FHIR R4 has ways to handle implementations using mixed releases, this was not available in FHIR STU3.

Implementers using a FHIR-conformant software package should be aware of the following differences from HL7's FHIR base specification.

- FHIR requires that servers maintain a CapabilityStatement endpoint to be conformant. Due to the use of mixed DSTU2+STU3 FHIR resources, creating a CapabilityStatement is not possible at this time.

- eConsult currently supports Search only via GET, while FHIR requires support for Search via GET and POST for conformance.

- eConsult currently uses both DSTU2 and STU3 FHIR resources, which define MIME type differently (mimetype=*application/json+fhir* vs mimetype=*application/fhir+json*). eConsult only supports the definition for STU3, *application/fhir+json*.

- FHIR prescribes that resource meta elements should only be used for data processing purposes and should not contain meaningful semantic content. Practitioner.meta.tag is currently used to convey LHIN information, but should not be used as such.

- eConsult ReferralRequest has instances of nested Contained Resources, which is considered non-conformant. This is due to the Composition having Contained Resources, while itself is Contained by ReferralRequest.

- Composition resource is defined in FHIR with mandatory elements "status", "type", "title", and "subject", which are not used in this implementation.

- The composition resource uses the text field as the primary narrative of the resource rather than its intended use as a summary.

- ReferralRequest.supportingInformation contains information about the composition and author. Currently "_comments" field is being used to store the Author information. This information is optional and non compliant.

- HealthcareService is used to describe a regional program and currently does not map to Organization and Practitioner, PractitionerRole resource.

- PractitionerRole.managingOrganization is an open text field, rather than a Reference type. This may be fixed in a future release by mapping the open text value to managingOrganization.display instead.
- ReferralRequest.status use the conformant FHIR valuesets, but does not map to their respective eConsult business states.

- Patient Identifier does not contain HealthCard Number. Instead, the patient's HealthCard Number provided in a contained Coverage Resource.

- Practitioner Identifier Search by CPSO not supported.

- Practitioner Identifier by federated user name is not provided in the Practitioner Profile.

- The Careteam resource contains practitioner ONEID identifiers within the participant role element. Since these identifiers belong the practitioner, the identifiers should remain with the practitioner resource.

FHIR prescribes that *Contained* resources are only allowed if that resource is referenced by the *Containing* resource:

- The Patient resource Contains a Coverage resource without an element referencing the Coverage
- The Coverage Resource has an optional Issuer element that should reference an organization but it does not and currently uses the display element to describe who the issuer is
- The Composition resource may Contain a QuestionnaireResponse resource without an element referencing the QuestionnaireResponse
- The Composition resource may Contain a DocumentReference resource without an element referencing the DocumentReference
- The HealthcareService resource may Contain a Location resource without an element referencing the Location
- The HealthcareService resource may contain a reference to Practitioner, but Practitioner details is not described in the HealthcareService resource.
- A ReferralRequest may contain nested resources that are also contained e.g. documentReference when creating a new case, coverage resource.

These are non-conformant uses of Contains and may be addressed in a future release using an extension element to reference them.

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