Ontario Health

OLIS

Interface Specification

Version:

R01.33

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Approval History

APPROVER(S)	TITLE/DEPARTMENT	APPROVED DATE
Cheryl Loumanis	Manager/Data Management and Data Quality	23-September-2024
Mitchell Richard	Manager/Clinical Repositories	23-September-2024

Revision History

VERSION NO.	DATE	SUMMARY OF CHANGE	CHANGED BY
1.0	2005-08-23		1.0
1.01	2005-11-03	Document updates to correct errata.	1.01
1.02	2006-12-04	Document updates to correct errata. Section 2 reorganized to improve readability. Many example messages and message fragments added for clarity. Additional fields supported by OLIS: • ORC.24 *Ordering Provider Address* • OBR.18 *Referring Lab User-readable Specimen Identifier* • OBR.19 *Referring Lab Specimen Bar Code Number* • OBR.20 *Performing Lab User-readable Specimen Identifier* • ZBR.11 *Test Request Sort Key* • ZBR.12 *Referred Test Indicator* • ZBX.2 *Test Result Sort Key* Query parameters fully defined: • ZRP.1 *Requesting Practitioner* • PID.3 *Patient Identifier* Query removed: Z51 Identify Practitioners Who Have Not Retrieved Test Results Query parameter usage simplified:	1.02

		• OBX.8 *Abnormal Flags Parameter* Additional query parameters: • ZBE.4 *Exclude Reporting Laboratory Parameter* • ZBE.6 *Exclude Performing Laboratory Parameter* Section 3 was improved to add detail with regards to PKI and PKCS#7 • Details of certificate request and creation • Walkthrough of PKCS#7 signing and verification • Parse of a valid PKCS#7 signature • Fixed errors in CDATA tag syntax • Minor updates to examples	
1.03	2007-08-15	Changes to accommodate implicit consent model (primarily sections 1.4.3, 1.4.4, 2.8.3.17, 2.9.12) Document updates to correct errata. Clarifications to text in response to frequently asked questions. Core specification changes: 1. ZPD.1 Patient Consent Indicator Field – no longer supported. 2. @ZPD.1 Consent to View Blocked Information Parameter – renamed and value list changed. 3. @PID.3 Patient Identifier and @ZRP.1 Requesting Practitioner mandatory for Z01 and Z02 queries. 4. Optionality of ZBR.6.6 (Performing Laboratory) and ZBR.8.6 (Reporting Laboratory) changed from R to RE to support identification of out-of-province laboratories. 5. Cardinality of ZBR.9 (Reportable Test Indicator) corrected from 0..1 to 0..5 as previously published in version 1.01. 6. Cardinality of OBX.10 (Nature of Abnormal Test) corrected from 0..1 to 0..3 as previously published in version 1.01. 7. Corrected the PID Segment ER7 syntax example. 8. Corrected the @ORC.4 parameter definition and example.	1.03
1.04	2008-12-01	1. Document updates to correct errata. 2. Added content for Patient Privacy Change Request 120. section 10.2.5.3 *ZPD – PID Extension Segment* on page 167, section 10.2.4.8*Query Parameters Matrix* on page 150, and section 13.4.2 HL7 Error Codes and Messages (HL7 Table 0357) 3. on 314. 4. Removed Section 2.14 *Preliminary Documentation of Possible Future Insurance Segments*. 5. Removed support from the HL7 2.xml syntax.	

6. Updated the text describing the Ontario Health Number Version Code to indicate that submission is optional as per CR 87.
7. For CR 118, added a statement to each field that may be changed by the reporting laboratory after a test result has been recorded:

   Ancillary Order Information and Notes (OBX, NTE, ZNT segments)

   BLG.3 Account ID (Payer)

   OBR.7 Observation Date/Time

   OBR.8 Observation End Date/Time

   OBR.9 Collection Volume

   OBR.11 Specimen Action Code

   OBR.14 Specimen Received Date/Time

   OBR.15 Specimen Source

   OBR.17 Order Callback Telephone Number

   OBR.18 Referring Lab User-readable Specimen Identifier

   OBR.19 Referring Lab Specimen Bar Code Number

   OBR.20 Performing Lab User-readable Specimen identifier

   OBR.26 Parent Result

   OBR.27 Quantity/Timing

   OBR.29 Parent

   OBR.30 Point-of-Care Test Identifier (Transportation Mode)

   OBR.37 Number of Sample Containers

   OBR.39 Collector's Comment

   ZBR.3 Specimen Collector

   ZBR.6 Performing Laboratory

   ZBR.7 Performing Laboratory Address

   ZBR.8 Destination Laboratory

   ZBR.11 Test Request Sort Key
8. Increased the number of CC'd practitioners from 5 to 10 (refer to field OBR.28 *Result Copies To*) as per CR 95.
9. Added documentation to support how pre-assigned health numbers are validated by OLIS including the ability to change the name associated with a pre-assigned health number as per CR 96.
10. Added documentation to support orders, reports, and queries for patients who have no first name as per CR106.
11. Updated the maximum number of occurrences of the ORC-OBR-ZBR segment group from 50 to 100 as per CR 107.
12. Added documentation to describe how notes are managed in OLIS as per CR 111.

1.05	2009-12-05	1. CR25 & CR87: further clarification that OLIS will accept currently or formerly valid patient name, sex, and date of birth information. 2. CR129: Enhancement to *Retrieve Laboratory Information for Patient Identifier* query to support query by observation date/time. 3. CR131: Removal of rule preventing creation and updates to test requests greater than six-months old. 4. CR149: Enhancement to *Retrieve Laboratory Information Updates for Practitioner* query to support filtering by test request and result codes. 5. CR150: Change to approach for reporting tests not performed. 6. CR152: Enhancement to *Retrieve Laboratory Information for Patient Identifier* query to support filtering by placer group number, test request and result codes. Updated error messages. 7. Updated WSDL in section 3 to support new audit parameters. 8. Updated patient consent description in section 1.4.3 to reflect current approach. 9. Correction of errata. 10. Updated example messages.
1.06	2010-06-11	1. Correction of errata. 2. Updated all error codes and detail for error code updates in the R1-2010 release. 3. Clarified throughout that queries return the full content of selected laboratory orders/reports as published by the laboratory, with exceptions for the patient query for blocked test requests and when the query originates from an SCC. 4. Clarified that the ZBR.12 *Referred Test Indicator* should be populated identically on all test requests in an order. 5. Clarified usage of HL7 Table 0203 for patients and practitioners. 6. Removed references to OLIS validating the practitioner's authority to order tests. 7. Added section: Considerations for Use of OLIS Queries, including the inability of some laboratories to support the "N", "W", and "X" test result status codes. 8. Clarified the values present in QAK.2 and MSA.1 when the query succeeds but information is excluded due to withdrawal of consent.
1.07	2010-09-17	1. Updated OBR.28 *Result Copies To* description as per CR128. 2. Updated OBR.16 *Ordering Practitioner* description as per CR155. 3. Updated OBR.16, OBR.22, PV1.7, PV1.17, @ZRP.1,

@OBR.16, @OBR.28, @PV1.7, and @PV1.17 to indicate when a historically valid practitioner name is accepted or rejected as per CR160.

4. Increased field size of ID component of ORC.4, OBR.2, and OBR.3 fields in accordance with CR167.
5. Removed name components of @PID.3 parameter in accordance with CR170.
6. Updated Set ID description for NTE-ZNT segment pair as per CR174.
7. Fixed formatting problem with *Considerations for Use of OLIS Queries* section.
8. Added cautionary text to OBX.11 field regarding the interpretation of data in this field given the limitations of some adopters' LIS systems.
9. Removed code "A" from test result table in section 2.6.2 so that it matches the code table in section 2.13 Data Definition Tables.
10. Updated description of how to delete a DG1 segment in section 2.4.7 *Deleting Information*.
11. Added section entitled *Referrals In Detail*.
12. Added state transition from Cancelled to Resulted in the Test Request State Chart in section 2.6.1
13. Added text to clarify the use of ancillary information codes and test result codes in section 2.4.6.
14. Clarified patient consent text in section 1.4.3.
15. Clarified how OLIS populates MSA.2, QAK.2, and the ERR segment when warnings are present in the response message in sections 2.8.3.13.4, 2.9.2.8, and 2.8.1.7.2.
16. Clarified usage of query parameters in section 2.8.3.18.1 and deprecated the following optional parameters from usage in the Z01 query: @ORC.21, @ZBR.8, @OBR.27.6, @OBX.11, @OBX.8. Based on data submitted to OLIS, the @ORC.21 and @ZBR.8 parameters are only useful in the Z06 and Z05 queries, respectively. The @OBX.11 and @OBX.8 parameters are not clinically useful in the Z01 query.
17. Added high-level text to introduce concepts of order, report, test request, and test result in section 2.3.1.
18. Clarified MSA.2 response values in section 2.8.3.3.
19. Updates for CR169 to allow HIC individuals and HIC organizations to act as the requesting HIC in the Z01 and Z02 queries, and to capture an assertion of the individual who initiates the query as, or on behalf of, the requesting HIC in the ZSH segment.

    The functionality for CR169 will be available in OLIS by the end of March 2011. The details are included in this version of the specification to allow adopters time to adapt systems to conform.

		20. Added list of codes for use when ordering practitioner is unknown. 21. Elaborated on sort key usage. 22. Clarified role of mapping to and from standard OLIS terms to locally preferred test request and test result names. 23. Related lab terminology to abstract HL7 terminology for order and report concepts. 24. Added section 1.4.11 *When to Submit a Lab Report Message to OLIS,* including partial reporting.
1.08	2011-08-26	1. Updates related to OLIS CRs: 186, 190, 192, 193, 195, 197. Further details appear at the beginning of section 2. 2. General typographical updates. 3. General updates to Section 1. 4. Updates to section 1.8.4 regarding patient consent and blocking. 5. OLIS website URL updated in section 1.4.7. 6. Sort-key-related updates in section 1.4.14 7. Updates to use-case model in section 2.1.2 and query message profile in section 2.8.3.1 to elaborate on the patient privacy aspects of query responses. 8. Word-wrap escape sequences removed from section 2.3.6. 9. Added optionality value "D" to section 2.3.9. 10. Added section 2.4.16 – Invalidation of Test Results 11. Removed Driver's Licence, Passport Number, and Social Security Number from supported patient identifier types in section 2.5.1.2 and from code table 0203. 12. Replaced all examples of X500 distinguished name identifiers for electronic medical record systems with OID-based approach, and added section 2.3.7 "Electronic Medical Record System Instances". X500 identifier use is now limited to the MSH.3 and MSH.5 fields. 13. Elaborated on OLIS support for identification of out-of-province practitioners. 14. Clarified that undefined fields are unsupported in section 2.8. 15. Deprecated the use of PID.29 – Patient Death Date & Time 16. Deprecated the use of OBR.11 – Specimen Action Code 17. Deprecated the use of PID.30 – Patient Death Indicator 18. Indicated the future deprecation of PV1.2 – Patient Class and BLG segment 19. Clarified requirements related to ORC.9, ORC.22, OBR.7, OBR.17, OBR.25, OBR.26, OBR28,

		OBR.29, OBR.39, ZBR.3, ZBR.4, ZBR.6, ZBR.9, ZBR.10, DG1 segment, OBX.7, OBX.17 20. Updated query response message structure in section 2.8.3.11 for CR197 21. Updated privacy requirements related to the use of the @ZPD.1 parameter, and added text describing the @ZSD parameter introduced by CR192. 22. Added three microbiology report examples, replacing the existing example. 23. Added codes 123, 204, 907, 908, and 920 in section 2.12. 24. Updated description for codes 115 and 320 in section 2.12. 25. Updated code table 9904 to indicate it is presently unused. 26. Added section 3.6 – "One PKI Service Security Requirements" 27. Corrected the common name of the OLIS CST certificate in section 3.7.3. 28. Corrected the request schema in section 3.10.2.2. 29. Corrected the request schema in section 3.10.7.2. 30. Updated XML-encoded Error List in section 3.11.1. 31. Section 4, 5, and 6 content removed and redirected to eHealth Ontario website.
1.09	2011-10-07	**This update contains typographical corrections and supplementary examples only:** 1. General typographical updates. 2. Updated hyperlink for ISO/IEC documentation of the 8859-1 character set. 3. Removed "The date and time the original observation value was reported" from Alternative Results Invalidation Approaches I and II. 4. Added examples for OBX.8 *Abnormal Flags*. 5. Added A7 – Other Relative as an SDM relationship in the @ZSD parameter. 6. Added CE data type definition in Section 2.3 and in OBX.5. 7. Corrected the OID for EMR instances. 8. Corrected the preferred value for BLG.3.
1.10	2012-06-29	1. Fixed datatype and optionality for OBR.9.1 *Collection Volume Quantity* in section 2.8.1.5.8. 2. Added text introducing test-request-level blocking adjacent to patient-level blocking in Section 1. 3. Added field references to section 2.4.15.3. 4. Revised the text for Ontario Health Number version code in section 2.8.1.5.2. 5. Added text to describe the uniqueness requirement for OBR.3 *Filler Order Number* in section 2.8.1.5.8. 6. Added text to indicate that formatting escape

		sequences are not case-sensitive in section 2.3.7, as well as text to discourage the use of specific legacy formatting commands. 7. Added text to clarify the use of ORC.21 *Ordering Facility and* ORC.24 *Ordering Facility Address* in section 2.8.1.5.7. 8. Removed text in section 1.4.13 about stale dating test requests, as no such process presently exists. 9. Removed abnormal flags of 'N' for numeric results in four cases within the examples in section 2.9. 10. Clarified the present restriction on removing a test-request-level block in ZBR.1 in section 2.8.1.5.9. 11. Removed HL7 error 200 from the error code list, as OLIS does not emit this error code. 12. Clarified the usage of MSH.3 for computer applications that connect to OLIS indirectly through a hub in section 2.8.1.7.2. 13. Updated the reference to the location of HL7 table 0070 (specimen source) to be the OLIS Nomenclatures Excel workbook. 14. Added specimen source information to the example in section 2.9.8. 15. Updated most of the patient query examples to use specimen collection date/time for the time aspect, as this is the most common usage. 16. Updated section 2.5.4 to clarify that a lab can appear in ZBR.4 *Specimen Collector*.
R01.20.00–20120228	2013-02-28	This revision has not made any changes to OLIS external interface. Document updated to correct errata. Accenture, CML Labs, UHN and Grey Bruce have reviewed the draft version of this document as well. Document has been restructured and sections modified, added or deleted as per the following: 1. List of Figures and List of tables are provided. 2. Background information section recognized to improve readability. 3. A 'How to use' guide for the new version of the OLIS interface specification is added to the OLIS Interface Specification Overview, which includes a list of all the supporting documents. 4. OLIS Essential Concepts are modified as per the following in section 6: a. Nomenclatures are discussed in detail and are deleted from 2.4.14 from the previous version. b. The "Multiple authors of OLIS Data" topic is moved to this section from 2.4.4. c. "Ancillary Information" is moved to this section from 2.4.6. d. "OLIS Website" is moved to the OLIS

Interface Overview in Section 5.

e. “Best Practice Guidelines” is removed from this version.

f. “How polling works within OLIS” is moved to section 9.4.

g. “Rules for amending an Order in OLIS” is moved to section 9.3 “Business rules table”.

5. Business Process Flow diagrams are introduced in section 8.
6. Section 2.5 “Entity Identifiers” are moved to section 8.2 “OLIS Entity Model”. “OLIS Conceptual Entity Model” is added.
7. Modifications to the OLIS Use Case model are as per the following:
    a. OLIS use case model is represented in 4 modules – Orders, Results, Queries and Referrals.
    b. OLIS use cases are represented in a tabular format including all the use case details.
    c. “Amend Test Result”, “Create Referred-out Order” and “Report Test Result against Referred-out Order” is added.
    d. Queries use cases have been generalized.
    e. Use case diagrams and interaction diagrams are added in this section.
8. HL7 Specification Section is modified as per the following:
    a. Segment level profiles and Message level profiles are split into two different sections.
    b. 2.4.4 “Multiple Authors of OLIS Data” is moved to section 6 of this document.
    c. 2.4.5 “Observation Segments may contain test results or ancillary info” is moved to section 9.3 and 9.2.
    d. 2.4.6 “Ancillary Order information” is moved to section 9.3 and 9.2.
    e. 2.4.9 “Persistence of information” is moved to 9.2 and 9.3.
    f. 2.4.13 “Considerations for Use of OLIS Queries” is moved to 9.4.
    g. 2.4.14 “Test Request Names and Test Result Names” are moved to Section 6.
    h. 2.4.15 “Referrals in Detail” is moved to section 9.5.
    i. 2.4.16 “Invalidation of Test Results” is moved to section 9.3.
9. A glossary is added in section 12.
10. A cheat sheet is provided along with this document.

R01.21.00–20130603	2013-06-03	1. Document has been reviewed by Privacy Office, the following has been modified significantly from the previous version not from technical perspective but from representation perspective: a. 7 Privacy Considerations on page 46 2. CR226 Full Replace Report Amendment is added and changes made to the following sections: a. 6.4 Time before orders/results made available in OLIS OLIS takes 5 minutes to process an order or result from the time it has acknowledged the receipt of the order or result from the data provider to the time it is made available for querying to the end user. b. Full Replace Amendment on page 39 c. 9.3.3.3 Full Replace Report Amendment on page 94 d. 10.2.5.9.2.14 below ZBR.13 Full Replace Amendment on page 191 e. 10.3.2.5 UC-<203> Full Replace Amendment Examples on page 233
R01.22.00–20131021	2013-10-21	1. CR237 regarding the Relaxation of Last Name Validation 2. Corrections to embedded commands 3. Added Time before orders/results made available in OLIS definition for Release 3.2.
R01.22.01-20131023	2013-10-23	This update contains the following changes: 1. Replaced: Old warning message for error code 911 from 10.2.4.8.2 and 10.2.4.8.3 on page 131. 2. Added: Newly added warning message and error code 911 in HL7 table 101 – Business Logic Error Codes on page 278.
R01.22.02-20131115	2013-11-15	This update contains the following changes: 1. Added: Newly added warning message and error code 912 in HL7 table 101 – The content of OBX.5 field contains unnecessary space(s). 2. Added in Example value: “Without leading, embedded and trailing spaces” in the following sections: a) 1.1.1.1.1 OBX – Observation Result Segment – Table 74 OBX Segment on page 171. b) 1.1.1.1.1.1.1 OBX.5 Observation Value – Table 75 CE Data Type Use in OBX.5 on page 173. c) 1.1.1 Supported HL7 Data Types – Table 39 Supported HL7 Data Types on page 110.
R01.22.03-20140225	2014-02-25	This update contains the following changes: 1. Added: 6.6 Test Request Replace Amendment 2. Added: Business rules table for Full Replace Amendment with regards to ZBQ.14. 3. Added: Table code 9912 in HL7 Tables table – Item Description – Test Request Replace Indicator. 4. Added: UC-<204> for Test Request Replace Amendment. 5. Added: Business rules table for CR- 238 Test Request Replace Amendment.

6. Added : Details about new field value ZBR.14 for CR238 – Test Request Replace Amendment.

R01.22.04-20140409 2014-04-09 This update contains the following changes:

1. Added antibiotic sensitivity reporting in 13.1 Data Definition Tables:
   NI – No Interpretation.
   S-DD – Susceptible-dose dependent.

R01.22.05-20140415 2014-04-25 This update contains the following changes:

1. Removed Practitioner as First Point of Contact with OLIS (Work in Progress.
2. Removed Practitioner/Specimen Collection Centre as First Point of Contact with OLIS (Work in Progress).
3. Updated Entity Model diagram Fig 18 modified – "Consent" iso "Information Consent".
4. Updated UC<204> Test Request Replace Amendment with additional scenario detailing multiple messages received in OLIS for Test Request Replace Amendment.
5. Business Rules and Considerations for Implementation 9.4.4.1.1, added with ZBQ.14 field information.
6. Z01 – Retrieve Order/Report for Patient Business Rules Table 9.4.4.2.1, added with business rule # 3023 and 3024.
7. Query Parameter Matrix 10.2.4.8, updated with @ZBQ.14 parameter.
8. @ZBQ.14 Replaced Flag added in Query Parameter Table.

R01.22.06-20140430 2014-05-01 This update contains the following changes:

1. 6.6 Test Request Replace Amendment – scenario 2) changed grammatically to make it contents more meaningful to understand.
2. 8.2.1.3 Patient Validation – Included reference about raising a warning message, as a result if the patient name does not match MOHLTC registration information.
3. 9.3.3.4 Test Request Replace Amendment Use Case 204 –
   A) Description B) modified.
   B) Pre-Conditions modified.
   C) Main Success Scenario wording modified.
   D) Main Success Scenario B) removed from contents.
4. 9.3.3.4.1 Business Rules and Considerations for Implementation table
   A) Rule # 2037 removed.
   B) Order of rule numbers changed as a result of Deletion of rule 2037.
   C) Rule # 2039 added with text to make the rule more understandable.
5. 9.4.4.1.1 Business Rules and Considerations for Implementation table -
   A) HL7 message type of rule # 30121 changed from Z01 to ERP.
6. 9.4.4.2.1 Business Rules and Considerations for Implementation
   A) Rule # 3023 and 3024 modified.
7. 10.2.4.8 Query Parameter Matrix updated to add comment about Z50 deprecation in future.
8. 10.3.2.3.8 Multiple messages received combined and stored as a single order in OLIS added as one of the examples in UC<201> Report Test Result Message Examples. Cross reference added to table 88 – Message examples and corresponding use case mapping.

R01.23.00–2014-07-05	2014-10-31	1. Rewording of definition of Consuming Organization 2. Rewording of Alternative Patient Identifiers 3. Update Microorganism codes in examples a. Table 76 CE Data Type Use in OBX.5 – Example value updated from M00920 to 3092008 and added(organism). b. Example: for the CE data type: updated from M00920 to 3092008 and added(organism). c. 10.3.2.3.6.1 Scenario #17 Message Example OBX|2|: updated from M00920 to 3092008 and added(organism). d. 10.3.2.3.6.2 Scenario #18 Message Example OBX|2|: updated from M00920 to 3092008 and added(organism). e. 10.3.2.3.6.2 Scenario#18 Message Example OBX|3|: updated from M00477 to 112283007 and added(organism). f. 10.3.2.3.6.3 Scenario#19 Message Example OBX|2|: updated from M00477 to 112283007 and added(organism). g. 10.3.2.3.6.3 Scenario#19 Message Example OBX|4|: updated from M00474 to 983805411000087101 and from s sp. to species unspecified(finding). h. 10.3.2.6.1 Scenario#26 Message Example OBX|2|: updated from M00920 to 3092008 and added (organism). 4. Update Patient-level and Record-level block section 7.1.1 and 7.1.2 hyperlinks 5. Correction to typo error in section 10.2.5.13 OBX-ZBX segment 6. Rewording of Deleting Information – 10.1.10 7. Update section 8.1.1 shown with an icon – Added the word “the icon”. 8. Update Figure 23 to include with Test Request Replace Amendment 9. Update Table 19 to include description for Test Request Replace Amendment 10. Update UC204 to remove scenario A from the description section – only scenario B kept along with main success scenario. 11. Update Table 25 with missing CR-238 info parameters in Rule 3011 12. Update “Unfulfilled Orders queried by Lab or SCCs” by removing “Grey Bruce” from example 13. 10.2.5.10 BLG – Billing Segment – deleted the statement saying “This segment will be deprecated in the future…”. 14. 13.1 Data Definition Tables – Table 98 – Table 9904 – Description changed from “PayorCode – will be deprecated in future – use “SELF” in all cases” to “PayorCode – use ”SELF” in all cases”.
R01.24.00–2015-04-27	2015-04-27	1. Incorporated changes related to CR-209 Relaxing Practitioner Name Validation (multiple sections PV1.7, PV1.17, OBR.16, OBR.28 and ZRP1). a. Change includes relaxing the requirement for Practitioner's first name and middle name as well as accepting valid historical first, second, last name for Practitioner. This change will be effective as of OLIS Version 3.2.1 2. Added more clarification around implementation of Regional Viewers (10.3.2.7.5) 3. Incorporated wording change for warning 330 in Business Logic Error codes (13.4.2.1) 4. Updated Entity Model diagram to include SCC (Section 8.2)

R01.25.00–2015-09-27	2016-02-11	1. Introduced support for Naturopath data
R01.26.00-2016-04-08	2016-04-08	1. CR-242 Updates for validation rules in Referrals and Redirects for Consent Directives a. 9.5.1 Background Information i. Note added to advise labs participating in referral and redirect via OLIS to maintain alternate workflows for orders with applied consent. b. 9.5.1.2.2 Redirections c. 9.5.4.1.1 Business Rules and Considerations for Implementation d. Table 35 Create Referred-Out Order Business Rules Table i. Update to reflect redirects being identified with ZBR.12 set to 'D' ii. New rules at 4015, 4016 and 4017 e. 10.2.5.8.2.13 ZBR.12 Referred Test Indicator i. Clarification around referral and redirect scenarios f. 10.3.2.10.1 Hospital Creates Order to be fulfilled by an External Laboratory g. 10.3.2.10.2 Redirect Order Message Example 2. Updates to examples based on the new changes for CR-242CR-242 and other defects - Added new codes 323, 923 and 924 a. 13.4.2.1 Business Logic Error Codes 3. 6163 – Patient's Last name no longer requires being more than 1 character. OLIS will accept valid last names 1 character in length. a. 10.2.5.2.2.4 PID.5 Patient Name 4. Description and usage of new Payor codes supported in BLG segment a. 10.2.5.10.2.2 BLG.3 Account ID - Values added for different payor codes. b. 13.1 Data Definition Tables 5. Added new payor codes for BLG segment as well as new value PNG added to support PNG data type for encapsulated data. a. Table 98 Data Definition Tables b. HL7 tables 291 and 9904 modified.
R01.27.00-2017-01-16	2017-01-16	1. Verbiage updated to reflect changes in ZPD.3 behaviour. The ZPD.3 field is no longer to be populated by ORM or ORU messages. This field will only be returned in query response messages if a consent directive exists in OLIS. a. Section 7 Privacy Considerations – Scenario 20 removed, b. Section 7.1.2.1 Application of Patient-Level Blocks Using the OLIS Interface updated c. Section 10 - 10.2.4.8.8 Patient Consent Block-All Indicator Parameter (@ZPD.3) has been removed d. Sections 10.2.4.8 Query Parameter Matrix (Table 57) and

		10.2.4.9 Query Parameter (Table 58) updated to remove ZPD.3 as a parameter in queries e. 10.2.5.3 ZPD Segment Table 63 updated to clarify the changes in ZPD.3 f. 10.2.5.3.2.4ZPD.3 Patient Consent Block-All Indicator Updated verbiage to clarify usage of the field and removed the section related to ORM or ORU Messages as this field is prohibited from being used in the above messages. Removed references to Patient Consent Block-All Parameter g. 10.3.2.1.3 Removed Scenario#3 from previous version. " Block All / Block Nothing in ORM" h. 10.3.2.3.7 Removed Scenario#20 from previous version. "The ZPD.3 field and @ZPD.3 parameter allow the block all or block nothing instruction to be communicated in the ORU messages." i. 10.3.2.7.6 Removed Scenario#31 from previous version - Block All / Block Nothing in Z01 Query Messages j. Section 13 - 13.4.2.1 Business Logic Error Codes Table 102 updated to reflect the new warning message 925 clients will receive when the ZPD.3 field is incorrectly populated.
R01.28.00-2017-09-05	2017-09-05	1. Table 57 Query Parameters Matrix - Enhancements to Z04 filtering functionality a. Users can filter by new optional parameters in – i. @ZBR.4, @ZBE.4, @ZBE.6, @OBR.4, @OBR.25,@OBX.3, @OBX.11 b. Table 102 Business Logic Error codes – i. New error code 324 added to the table. To warn user to restrict the Z04 search to 12 months ii. Warning code 926 and 927 added to warn data submitters to use active nomenclature codes iii. Warning code 928 added to warn data submitters when duplicate notes are sent to OLIS. c. Section 10.2.4.8.2 Updates to @OBR.22 usage - New Error code 324 introduced to inform the user not to exceed the time range of 12 months. d. Section 6.7.1, Section 10.2.5.7.2.5 and 10.2.5.13.3.1.4 i. Added note for sites to use the most recent nomenclature codes for new lab reports. OLIS will warn sites submitting lab data to OLIS when a deprecated/inactive code is used. In future, such records will be rejected.
R01.28.10-2018-10-31	2018-10-31	1. Correction to Section 7.1.1.2 Types of OLIS data where consent directives do not apply updated to exclude referrals. 2. Added note to section 9.1 Overview around implementation of use cases.

R01.29.00-2018-11-23	2018-11-23	1. Clarified diagram depicting result status changes in the Figure 19 Test Request State Chart 2. Updated the LOINC hyperlink 3. Updated link for Nomenclature, and Implementing OLIS guide to align to changes made when reference documents were moved from the Portal page to the eHealth Corporate website
R01.30.00-2021-12-24	2021-12-24	1. Removed references to notes that limited Specimen Collection Centre (SCC) from viewing lab results. a. Updated Notes in 10.3.2.7.5 b. Updated description for Z01 10.2.4.2.1 c. Updated description for Z02 10.2.4.2.2 2. Included new organization types and OIDs a. 8.2.3.6 Pharmacy b. 8.2.3.7 Long Term Care 3. Relaxed (@PID.8) Patient sex as an optional parameter a. Updated section 10.2.4.2.1 for Z01 b. Query Matrix in Section 10.2.4.8 updated to accommodate @ PID.8 as Optional c. Added note around Patient Sex PID.8 for backward compatibility to section 10.2.4.8.2 4. Field Length increases a. 10.2.5.2 Updates to field lengths PID.11.1 and PID.11.2 to 150 characters, PID.13.8, PID.14.8 to 9 characters b. 10.2.5.6 Updates to field lengths of ORC.24.1 ORC.24.2 to 150 characters c. 10.2.5.7 Update to field lengths of OBR.17.8 to 9 characters 5. Section 10.2.5.5.2.3 - Removed note on deprecation of PV1.2. This field will no longer be deprecated and must be used accurately to identify the patient class for lab results. 6. Section 10.2.5.2.2.7 – Added note to accommodate patient address for reportable diseases to support contact tracing. 7. Section 10.2.5.7.2.12 - Addition of generic provider unavailable for systems that cannot identify a provider when unavailable 8. Section 11 - Removed references to SSL. 9. Section 5.4.2 – Added reference to COVID reporting guidance document 10. Updated references for eHealth Ontario to Ontario Health in the document as applicable.
R01.31.00-2023-02-14	2023-02-14	1. Introduction of new query to retrieve a patient's unfulfilled lab orders a. Tables 2, 5, 7, 11, 12, 24, 46, 88 now include reference to new Z11 query b. Section 7.2.1.3 modified to include behaviour of Z11 to retrieve unfulfilled orders when the querying organization is not a lab or a specimen collection centre c. Section 9.4.4 on Use Cases updated to include new Z11 depicted in sub section 9.4.4.9 i. Figure 37 updated to reflect new Z11 use case

		d. Section 10.2.4.2.8 added to introduce profile for Z11 query e. Query matrix in Section 10.2.4.8 updated to reflect new Z11 query f. Following subsections updated to reflect usage of parameters for new Z11 query i. 10.2.4.8.3 Start and End Timestamp parameter (@OBR.22) ii. 10.2.4.8.7 Requesting HIC Parameter (@ZRP.1) iii. 10.2.4.8.8 Consent to view blocked information parameter (@ZPD.1) iv. 10.2.4.8.20 Test Request Status parameter (@OBR.25) v. 10.2.5.14 Updated to reflect implementation for Z11 to support ZSH segment g. Section 10.3.2.9 updated to reflect examples of Z11 usage 2. Introduction of new optional parameters and updates to Z04 a. Section 10.2.4.8.3 updated to reflect an upcoming change to limit the maximum date range allowed for Z04 to 31 days. Error code 324 will be updated to reflect the change in the future. b. Query matrix updated to reflect new optional parameters for Z04 @ORC.21, @OBR.17 and @PVE.2 c. Subsections updated to reflect the usage of the new parameters i. 10.2.4.8.12 Ordering Facility Parameter (@ORC.21) ii. 10.2.4.8.21 Exclude Patient Class Parameter (@PVE.2) iii. 10.2.4.8.22 Order Callback Phone Number (@OBR.17.6 and OBR.17.7) 3. Section 8.2.2.6 added to support new Pharmacists as the HIC Individual practitioner that was introduced type to support COVID flows 4. Section 8.2.3.8 added to represent support for a new HIC Organization UPI OID 5. Sections 10.2.5.10.1 and 10.2.5.10.2.2 updated to accept new billing code “Unknown” to cover exceptional scenario when not known by the system placing an electronic lab order. 6. Section 13.1 Data Definition tables 9904 and 78 updated to add new billing code and new susceptibility code respectively 7. Section 10.2.4.8.23 and Query matrix updated to include behaviour Abnormal Flag indicator (@OBX.8) to support Z01 query
R01.32.00-2024-01-15	2024-01-15	1. New section 4.1 added under Introduction to reflect Digital Health Information Exchange (DHIEX) verbiage for compliance. Includes the application of the standard, disclaimer and Privacy and Security 2. Section 8.2.2.5 corrected to point to naturopath's registration number and name

		3. Section 9.4.4.9.2, Table 34 Z11 - Retrieve Laboratory Order Information for Patient Business Rules Table a. Business Rule 3082 update to reflect the exclusion of lab orders from the Z11 resultset when OBR.11 is set to 'L' b. Business Rule 3083 updated to reflect the change in the default behaviour of Z11 to retrieve only unfulfilled orders where OBR.25 is set to O c. Correction made to reference links 4. Section 10.2.4.8.3 updated to reflect date range for Z04 query to 31 days 5. Section 10.2.4.8.20 updated to reflect update Z11 query behaviour to retrieve unfulfilled orders where test request status (OBR.25) is ordered 6. Section 10.2.5.8, Table 71, Subsection 10.2.5.8.2.9 OBR Segment, updated to reflect OBR.11 is no longer deprecated 7. Section 10.3.2.9.1, The notes for Scenario # 35 updated to reflect the default behaviour in Z11 to retrieve unfulfilled orders where test request status (OBR.25) is set to O. Examples to override the behaviour are also provided 8. Section 10.3.2.9.2, Scenario # 36A updated to reflect the default behaviour in Z11 to retrieve unfulfilled orders where test request status (OBR.25) is set to O 9. Section 13.1 updated to reflect the new value in HL7 Table 65
R01.33.00-2024-09-23	2024-09-23	1. Section 7.1.1.1, 7.1.4, 10.2.4.8.8 Updated to include Emergency Override requirements to align with PHIPA s.55.7(2) and PHIPA s.55.7(3) 2. Section 10.2.4.8.20, Table 60 updated to include new optional parameter @OBR.25 for Z06 and Z11 query 3. Section 10.2.5.8.2.13 updated to clarify usage of OBR.17 for Order filling systems 4. Section 9.5.1.1.3 and 9.5.1.1.4 updated to reflect clarification on characteristics of referring and referral (reference labs) where both can act as reporting labs per s.24.1(d) of O.Reg. 45/22 5. Section 7.1.4 update to reflect change in temporary override timeframe to 8 hours instead of 4 hours 6. Section 10.2.4.8.8 updated to remove references to @ZSD.3 Relationship to SDM. This information will not be captured as of OLIS Release 5.5 7. Section 10.2.5.11 updated to introduce new Billing code ORDFAC to represent scenarios where ordering facility is responsible for the payment. 8. Changes in the glossary to reflect MOHLTC refers to Ministry of Health as of 2021

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4 Introduction

4.1 Digital Health Information Exchange (DHIEX)

On January 1, 2021, Ontario Regulation 329/04 ("O. Reg. 329/04") under the Personal Health Information Protection Act, 2004 (PHIPA), was amended to provide a regulatory framework for Ontario Health, as directed by the Minister of Health ("the minister"), to establish, maintain and amend interoperability specifications. This regulatory framework, as set out in sections 26 to 34 of O. Reg. 329/04, is referred to by Ontario Health as the Digital Health Information Exchange (DHIEX) framework.

Ontario Health guides and supports the adoption of modern interoperability specifications applicable to digital health assets as defined in s. 26 of O. Reg. 329/04. A health information custodian (HIC) is required to ensure that every digital health asset that it selects, develops or uses complies with every applicable interoperability specification, as it may be amended from time to time, within the time period set out in the specification.

Compliance with the requirements of the DHIEX framework does not relieve a HIC of its obligation to comply with the other provisions of PHIPA and its regulations.

Ontario Health is required to consult with and consider the recommendations of the Information and Privacy Commissioner of Ontario (where a specification relates to the confidentiality of personal health information, the privacy of individuals or the rights of individuals to access or correct records of their personal health information) prior to providing the specification to the Minister of Health for review and approval.

Ontario Health is also required to consult with any health care provider organizations, individuals, stakeholders and other parties as appropriate, in order to inform its decisions concerning the establishment, maintenance or amendment of interoperability specifications.

4.1.1 Applying the OLIS HL7 v2 Standard for Data Contribution and Consumption

Ontario Health will be establishing the OLIS HL7 v2 Standard as an interoperability specification under Ontario's Digital Health Information Exchange (DHIEX) framework.

The following information is provided in accordance with O. Reg. 329/04 under Personal Health Information Protection Act (PHIPA), 2004, section 28: Application of Specifications.

Table 1 Application of OLIS Standard for Data Contribution and Consumption

Specification Effective Date (Interoperability specification compliance achievement deadline)	**Dec 31, 2025**
Name, description, or class of Health Information Custodians that must select, develop, or use digital health assets that comply with the specification:	**Contribute data to OLIS:** **A person who operates a laboratory or specimen collection centre under section 5 of the Laboratory and Specimen Collection Centre Licensing Act (LSCCLA) as per PHIPA (s.3(4.iv))** **Any HIC providing Lab orders as listed in section 18.1 of O.Reg 45/22** **View OLIS data:** **Any HICs authorized to query OLIS in accordance with necessary executed agreements with Ontario Health**

	and/or the Ministry of Health as applicable
Types of digital health assets to which the specification applies	**Contribution of data to OLIS:** **Laboratory Information Systems (LIS)** **Health Information System (HIS) which has modules to support laboratory Information Systems** **Contribution of eOrders:** **EMRs, HIS's and eOrdering tools (OLIS MORE)** **Query of OLIS:** **Applications and systems such as EMRs and HISs which are authorized to query OLIS, which are not owned or operated by OH.**
Circumstances, if any, when a Health Information Custodian may be exempted from the requirement to select, develop or use digital health assets that comply with the specification:	**HIC who is using HL7 FHIR specification to query OLIS or as otherwise authorized by Ontario Health.**

4.1.2 Disclaimer

Pursuant to O. Reg. 329/04, Ontario Health is required to, subject to the review and approval of the Minister, establish, maintain and amend interoperability specifications. The Minister may direct Ontario Health to establish or amend interoperability specifications, and Ontario Health is required to comply with such direction.

In accordance with O. Reg. 329/04, Ontario Health makes the interoperability specification most recently approved by the Minister available to the public by posting it on Ontario Health's website or by such other means as Ontario Health considers advisable.

As the Minister may direct Ontario Health to amend the interoperability specifications from time-to-time, Ontario Health advises the public and any other users of information concerning interoperability specifications to regularly review Ontario Health's website where the interoperability specifications are posted, or such other means Ontario Health considers advisable, in order to confirm that they are accessing the interoperability specifications most recently approved by the Minister.

You understand and agree that:

(i) This specification is provided "AS IS" without any warranties or representations of any kind, express or implied, in fact or in law;

(ii) Ontario Health is not responsible for your use or reliance on the information in this specification or any costs associated with such use or reliance; and

(iii) Ontario Health has no liability to any party for that party's access, use or reliance on this specification or any of the information contained in it.

4.1.3 Privacy and Security

Under PHIPA, Ontario Health (OH) is a Prescribed Organization (PO) with the power and duty to develop and maintain the electronic health record. In doing so, OH manages and integrates personal health information (PHI) it receives from HICs and enables HICs to collect, use and disclose personal health information by means of the EHR.

HICs who contribute records of PHI to OH as a PO are not considered to be disclosing said records to OH, nor is OH as PO considered to be collecting same from the HIC. Despite this, HICs have responsibilities related to this contribution of PHI and are required to complete onboarding processes, comply with OH privacy and security policies, procedures, and standards, and contribute PHI in accordance with interoperability specifications established by OH. These and other requirements are set forth in the EHR Contributor Agreement (ECA) and other OH agreements as applicable, which OH executes with contributing HICs.

This document is an interoperability specification established by OH pursuant to O. Reg. 329/04 subsection 27(1) and referenced under "EHR Data-In Interface Specifications" in the ECA. Accordingly, subject to section 4.1.1 Table 1 Application of OLIS Standard for Data Contribution and Consumption, the specified HICs who contribute PHI to OH as PO are required to ensure the specified digital health assets comply with this interoperability specification.

Further to the above, the specified HICs are also required to provide a report to the OH, upon the request by OH that sets out their compliance with the requirement to select, develop or use digital health assets that comply with this interoperability specification. Such reports must be provided by the HIC through the means, in the format, and within the time period determined by OH. These HICs also must co-operate with and assist OH in monitoring their own compliance with the requirements and must provide any information or records (Which must not include PHI) to OH upon request.

Should OH find reasonable grounds to believe that a HIC has contravened or is about to contravene the requirement to select, develop or use digital health assets that comply with this interoperability specification, OH may make a complaint to the Commissioner under Part VI of the Act and may provide to the Commissioner any information and records obtained under O. Reg. 329/04 sections 32 and 33.

Of note, this interoperability specification by itself does not serve to mandate contribution by HICs to the EHR, but rather establishes the business and/or technical requirements applicable to contribution by specified HICs and specified digital health assets. The information herein is to be read in conjunction with the terms and conditions set forth in the ECA. For greater certainty, nothing within this interoperability specification relieves a HIC of its obligation to comply with any provisions of PHIPA and its regulations.

4.2 Background

Digital Excellence in Health (formerly eHealth Ontario) within Ontario Health, is one of many legacy health-based agencies who have merged to form Ontario Health Agency, which is a provincial agency funded by the Ministry of Health and Long-Term Care. We also partner with the private sector to deliver electronic healthcare solutions which support regional planning authorities and private sector vendors who have the expertise to develop information technology (IT) solutions.

Ontario Health actively engages new information technology (IT) to improve both quality and access to healthcare for the people of Ontario. We are enabling doctors and clinicians to talk to one another and share patient information electronically.

In the Digital Excellence in Health portfolio within the Ontario Health Agency, the Ontario laboratories information system (OLIS) is a cornerstone information system, fundamental for building a comprehensive electronic health record (EHR) for all Ontarians. OLIS is a single provincial system that allows all laboratory information on human beings in Ontario to be exchanged electronically between practitioners and laboratory service providers and provides the Ministry of Health and Long-Term Care (MOHLTC) with program management information. OLIS facilitates the exchange of laboratory information on patients in Ontario amongst LIS, HIS, EMR and other point of service systems (POS), but it is not a LIS system in its own right, and is not intended to replace existing LIS systems.

The goals of OLIS are:

- Assist in patient clinical care by improving the information available to healthcare practitioners.
- Establish a comprehensive information base for test ordering protocols and utilization management.
- Improve administrative, financial and management processes.
- Support clinical decision-making capability by providing health practitioners with comprehensive and timely results, facilitating ordering, and by offering best practice guidelines, and Nomenclature/Terminology support.

- Support Public Health in management of case and contact management of communicable diseases and surveillance reporting efforts.

OLIS will provide the following services to external clinical applications:

1. Capture of laboratory orders, including specimen information
2. Capture of test results
3. Various queries to access laboratory information by patient, practitioner, and healthcare facility
4. Lab-to-lab exchange of orders and results to support referrals

OLIS is being designed to high availability, reliability, and performance specifications. Therefore, all stakeholders can rely on its high availability to satisfy their needs for information exchange and access.

OLIS will interface with Laboratory Information Systems, Specimen Collection Centre Systems, Hospital Information Systems, and Electronic Medical Record Systems. This document often refers to these systems collectively as external systems. A web-based portlet application will also be provided for users who do not have access to an OLIS-connected external system.

OLIS interfaces with Laboratory Information Systems (LIS) and Electronic Medical Record Systems (EMRs) using an HL7 interface. This allows laboratories to retrieve orders and provide results data online. In addition, this allows physicians to requisition laboratory tests online and view results online. This also facilitates the verification of patient data and medical necessity of tests.

4.3 Central Provincial Laboratory Information Domain Repository

OLIS is the laboratory information domain repository for the province of Ontario. External systems do not communicate with one another directly; all interactions occur indirectly through the OLIS clinical repository. For example:

1. A community based practitioner orders a laboratory investigation for a patient. The patient presents himself/herself at Laboratory A.
2. Lab A obtains the paper requisition from the patient, creates the Order within its LIS (which interfaces with OLIS) and draws the specimen.
3. Lab A determines that 3 of 4 tests can be performed in-house, so it refers the 4th test to Lab B and the specimen is transferred. Lab A creates an order referral for Lab B for the 4th test.
4. Lab A performs the first 3 tests and submits the results to OLIS.
5. Lab B obtains the referred order from OLIS, performs the 4th test and submits the results to OLIS.
6. Lab A queries OLIS and retrieves the results for the referred order.
7. Lab A submits a report to OLIS containing all of the results for the original order.

4.3.1 Benefits

The central repository approach has two key advantages.

1. Firstly, any conformance-tested application can exchange laboratory orders and results through OLIS with any other conformance-tested application. This facilitates not only the exchange of laboratory information between practitioners and laboratory service providers, but also laboratory-to-laboratory exchange of referred orders and test results.

2. Secondly, external systems do not need to be connected to OLIS continuously; external systems only need to connect to OLIS when they need to exchange laboratory information.

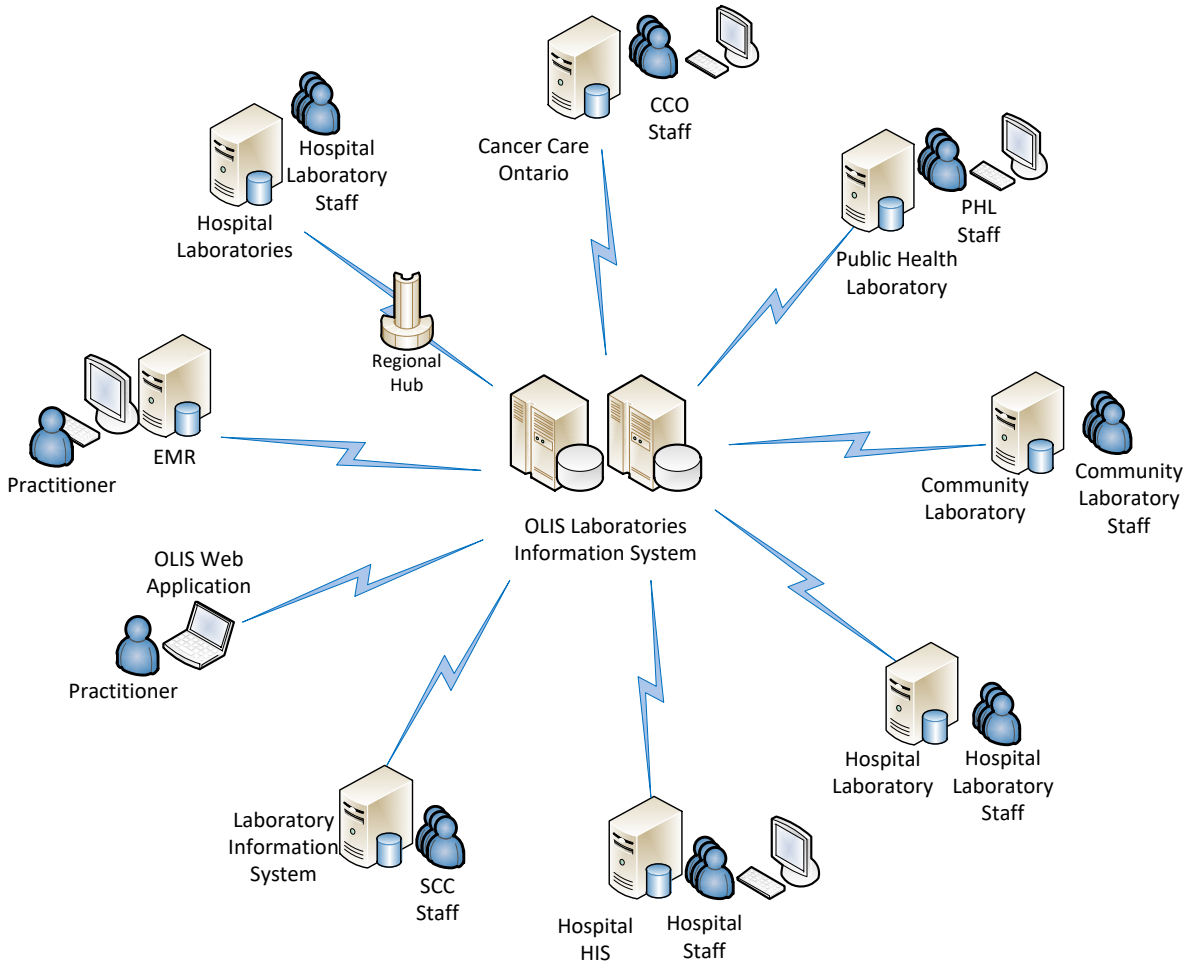


Figure 1 OLIS Context – OLIS is the Laboratory Information Domain Repository for province of Ontario interfacing with different types of stakeholders, e.g. SCCs, HISs, EMRs, etc.

4.4 Interface Specification Objective

The specifications in this document are intended to allow any conformance-tested Laboratory Information System (LIS), Hospital Information System (HIS), Electronic Medical Record System (EMR), or other point of service systems to exchange laboratory information with any other such system through OLIS using standardized messages and nomenclatures so that all parties can communicate in a clear, unambiguous manner. The requirement for parties to be able to communicate in a clear, unambiguous manner and mitigate patient risk is paramount; hence all systems that retrieve laboratory information from OLIS must be able to receive and display every field of information supported by OLIS that would appear on the equivalent paper lab report, and in the correct context.

4.5 Out of Scope

List of topics which are beyond the scope of this specification:

- Nomenclatures Guidelines
- Implementation Guide for different modalities:
    - Microbiology, Immunology, Haematology, Pathology, etc.
- Conformance Testing Scenarios
- OLIS Viewer Specifications
- EMR Interface Specifications
- Ontario Health Registration and Enrolment of Individuals

5 Interface Specification Overview

5.1 How this document is organized

The OLIS Interface Specification is composed of 9 major sections. The document starts with describing OLIS business concepts, followed by privacy considerations and Use Cases before providing detailed HL7 message definitions. This is to provide readers with a business understanding of OLIS before going into integration details. Knowledge of the HL7 Standards is not necessary for readers before section 10 "HL7 Message Specification" on page 122. Readers should be familiar with HL7 v2.x Standards to continue after section 10 "HL7 Message Specification".

The OLIS Interface Specifications document contains the following major sections:

Section 6 – Essential Concepts:

This section describes the most significant aspects of the OLIS system and how external systems communicate with OLIS. The objective of this section is to briefly provide information on OLIS features and functionalities. This section does not contain implementation details but the reader is referred to sections which address technical aspects of the discussed content.

Section 7 –Privacy Considerations:

This section describes the privacy considerations in OLIS and how external systems can inform OLIS if any consent/blocking is required on patient data. This section does not address implementation details.

Section 8 – Laboratory Information Lifecycle and Entity Model:

This section provides details on the laboratory information lifecycle in OLIS context as well as the OLIS Entity Model and general business rules which apply to each entity. This section can guide business analysts and system developers to determine which OLIS use cases are required to be implemented.

Section 9 – Use Case Model:

This section introduces the OLIS use case model which includes four modules:

- **Section 9.2 – Order:** This section includes all the use cases related to Order entry in OLIS.
- **Section 9.3 – Result:** This section includes all the use cases regarding results reporting in OLIS.
- **Section 9.4 – Queries:** This section includes all use cases regarding laboratory information retrieval in OLIS.
- **Section 9.5 – Referrals:** This section includes all use cases regarding referrals and redirections in OLIS.

Each use case includes a use case description, interaction diagram and a business rules table. It is mandatory to meet all the related business rules to implement a use case.

Section 10 – HL7 Message Specification

This section describes the OLIS HL7 application-level message specification that external systems must support to communicate with OLIS. This section assumes that the reader is familiar with the HL7 standards.

Section 11 – Communications Protocol:

This section describes the details of the OLIS Message Transport Protocol Specification and the OLIS Web Services Interface.

Section 13 – Reference Data:

This section includes all the reference data required to implement an interface with OLIS including:

- HL7 tables which represent all the valid values for specific HL7 fields.
  - Units of Measure
  - Medical Laboratory Commonly Used Units of Measure
- HL7 ISO+ Units of Measure
- OLIS HL7 Error Codes

5.2 Audience

The purpose of this document is to describe the interface specifications for OLIS, including OLIS business process flows, use cases, HL7 message definitions and message transport protocols.

This document is intended to be used by business analysts and systems developers who wish to build system interfaces between OLIS and clinical systems such as laboratory information systems, hospital information systems, electronic medical record (EMR) systems, and other point of service systems.

This specification was created by the Ontario Ministry of Health and Long-Term Care in consultation with experts from hospital, community, and public health laboratories, the Ontario Medical Association, vendors of Laboratory Information Systems and Electronic Medical Record Systems, and other interested stakeholders.

Table 2 List of Application Roles and Required Functionalities of OLIS

Application Roles	Required Functionality(s)	Required OLIS Specification Module(s)
Community EMR; Hospital Order Entry Application	Results/Orders In; Results/Orders Out;	Orders; Results; Queries;
Hospital Clinical Viewer; Hospital Labs; Community Labs; Public Health Labs	Results/Orders In; Results/Orders Out; Referral Order Out; Referral Order In;	Orders; Results; Queries; Referrals;
Cancer Care Ontario (CCO);	Results/Orders Out;	Queries;

5.3 Scope of Integration for Modules

Table 3 Scope of Integration for each module, triggers needed to achieve those functionalities and sections of the OLIS Interface Specifications having details.

OLIS Modules	Message Type & Trigger Event	Use Case
Orders	ORM^O01; ORR^O02	9.2.3.1 Create Order on page 82; 9.2.3.2 Amend Order on page 84;
Results	ORU^R01;	9.3.3.1 Report Test Result on page 88; 9.3.3.2 Amend Test Result on page

	ACK	91;
Queries	SPQ^Znn; ERP^Znn; TBR^Z98	9.4.4.2 Z01 – Retrieve Order/Report for Patient on page 104; 9.4.4.3 Z02 – Retrieve Order/Report for Order ID on page 105; 9.4.4.4 Z04 – Retrieve Order/Report for Practitioner on page 107; 9.4.4.5 Z05 – Retrieve Order/Report for Destination Lab on page 108; 9.4.4.6 Z06 – Retrieve Order/Report for Ordering Facility on page 110; 9.4.4.7 Z07 – Retrieve Order/Report for Public Health on page 111; 9.4.4.8 Z08 – Retrieve Order/Report Reportable to CCO on page 112; 9.4.4.9 Z11 – Retrieve Lab Order Information for Patient on page 113; 9.4.4.10 Z50 – Identify Patient by Name, Sex and Date of Birth on page 115;
Referrals	ORM^O01; ORR^O02; ORU^R01; ACK; SPQ^Znn; ERP^Znn	9.5.4.1 Create Referred-out Order on page 119;

5.4 Related Documents

5.4.1 Pre-requisite Documents

Table 4 List of documents suggested for reading before accessing the contents of this document.

Version	Document Title	Date	Publishing Organization
1.2	OLIS Interface Specification Executive Summary	2013	Ontario Health
1.2	OLIS Interface Specification Overview	2013	Ontario Health

5.4.2 Supporting Documents

Table 5 List of documents suggested for reading while accessing the content of this document to supplement the knowledge gaps e.g. Nomenclature Specifications.

Version	Document Title	Date	Publishing Organization
2.3.1	Health Level Seven Standard Version 2.3.1: Health Level Seven Inc., Ann Arbor, MI, USA 1999	1999	Health Level Seven Inc.
2.5	Health Level Seven Standard Version 2.5: Health Level Seven Inc., Ann Arbor, MI, USA 2003	2003	Health Level Seven Inc.
2.0	A Guide to OLIS Nomenclature	2010	Ontario Health
	LOINC Users' Guide	2012	Regenstrief Institute, Inc. and the Logical Observation Identifiers Names and Codes (LOINC) Committee
	OLIS Nomenclature	2022	Ontario Health
4.1	Guidance to reporting COVID-19 Lab Based PCR Test Results	2021	Ontario Health

5.5 Website

OLIS maintains a website at the following link that contains this specification, nomenclature files, code tables, and many adoption-support documents.

https://www.ehealthontario.ca/wps/portal/eHealthPortal/Applications/OlisInfo

6 Essential Concepts

This section describes a number of the most significant aspects of the OLIS system and how external systems communicate with OLIS.

6.1 Query Types supported by OLIS

The OLIS system has been designed to support high volumes of query transactions. Figure 1 above illustrates OLIS in the context of the external systems to which it interfaces.

Purpose-specific queries have been developed to allow practitioners, laboratories, and hospitals to query OLIS for OLIS data updates.

Please also refer to:

9.4 Queries on page 98

6.2 Non-Nominal Testing

OLIS supports non-nominal testing (e.g. HIV tests), in which the identity of the patient is known only to the ordering practitioner. For non-nominal testing, the HIC provides OLIS with a facility-generated ID for the patient. No other patient identifiers (besides facility-generated ID) are transmitted to OLIS with the order/report.

Orders that use the non-nominal patient identifier can only be retrieved by the practitioner(s) and lab(s) named on the order (query criteria depending on the query type) Non-nominal orders/reports will be released to CCO and public health if these reports are flagged as reportable to CCO or Public Health, but neither Public Health Ontario nor CCO will have the patient's demographics.

Consent assertions do not apply to the non-nominal patient identifier.

6.3 Future-Dated Orders and Standing Orders

OLIS supports orders that are dated in the future. Standing orders are not supported; the external system should create individual orders that indicate the required test dates for the series of tests.

6.4 Time before orders/results made available in OLIS

OLIS takes 5 minutes to process an order or result from the time it has acknowledged the receipt of the order or result from the data provider to the time it is made available for querying to the end user.

6.5 Full Replace Amendment

Full Replace Amendment is an additional amendment mechanism in OLIS to support complex amendment scenarios. One such scenario is the case where the laboratory needs to report fewer observations for a test request than it had previously submitted or to remove a test request and all related results from a report that it had previously submitted.

Clients who retrieve and store lab reports from OLIS (e.g., EMRs, the electronic Child Health Network, and Cancer Care Ontario) must ensure that when they receive an amended report from OLIS, that they store it in its entirety as a replacement of the prior version of the report.

6.6 Test Request Replace Amendment

Test Request Replace Amendment is an additional amendment mechanism in OLIS to support complex amendment scenarios specifically to replace parent-child relationships. This functionality must only be used for Microbiology modality. The functionality can be used to perform a replace of all corresponding children test request(s) and test result(s) for a particular parent with a new subset.

The following scenarios provide more clarification to its usage:

1) A single message can be sent to OLIS containing an intention to replace test request(s) along with all associated children test request(s) and test result(s). The message may contain the complete order or just the component that needs to be replaced.

2) A set of multiple messages related to an order can be sent to OLIS separately, containing replaced test request(s) and associated children test request(s) and test result(s).

All scenarios require that a message must always contain the parent test request(s) being replaced along with corresponding children test request(s) and test result(s) in the same message.

Clients who retrieve and store lab reports from OLIS (e.g., EMRs, the electronic Child Health Network, and Cancer Care Ontario) must ensure that when they receive an amended report from OLIS, that they store it in its entirety as a replacement of the prior version of the report.

6.7 Nomenclatures

The following are all the Nomenclatures which OLIS supports:

6.7.1 OLIS Nomenclatures

Across Ontario, conventions vary for preferred test request names and preferred test result names.

The OLIS Test Request Nomenclature and Test Result Nomenclature standardize test and result concepts, but do not impose requirements for test request and result names. Instead, it is recommended that local test dictionaries be mapped to OLIS concepts so that local names can continue to be used while communicating with OLIS using standardized codes.

Each implementation of a receiving system or viewer should use a list of locally accepted test names mapped to OLIS test result codes and display the locally accepted name when rendering a lab report.

The same mapping and transformation approach can be taken if there is a local requirement to display preferred test request names.

Note: OLIS Nomenclatures are published monthly where new codes are added and old codes are deprecated. Sites should have processes in place to refer to the most recent Nomenclature file. Any new lab reports submitted to OLIS using deprecated/ inactive codes shall raise a warning. In the future, these warning messages are eventually going to be converted to an error message and the transaction will be rejected.

6.7.1.1 Test Request Nomenclatures

The OLIS Test Requests Nomenclature is a coding system for identifying laboratory test requests. These codes are used by practitioners to order test requests and to communicate this information to laboratory service providers through OLIS. The OLIS Test Requests Nomenclature is based on the Schedule of Benefits and Logical Observation Identifier Names and Codes (LOINC), where appropriate. The OLIS Test Requests Nomenclature is categorized by the following laboratory disciplines:

- Blood Bank
- Chemistry
- Haematology
- Microbiology
- Pathology

Please also refer to:

10.2.5.8.2.5 OBR.4 Universal Service Identifier on page 178

6.7.1.2 Test Result Nomenclatures

The OLIS Test Results Nomenclature is a coding system for identifying laboratory test observations (test results, components of test results such as microorganisms and their sensitivities, and specific (e.g., Body Fluid) and not specific specimen sources). It also includes identifiers for observations (e.g., height and weight) to ensure that results or interpretations are reported correctly.

The test result names that appear in OLIS laboratory report messages are the fully specified names that correspond to the reported test result codes. The fully specified name is a machine-readable name that allows a receiving system to recognize a test that the system has not previously encountered by examining the component name, property, time aspect, system, scale, and method.

The OLIS Test Result Nomenclature includes a field named Alternate Name 1 that contains a suggested display name for each test result code. This data may be used as a starting point for selecting preferred test result names.

Please also refer to:

10.2.5.14.3.1.4OBX.3 Observation Identifier on page 196

6.7.1.3 Test Result Nomenclature for Microbiology (OLIS List of Microorganisms)

As part of the OLIS Test Results Nomenclature, there is an OLIS List of Microorganisms that identifies microorganisms that can be reported in a test result.

6.7.2 Logical Observation Identifiers Names and Codes (LOINC)

In order messages from order-placing systems, patient information that may be needed by the laboratory performing the test (e.g. diagnosis, height, or weight) may be encoded using any code supported by the LOINC observation coding system. LOINC encoding is beneficial, as it is machine-readable, allowing rekeying/transcribing of information to be avoided by the laboratory. For example, maternal screening orders communicate ancillary information that is vital to produce a correct interpretation.

Examples of some relevant LOINC codes appear in the following table. The full LOINC database can be accessed at http://www.regenstrief.org/loinc/.

There is some overlap between the LOINC and OLIS Test Result Nomenclature codes that represent ancillary information (e.g., 8665-2 *Date Last Menstrual Period*). This overlap exists to allow laboratories to transmit ancillary information using the OLIS Test Result Nomenclature (e.g., a last menstrual period date transcribed from a paper requisition) for reporting purposes.

Note that there are a number of OLIS Test Result Nomenclature codes that have the same meaning as message fields defined in this specification (e.g., 29624-9 *Collection Time* duplicates field OBR.7 *Observation Date/Time*). As this creates the possibility for ambiguity if both the code and the populated field are present in the same lab report message, these codes should not be used unless it is necessary to report multiple values where not supported by an OLIS field. For example, if it is necessary to report multiple specimen collection date/times within a single OBR segment, the test result code for specimen collection date/time may be used.

Please also refer to:

13.3 LOINC Table on page 313

6.8 Ancillary Order Information

OLIS supports the ability for external systems to supply information about the patient that is needed by the laboratory in order to perform an ordered test, for example patient diagnosis, height, or weight.

Please also refer to:

8.2.4.3.1 Test Result States on page 78
9.2.3.1 Create Order on page 82
9.3.3.1 Report Test Result on page 88
10.2.5.14OBX-ZBX Segment Pair on page 194

6.9 Partial Lab Results Report

A paper requisition received by a lab may request tests that have different turnaround times (e.g., a complete blood count and a blood culture), and it may be clinically necessary to report the short turnaround test results before the longer turnaround test results become available.

When reporting the short turnaround test results to OLIS, it is important to communicate that the longer turnaround tests are in progress, otherwise the ordering practitioner may incorrectly conclude that the longer turnaround tests have been forgotten.

This can be done using one of two different approaches:

1) Submit a short turnaround test to OLIS using a report message (ORU) and then send an order amendment message (ORM, with ORC.1="XO") to add the long turnaround test requests with a "Specimen Collected" Status (i.e. OBR.25="I").

This approach requires more interface development effort because two messages are created.

This requires the development of an ORM interface to OLIS as well as an ORU interface.

For any hospital with an e-ordering application which communicates with the LIS, using an ORM interface to communicate pre-result statuses to OLIS would actually be more consistent with how they already behave. For that reason, many of them cannot alter their systems to use approach 2.

2) Submit all tests to OLIS using a report message (ORU). For longer turnaround tests send the observation information containing the test result code that will ultimately be used to report the result with preliminary observation value text that indicates that the testing is in progress and a further report will follow.

This approach requires that the test result code that will ultimately be used to report the result to be known ahead of time with certainty so that the "in-progress" result is replaced by the actual result. If the test result ends up being reported under a different test result code, then the report would indicate the test result to practitioner, but it would incorrectly continue to indicate that the testing is still in progress.

Please also refer to:

10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile on page 134
10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137
10.2.5.6.2.2 ORC.1 Order Control on page 173
10.2.5.8.2.18 OBR.25 Test Request Status on page 183

6.10 Reportable Laboratory Findings

Query interfaces have been developed to allow Public Health and CCO to retrieve reportable laboratory findings from OLIS. OLIS provides a mechanism to allow a laboratory to indicate that a test request and its test result(s) need to be reported to Public Health and/or CCO.

For the time being, the laboratory and practitioner continue to be responsible to notify Public Health directly of reportable laboratory findings.

Please also refer to:

9.4.4.7 Z07 – Retrieve Order/Report for Public Health on page 111
9.4.4.8 Z08 – Retrieve Order/Report Reportable to CCO on page 112
10.2.5.9.2.10 ZBR.9 Reportable Test Indicator on page 190

6.11 Multiple Authors of OLIS data

The information related to a single laboratory order in OLIS may be authored by several different external systems. For example, an initial order containing patient information, practitioner information, and two test requests may have been authored by the practitioner's EMR system. Specimen information and test results for these test requests may have been subsequently recorded by the laboratory's LIS system. This LIS system may have then added a lab-generated test to the order that was referred to a reference laboratory. The reference laboratory's LIS may have recorded a test result for the lab-generated test.

OLIS tracks each component of a laboratory order to ensure that information created by one organization or system is not altered by another organization or system except where permitted. For example, OLIS must ensure that the ordering practitioner's system cannot cancel a test request once the specimen has been collected by a specimen collection centre.

This specification has been designed to accommodate multiple authors of laboratory information within a single order, including support for multiple authors of notes.

6.11.1 Authors of Orders/Reports

OLIS supports the concept of an Ordering Facility which allows the healthcare facility to identify itself on each order/report it creates, and then effectively track all of its orders/reports by polling OLIS for updates for the healthcare facility rather than having to query on individual orders, providers or patients. The ordering facility field is mandatory on test requests within referral orders but optional for other OLIS data submissions.

6.12 Sort Sequences for Test Requests and Test Results

OLIS supports the communication of information to allow the reporting laboratory to indicate the sequence in which each test request and test result should appear when an order is retrieved from OLIS and displayed or printed by an external system such as a practitioner's electronic medical record system. This greatly simplifies the logic required to allow an electronic medical record system or an OLIS portlet viewer to display or print the patient report in the same sequence that the information would have appeared on a printed report from the laboratory. This helps minimize the impact to the practitioner switching from paper to electronic lab reports.

- **Primary Sort Key:** is the test request sort key and it controls the sequence of test requests when a lab report is displayed.
- **Secondary Sort Key**: is the test result sort key and it controls the sequence of test results associated with a single test request.

6.12.1 Viewer Solutions where Sort Keys are missing

OLIS is working to ensure that labs always include sort-key information in their reports, but some reports in OLIS do not contain sort keys. A report that does not contain sort key information is difficult for viewer solutions to display in a form that is easily used by practitioners. The physical sequence of information in report messages should not be relied upon to infer the proper display sequence. Viewer solutions may resort to using default sort key information that is available in the OLIS Nomenclature Standard, or they may resort to an alphabetical or arbitrary display sequence.

6.12.2 Limitations of Sort Keys in the OLIS Nomenclature Standard

The sort key information in the OLIS Nomenclature Standard is limited to simple rendering of the most common types of test requests and test results. It is intended to be used only as a last resort if sort key information is not available in the report submitted by the laboratory. All adopters are expected to submit sort key information to OLIS.

The following example illustrates a chemical urinalysis submitted without sort key information where the viewer has had to resort to alphabetical order. This is not the customary sequence for a chemical urinalysis and it negatively impacts usability by practitioners.

Urinalysis Chemical

Name	Result	Flag	Reference Range	Units
Appearance	CLEAR		CLEAR	
Colour; Urine	YELLOW		NONE/YELLOW	
Erythrocytes	SMALL	H	NEGATIVE	
Glucose	NEGATIVE		NEGATIVE	MMOL/L
Ketones	NEGATIVE		NEGATIVE	MMOL/L
Leukocyte esterase	MODERATE	H	NEGATIVE	
Nitrite	POSITIVE	H	NEGATIVE	
pH; Urine	6.5		5.0 - 8.0	
Protein	2		NEGATIVE (<0.3)	G/L
Specific Gravity	1.015		1.001 - 1.030	

When sort keys are present, the report presentation is preserved as the laboratory intends it to be viewed by the practitioner:

Urinalysis Chemical

Name	Result	Flag	Reference Range	Units
Colour; Urine	YELLOW		NONE/YELLOW	
Appearance	CLEAR		CLEAR	
Specific Gravity	1.015		1.001 - 1.030	
pH; Urine	6.5		5.0 - 8.0	
Protein	2		NEGATIVE (<0.3)	G/L
Glucose	NEGATIVE		NEGATIVE	MMOL/L
Ketones	NEGATIVE		NEGATIVE	MMOL/L
Erythrocytes	SMALL	H	NEGATIVE	
Nitrite	POSITIVE	H	NEGATIVE	
Leukocyte esterase	MODERATE	H	NEGATIVE	

6.12.3 Adjustment of sequential sort keys

The addition of lab-initiated or reflex tests and results to an existing lab report may require the adjustment of sort keys on the existing test requests or results to ensure correct sequencing of the information in the amended report

Adjustment of sequential sort keys is also required where, due either to system configuration or system limitations, the sending lab transmits requests and results for a single report to OLIS in multiple messages, even where none of them has been reflexed and none of the individual requests or results has been modified.

Please also refer to:

10.2.5.9.2.12 ZBR.11 Test Request Sort Key on page 190

10.2.5.14.4.1.3 ZBX.2 Test Result Sort Key on page 201

7 Privacy Considerations

This section describes the privacy considerations applicable to the OLIS interface. Specifically, this section describes the consent management functionality for different types of OLIS transactions, such as information viewing/retrieval, amendments, referrals, consent directive applications and overrides. This section also describes consent management functionality for different types of OLIS information, such as orders, reports, non-nominal orders/reports, and referral orders.

Additionally, this section describes the privacy considerations related to system, user and organization identification requirements for different types of OLIS transactions, as well as logging considerations.

For all OLIS initiatives, how privacy related functionality (e.g. consent management functions) operates depends on the implementation for the initiative. The project team is to consult with the Privacy Office, early on, during the design phase for all OLIS initiatives.

Please also refer to:

7.1 Patient Consent Management on page 51
7.2 User, System and Organization Identification on page 54
10.2.5.3 ZPD – PID Extension Segment on page 167
9.2.3.1 Create Order on page 82
9.3.3.1 Report Test Result on page 88
9.4.4.2 Z01 – Retrieve Order/Report for Patient on page 104
9.4.4.3 Z02 – Retrieve Order/Report for Order ID on page 105
10.2.4.8.8 Consent to View Blocked Information Parameter (@ZPD.1) on page 154
10.3.2.3.7 Multiple messages received combined and stored as a single order in OLIS
10.3.2.7.6 Overrides to Access Blocked Laboratory Information on page 245
10.3.2.7.5 North Regional Viewer queries OLIS for Bruce H Banner's Orders

Scenario # 30B	**North Regional Viewer queries OLIS for Bruce H Banner's Orders.**
Message Type	**Query Message – SPQ^Z01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z01^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^2.16.840.1.113883.3.59.2:3001~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^North Regional Viewer~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	1. The patient ID and earliest point in time to search for test requests are specified in the SPR.4 *Input Parameter List* field. The Ontario Health Card version code is not required in a query message. 1. The SPR.1 *Query Tag* field contains an identifier (QRYTAG123) that will be returned in the query response message. 2. The Query Event (Z01) corresponds to the stored procedure name (Z_QryLabInfoForPatientID) in the SPR.3 *Stored Procedure Name* field. 3. The Requesting HIC is identified as North Regional Viewer in the @ZRP.1 parameter. Refer to the @ZRP.1 parameter definition in section 10.2.4.8 Query Parameters Matrix on page 149. 4. The person who initiates the query is asserted in the ZSH segment.
Scenario # 30B	**OLIS response message for Bruce H Banner's Orders.**

Message Type	Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.2:3001^ISO||20090818161829-0400||ERP^Z99^ERP_R09|TAG000007|T|2.3.1||||||8859/1<CR> MSA|AA|TAG000007<CR> QAK|QRYTAG123|OK|<CR> ERQ||R09|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308^@ZRP.1.1^2.16.840.1.113883.3.59.2:3001~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^North Regional Viewer~@ZRP.1.3^~@ZRP.1.4|<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO||TR10481-0^Hemoglobin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO||TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||^Sample specimen collection comment<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO||TR10480-2^Hematocrit^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR> PID|2||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400||||||||||||<CR> OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

	BLG|||SELF|<CR> ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817105700-0400||||| |||||||||||<CR> OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901|| ||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH ^^^705^2343425^|||||20090818150814-0400|||X||1&^^^20090817^^R|925642^TAKAHAMA^HAL LIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR> BLG|||SELF|<CR> ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400||||| |||||||||||<CR> OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901 |||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^ PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR> BLG|||SELF|<CR>
Notes	**The QAK.1 *Query Tag* field echoes the query identifier back to the external system.** 1. The QAK.2 *Query Response Status* field indicates that the query message was valid and that data was returned by the query. 2. The ERQ.3 *Input Parameter List* field echoes the input parameters back to the external system. 3. The OBR.22 *Results Rpt/Status Change Date/Time* field communicates a timestamp recorded by OLIS when the test request was last changed. This timestamp falls within the start and end timestamps in the query parameters. 4. The ORC.1 *Order Control* fields are not populated in this message because query messages do not change laboratory information.

Multiple messages received combined and stored as a single order in OLIS

Scenario # 21	**This example illustrates how multiple test results for the same Order ID received, are combined and stored as a single order in OLIS**
Message Type	**Report Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500|| 20130226141411- 0500||ORU^R01^ORU_R01|Q961291919T1433184801|P|2.3.1||||||8859/1 PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^ ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678 Grannysmith lane^^London^ON^N2E 4Y8^CAN^H PV1|1|O| ORC||||00000201305700042 5^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411 00-0500|||||||||||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere Road^London^ON^N6A 5A5^CAN^B OBR|1|704706259^^2.16.840.1.113883.3.59.1:9999^ISO|704706259^^2.16.840.1.1138 83.3.59.1:9999^ISO|999999^need code^HL79901|||20130226141100- 0500|||||||20130226141100- 0500|UR&Urine&HL70070|23330^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034 7|||||||||F||1^^^20130226141100-0500^^R ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre -^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre -^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1898000 NTE|1|P| DOE Order Comment|RE^Remark^HL70364 ZNT|^2.16.840.1.113883.3.59.1:9999^ISO OBX|1|NM|13362-9^Collection duration:Time:*:Urine:Qn^HL79902|1|24.0|h|||||F ZBX|20130226141406-0500|12001052000 OBX|2|NM|28009-9^Specimen volume:Vol:Pt:Urine:Qn^HL79902|2|1000|mL|600-

```
2800|N|||F
ZBX|20130226141406-0500|12001053000
BLG|||MOHLTC

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141313-
0500||ORU^R01^ORU_R01|Q961291905T1433184762|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||| The ABC Hospital
^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706250^^2.16.840.1.113883.3.59.1:9999^ISO|704706250^^2.16.840.1.1138
83.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500|||||||20130226141100-0500|BLD&Whole
blood&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||
||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||82000
OBX|1|NM|14682-9 (LOINC/Test Request
Code)^Creatinine:SCnc:Pt:Ser/Plas:Qn^HL79902(OBX3.3)|1|72|umol/L|55-100|N|||F
(OBX.11)
ZBX|20130226141305-0500|10301025000
BLG|||MOHLTC

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141410-
0500||ORU^R01^ORU_R01|Q961291915T1433184783|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^2.16.840.1.113883.3.59.1:9999^ISO|||||2013022614110
0-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706262^2.16.840.1.113883.3.59.1:9999^ISO|704706262^2.16.840.1.113883
.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500|||||||20130226141100-
0500|UR&Urine&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1928000
OBX|1|NM|14683-7^Creatinine:SCnc:Pt:Urine:Qn^HL79902|1|12.0|mmol/L|||||F
ZBX|20130226141406-0500|12001064000
NTE|1|P|Reference Range for Random First Morning Collection:\.br\Male: 3.5 to
25.0 mmol/L\.br\Female: 2.6 to 20.0 mmol/L|RE^Remark^HL70364
ZNT|2.16.840.1.113883.3.59.1:9999^ISO
OBX|2|NM|14684-5^Creatinine:SRat:24H:Urine:Qn^HL79902|2|12.0|mmol/d|6.3-
13.4|N|||F
ZBX|20130226141406-0500|12001066000
BLG|||MOHLTC
-------------------------------------------------------------------------------

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141411-
0500||ORU^R01^ORU_R01|Q961291919T1433184801|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
```

```
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706259^^2.16.840.1.113883.3.59.1:9999^ISO|704706259^^2.16.840.1.1138
83.3.59.1:9999^ISO|999999^need code^HL79901|||20130226141100-
0500||||||20130226141100-
0500|UR&Urine&HL70070|23330^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7|||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1898000
NTE|1|P| DOE Order Comment|RE^Remark^HL70364
ZNT|^2.16.840.1.113883.3.59.1:9999^ISO
OBX|1|NM|13362-9^Collection duration:Time:*:Urine:Qn^HL79902|1|24.0|h|||||F
ZBX|20130226141406-0500|12001052000
OBX|2|NM|28009-9^Specimen volume:Vol:Pt:Urine:Qn^HL79902|2|1000|mL|600-
2800|N|||F
ZBX|20130226141406-0500|12001053000
BLG|||MOHLTC
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||| The ABC Hospital
^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706250^^2.16.840.1.113883.3.59.1:9999^ISO|704706250^^2.16.840.1.1138
83.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500||||||20130226141100-0500|BLD&Whole
blood&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||
||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||82000
OBX|1|NM|14682-9 (LOINC/Test Request
Code)^Creatinine:SCnc:Pt:Ser/Plas:Qn^HL79902(OBX3.3)|1|72|umol/L|55-100|N|||F
(OBX.11)
ZBX|20130226141305-0500|10301025000
BLG|||MOHLTC
ORC||||000002013057000425^2.16.840.1.113883.3.59.1:9999^ISO|||||2013022614110
0-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706262^2.16.840.1.113883.3.59.1:9999^ISO|704706262^2.16.840.1.113883
.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500||||||20130226141100-
0500|UR&Urine&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7|||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1928000
OBX|1|NM|14683-7^Creatinine:SCnc:Pt:Urine:Qn^HL79902|1|12.0|mmol/L|||||F
ZBX|20130226141406-0500|12001064000
NTE|1|P|Reference Range for Random First Morning Collection:\.br\Male: 3.5 to
25.0 mmol/L\.br\Female: 2.6 to 20.0 mmol/L|RE^Remark^HL70364
ZNT|2.16.840.1.113883.3.59.1:9999^ISO
OBX|2|NM|14684-5^Creatinine:SRat:24H:Urine:Qn^HL79902|2|12.0|mmol/d|6.3-
13.4|N|||F
```

	ZBX|20130226141406-0500|12001066000 BLG|||MOHLTC
Notes	1. Lab sends in the first message (ORC.4 000002013057000425). 2. Lab sends in the second message using the same order number (000002013057000425). 3. Lab sends in the third message using the same order number (000002013057000425). 4. End state in OLIS for Order ID 000002013057000425 is that it is stored with contents from all three messages. 5. The above example shows how each message belongs to the same Order ID. Each message received in different messages, but OLIS will combine the messages and store them as a single order.

10.2.5.9.2.2 ZBR.1 Test Request Blocking Indicator on page 187

7.1 Patient Consent Management

7.1.1 General Information

OLIS has a consent directive capability which gives patients or their substitute decision maker(s) (SDM) the option to restrict (test-level block), withdraw (patient-level block) or reinstate access to their lab data in OLIS. The patient's OLIS data will remain accessible to authorized health information custodians, and their Agents, until a consent directive (test-level or patient-level) is applied to the patient's OLIS data.

Patients have the following consent directive options:

1. **Patient-level Block:** This is a block all directive that will restrict access to all OLIS data (Orders and Reports), subject to certain exceptions. Patient-level block is discussed in further detail at section 7.1.2.

2. **Record-level Block:** Restricts access to a specific test on a laboratory Order and/or the associated test-level Report, subject to certain exceptions. Test-level block is discussed in further detail at section 7.1.3.

Please also refer to:

7.1.2 Patient-level Block on page 53
7.1.3 Record-level Block on page 53

OLIS will warn a requesting HIC of the existence of a block regardless of whether or not any orders/reports are returned. OLIS will also add an indicator to each order/report returned to indicate the presence of a block at the time the orders/reports were disclosed by OLIS.

7.1.1.1 Consent Overrides

Requesting HICs (and their agents) accessing OLIS are permitted to override a consent directive applied to OLIS data with the express consent of the patient or their substitute decision maker(s) (SDM). The MOHLTC, as the health information custodian of OLIS, does not permit authorised users who access OLIS to override a consent directive without the express consent of the patient or their SDM. The only exception to this rule is for an urgent need or emergency as defined by PHIPA s.55.7(2) and PHIPA s.55.7(3).

Note: In the absence of express consent from the individual or substitute decision maker, a consent override must only be performed when there is a risk of harm to the individual or a risk of harm to others.

7.1.1.2 OLIS data where consent directives do not apply

There are different types of data in the OLIS system including orders (made of test requests), reports, referral orders from lab to lab, and non-nominal data. It is not possible to apply either record-level or patient-level consent directives to the following:

1. **Non-Nominal Testing**: consent directives do not apply to Non-Nominal Orders or Reports.

Please also refer to:

6.2 Non-Nominal Testing on page 39

7.1.1.3 Exemptions to the application of consent directives that are in place (Patient-level or Record-level)

There are certain circumstances where a record-level or patient-level consent directive has been applied to a patient's data in OLIS, however, OLIS releases the data to the requesting HIC or organization, without requiring the user to submit an express consent override message, notwithstanding that the consent directive is in place.

The specific exemptions to the application of consent directives are described below:

1. **HICs named on the Order.**

   Where a HIC that is named on an order or report ("Named HIC"), queries OLIS for data, and a record-level or patient-level consent directive is in place, OLIS will release the order and associated result if available, to the requesting HIC, notwithstanding that the consent directive is in place.

   Named HICs could include the following:

   I. Named HIC Individual – Identified as:

      a) ordering practitioner
      b) copied practitioner
      c) admitting practitioner
      d) attending practitioner

   II. Named HIC Organisation - Identified as:

      a) ordering facility
      b) test request placer
      c) specimen collector
      d) reporting lab
      e) performing lab
      f) destination lab

   For the exemption to apply, the Named HIC individual or Named HIC organisation must be populated in the relevant field of the OLIS interface which varies by query type. Please consult the OLIS team for clarification on the OLIS interface requirements for the consent exemption to apply to each query type.

2. **Unfulfilled Orders queried by Laboratories or SCCs.** Laboratories or Specimen Collection Centres (SCC) querying OLIS may view any orders in OLIS that are in 'ordered', 'collected' or 'cancelled' state, even where there is a consent directive in place. This is true whether or not the order has been assigned to the laboratory or SCC.

   This exception is dependent on the technology by which the lab/SCC is accessing OLIS (e.g. webviewer1, webviwer2, LIS, etc.) and how the querying system/message is configured. For example, some laboratories and SCCs are executing the Z11 query as a hospital and not a laboratory. Therefore, a consent directive may

prevent such an entity from viewing a masked order unless OLIS identifies the querying HIC as being named on the order.

3. **Reports marked reportable to Public Health Units or Cancer Care Ontario.** Applicable laws currently mandate extensive public health reporting obligations for certain test requests. These orders are marked as reportable and the associated Reports are made available to Public Health Units, when they execute Z07 query, or Cancer Care Ontario, when they execute the Z08 query, notwithstanding the presence of a consent directive. Additionally, unresulted orders that are marked as reportable are made available to Public Health Units and CCO upon execution of the relevant queries.

Patient has the ability to apply consent at different levels as described in the following sections.

7.1.2 Patient-level Block

When a patient-level block is in place, OLIS will not release OLIS data to the querying user subject to the exemptions described in 7.1.1 General Information on page 51 (e.g. Requesting HIC is named on the order or report).

7.1.2.1 Application of Patient-Level Blocks Using the OLIS Interface

The application of patient level blocks or the removal of patient level blocks in OLIS via an ORM or an ORU message is not authorized.

Please also refer to:

10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile on page 134
10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137

POS Systems are not authorized to implement the functionality to permanently apply/remove patient-level consent directives.
[Please direct patients to call ServiceOntario, INFOline at 1-800-291-1405, TTY 1-800-387-5559, 8:30 am - 5:00 pm should they wish to apply or remove a patient-level consent directive]

7.1.3 Record-level Block

A record-level block allows patients to block one or more specific test requests in an Order, as well as its associated result in OLIS, subject to the exceptions described in 7.1.1 General Information on page 51. Blocked test requests and associated results (where applicable) will be removed before being returned as part of a query response. As described in the next section, a user may choose to override the consent directive applied to the test request/report.

7.1.3.1 Applying Record-Level Blocks Using the OLIS Interface

The record-level block option can be set:

(a) In the OLIS interface message received from the user/system that is creating the Order or
(b) At the time of report (i.e. results) submission to OLIS by the laboratory.

Once set, this flag cannot be turned off at a later stage. Please note that where a consent directive is applied to one or more tests on an order (e.g. when submitted to OLIS by the EMR), OLIS will automatically block the associated result(s).

7.1.4 Overriding Consent

The patient or, where applicable, the patient's substitute decision maker (SDM), may give express consent to a Requesting HIC (or Agent) to access the patient's blocked information, whether such block exists at the record-level or the patient-level. The Requesting HIC notifies OLIS of the patient's or SDM's express consent to retrieve the patient's blocked information within the query message submitted to OLIS.

In the absence of express consent from the patient or the patient's SDM, a consent override must only be performed when there is a risk of harm to the individual or a risk of harm to others. The Requesting HIC notifies OLIS of this risk in order to retrieve the patient's blocked information within the query message submitted to OLIS.

When a user overrides the patient's consent directive, OLIS will provide access to all of the patient's OLIS data, whether the block exists at the record-level and/or the patient-level on a temporary basis. The following options are supported in OLIS:

- Express consent from the patient or SDM on a temporary basis (8 hours)

- Emergency override where there is a risk of harm to the individual or a risk of harm to others on a temporary basis (4 hours)

All the consent override transactions are logged by OLIS.

7.2 User, System and Organization Identification

Ontario Health, under legislation and privacy best practices, must keep an electronic record of all persons who have accessed the personal health information (PHI) contained in OLIS, including orders, results, referrals, amendments, consent directives, etc. For clarity, this includes users/organizations that have access to OLIS through any POS.

The types of transactions that Ontario Health must log for OLIS data include create, read, update and delete transactions. Additionally, eHealth must log all consent-related transactions in relation to OLIS data. This includes consent overrides, as well as all patient-level and test-level consent directive changes attempted or implemented by external users through the OLIS interface.

As the OLIS interface supports Ontario Health's logging requirements, it is very important, for each data-in and data-out initiative, to consider the identifiers that are passed to OLIS through the interface. Some examples of the types of organization, system and user identification information that Ontario Health requires for an OLIS transaction are included below:

1. **Consuming Health Information Custodian**: this represents an **Individual (Practitioner)** or **Organization (Healthcare facility)** that is accessing the data for the purpose of providing healthcare to a patient or other permitted purposes. This is the Organization/Individual which has the legal agreement with Ontario Health.

2. **Individual at the keyboard**: this is the user who is physically at the keyboard querying OLIS to access/contribute data for the purpose of providing or assisting in the provision of healthcare to individuals to whom the Personal Health Information relates. This will either be a healthcare provider or a delegate of the HIC who is assisting in the provision of healthcare (e.g. admin or support staff).

From a privacy perspective, the interface and logging requirements will vary between OLIS initiatives (including data-in and data-out initiatives). In some instances, all of the parameters will have to get populated and in some instances one or more fields may not be required. Additionally, consideration must be given to whether the field(s) is auto-populated, manually entered or selected by a user.

Please note that additional information may be required within the interface, in accordance with legislative requirements and/or best practices. For example, it is possible to override a consent directive with the express consent of the patient or the patient's SDM. If an SDM provides express consent to temporarily override a patient's blocked OLIS data, an electronic record of such a transaction requires additional information.

For each OLIS initiative, please consult the Ontario Health Privacy Office on requirements related to user, system and organisation identification via the OLIS interface.

8 Laboratory Information Lifecycle and Entity Model

This section provides details on the laboratory information Lifecycle in OLIS context as well as the OLIS Entity Model and general business rules which apply to each entity.

8.1 Laboratory Information Lifecycle

This section provides the basic potential usage scenarios of laboratory information in OLIS context to illustrate OLIS functionalities. It is not expected to cover 100% of the business processes in Laboratories, SCCs, Healthcare Facilities and Clinics, but is representative of what needs to be accomplished by end users.

These diagrams illustrate:

1. The laboratory order fulfillment cycle with OLIS.

2. Exchange of orders and test results between a healthcare facility without laboratory facilities and an external laboratory (Order Referrals).
3. Specific order-entry scenarios:
    - Create a new order
    - Add a test request to an order
    - Cancel an order
    - Order referral
    - Order redirection
    - Query example
    - Error example
4. Specific result reporting scenarios:
    - Amend results
    - Invalidate results
    - Report Test not performed

8.1.1 Business Process Flow Diagrams User Guide

The Business process flow diagrams that appear on the following pages illustrate how OLIS use cases collaborate to support the electronic exchange of laboratory information among practitioners, laboratory service providers and healthcare facilities. Note that these diagrams show the flow of information but do not include implementation details to obtain that information.

Each Swim lane distinguishes the responsibilities for business processes. Interactions with OLIS are shown with the icon " " and a description of the specific interaction followed by an interaction number which is unique in the diagram context. For each diagram, a corresponding table is represented to link the interaction with their corresponding use cases, and HL7 message requests and responses. This table is intended for the system developers to find the implementation guidelines on the interactions.

8.1.2 Laboratory as First Point of Contact

Figure 2 Laboratory as First Point of Contact, Business Process Flow Diagram

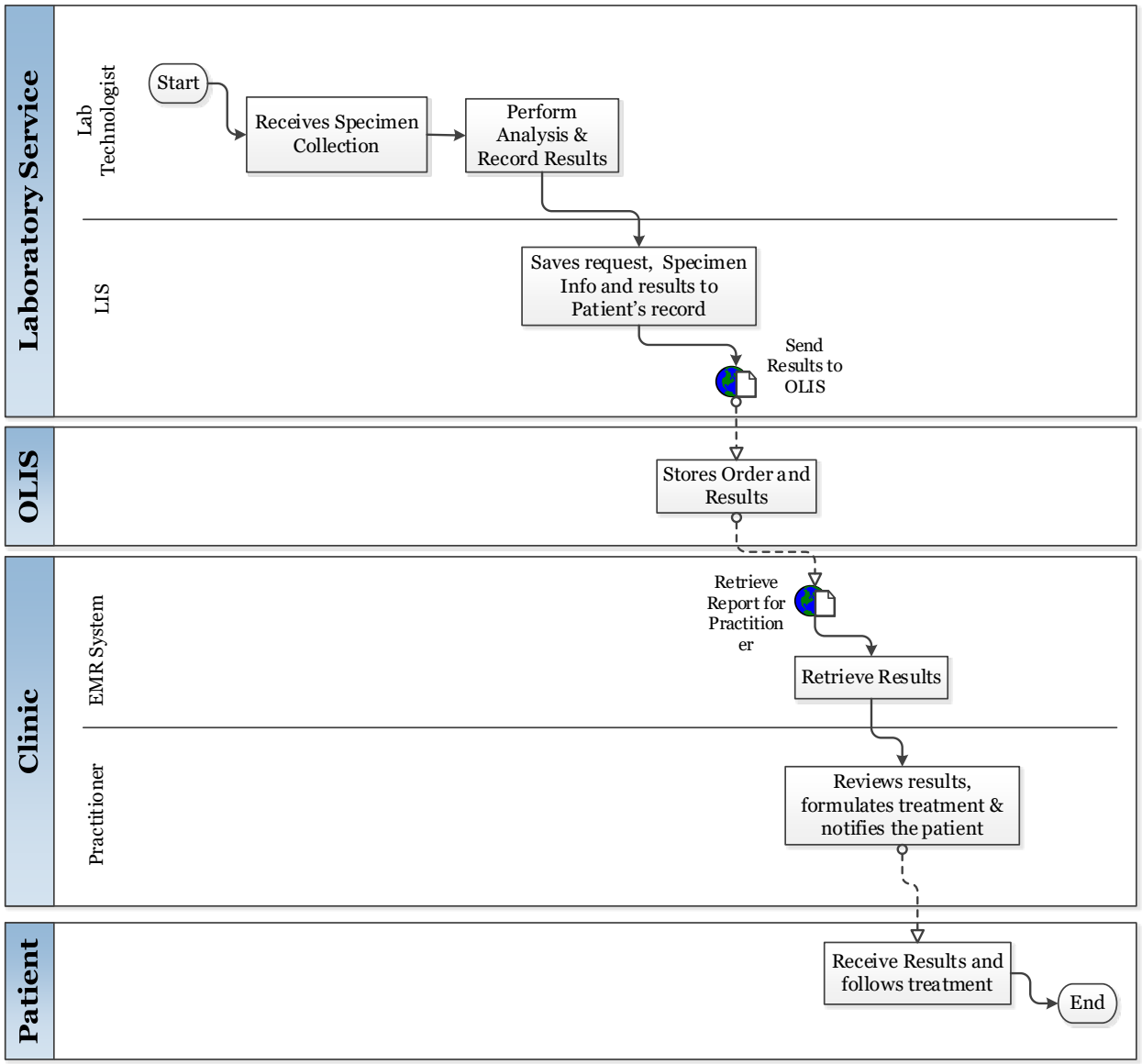
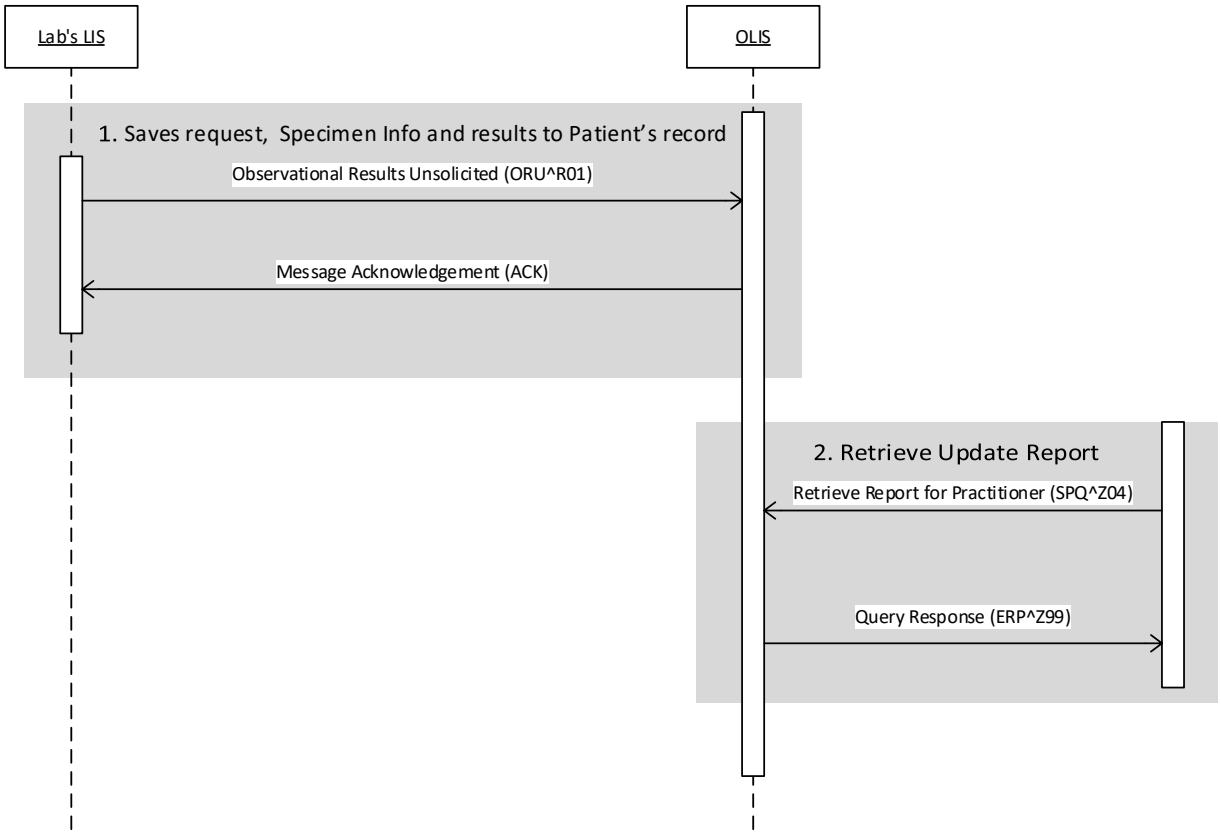


Table 6 Laboratory as First Point of Contact; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Send Results to OLIS	9.3.3.1 Report Test Result on page 88	10.2.3.2Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3Response Message – ACK Message-level Profile on page 138
2	Retrieve Report for Practitioner	9.4.4.4 Z04 – Retrieve Order/Report for Practitioner on page 107	10.2.4.4 Initiating Message-level Profile for All Queries – SPQ^Znn Message-level Profile on page 146	10.2.4.5 Response Message for Queries Z01-Z11 – ERP^Znn Message-level Profile on page 146

Figure 3 Laboratory as First Point of Contact; Interaction Diagram



8.1.3 Add Test Request to Order

Figure 4 Add Test Request to Order; Business Process Flow Diagram

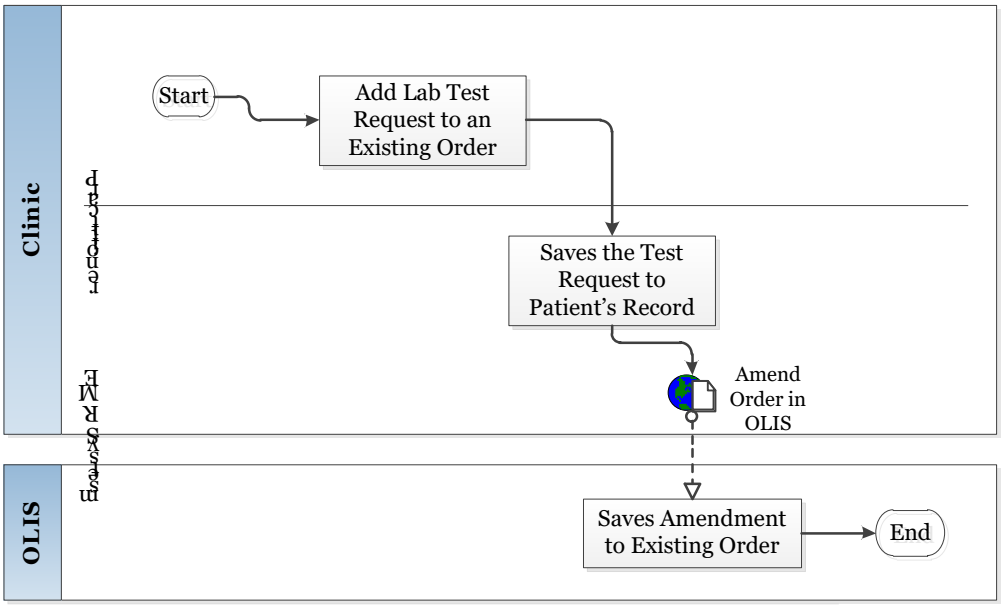
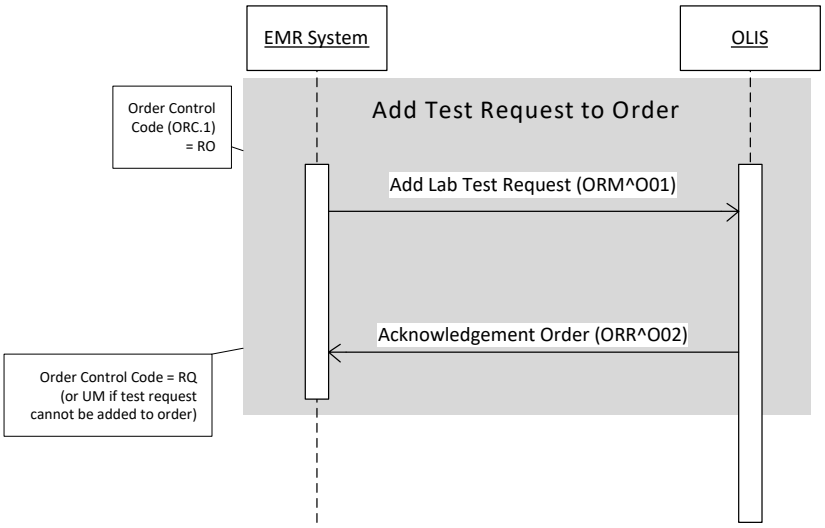


Table 7 Add Test Request to Order; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Amend Order in OLIS	9.2.3.2Amend Order on page 84	10.2.2.3Initiating Message – ORM^O01 Message-Level Profile on page 134	10.2.2.4Response Message – ORR^O02 Message-level Profile on page 135

Figure 5 Add Test Request to Order; Interaction Diagram



8.1.4 Cancel Test Request

Figure 6 Cancel a Test Request; Business Process Flow Diagram

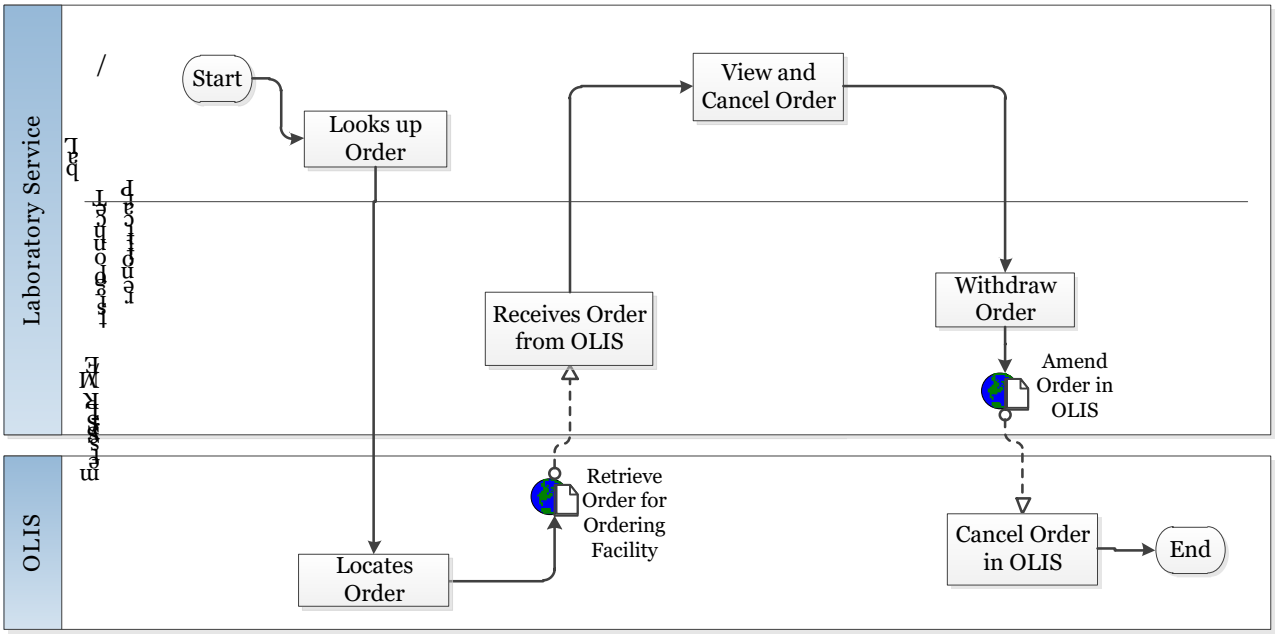
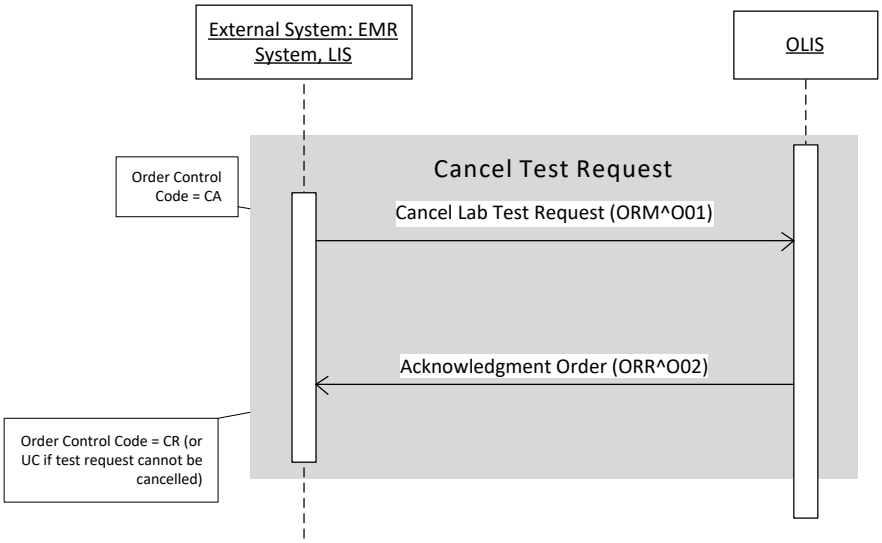


Table 8 Cancel a Test Request; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Retrieve Order for Ordering Facility	9.4.4.6 Z06 – Retrieve Order/Report for	10.2.4.4 Initiating Message-level Profile for	10.2.4.5 Response Message for Queries Z01-Z11 –

		Ordering Facility on page 110	All Queries – SPQ^Znn Message-level Profile on page 146	ERP^Znn Message-level Profile on page 146
2	Amend Order in OLIS	9.2.3.2 Amend Order on page 84	10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile on page 134	10.2.2.4 Response Message – ORR^O02 Message-level Profile on page 135

Figure 7 Cancel Test Request; Interaction Diagram



8.1.5 Invalidate Results

Figure 8 Invalidate Results; Business Process Flow Diagram

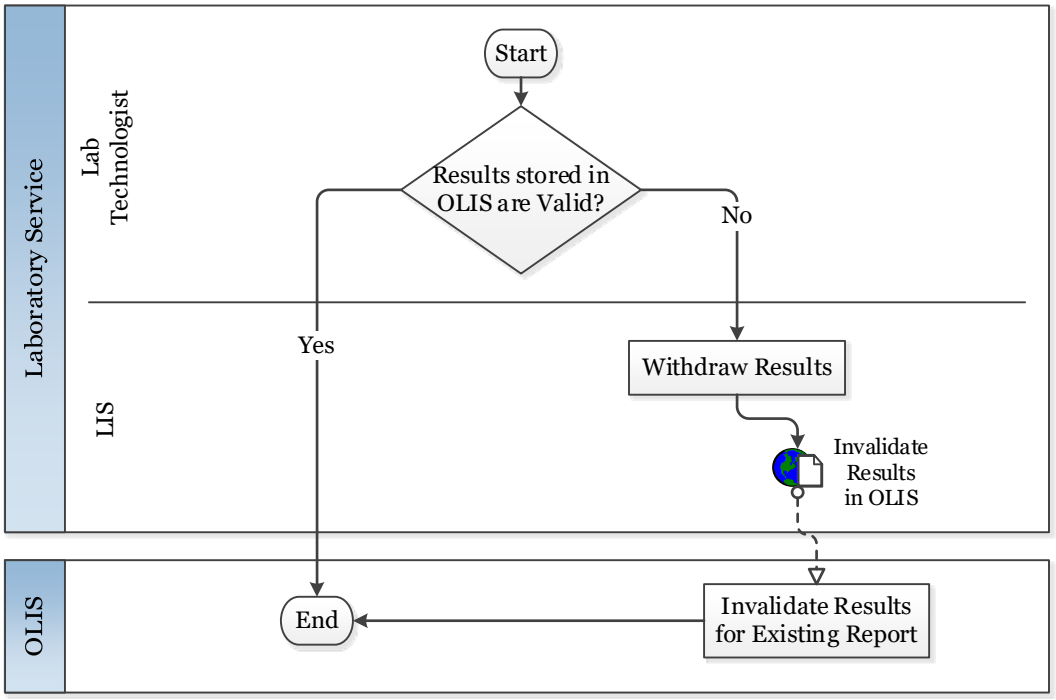
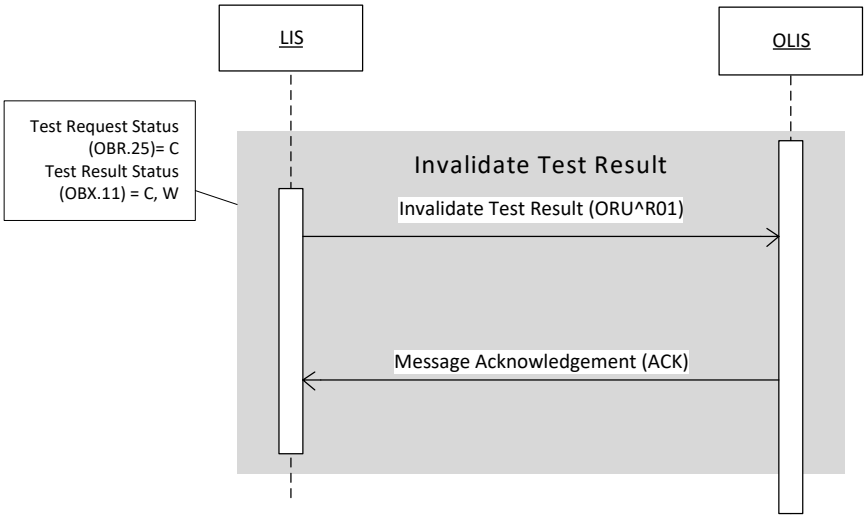


Table 9 Invalidate Results; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Invalidate Results in OLIS	9.3.3.2 Amend Test Result on page 91	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138

Figure 9 Invalidate Results; Interaction Diagram



8.1.6 Report Test Not Performed

Figure 10 Report Test Not Performed; Business Process Flow Diagram

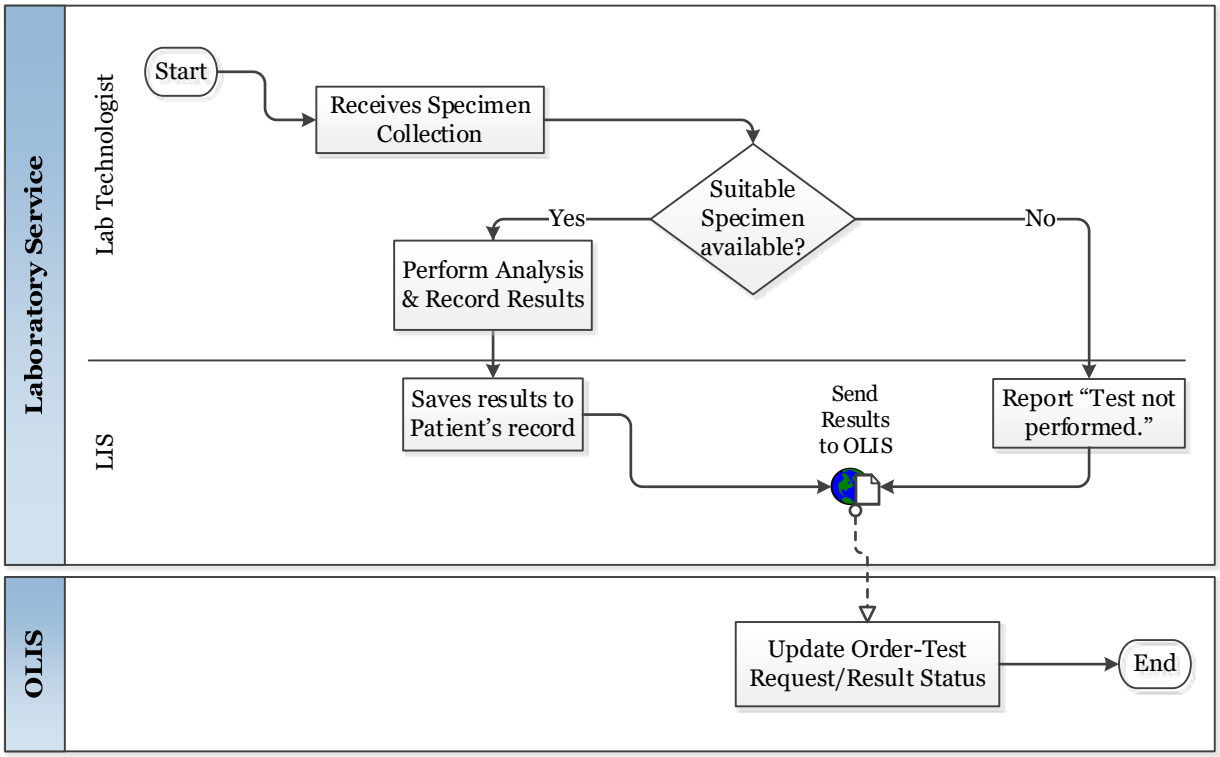
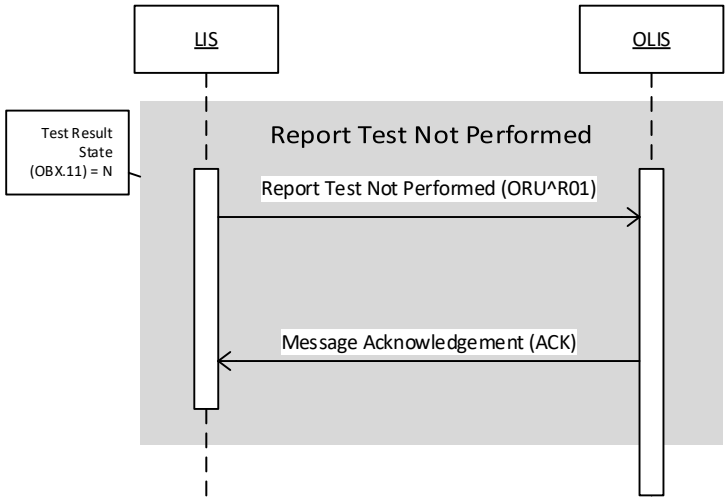


Table 10 Report Test Not Performed; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Send Results to OLIS	9.3.3.1 Report Test Result on page 88	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138

Figure 11 Report Test Not Performed; Interaction Diagram



8.1.7 Amend Test Result

Figure 12 Amend Test Result; Business Process Flow Diagram

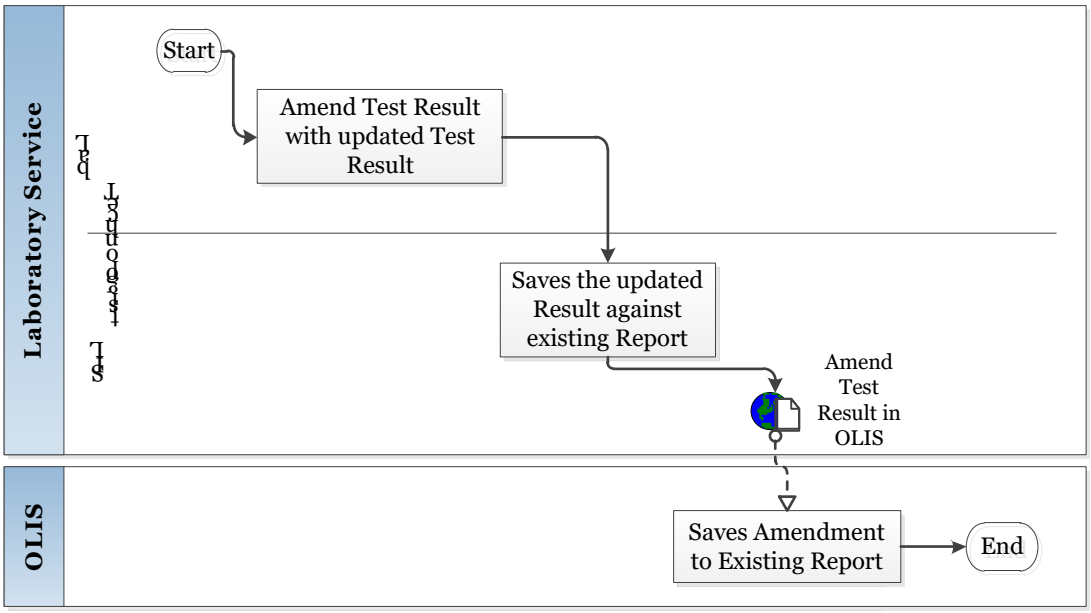
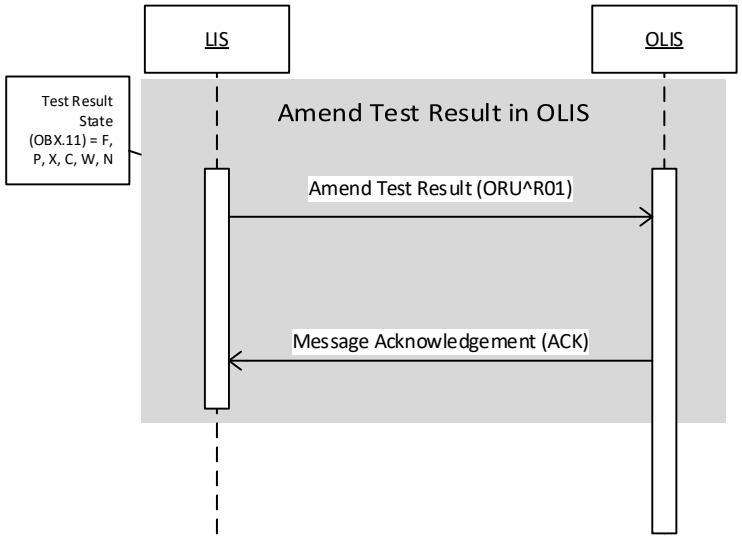


Table 11 Amend Test Result; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Amend Test Result in OLIS	9.3.3.2 Amend Test Result on page 91	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138

Figure 13 Amend Test Result; Interaction Diagram



8.1.8 Referred Test Request

Figure 14 Referred Test Request; Business Process Flow Diagram

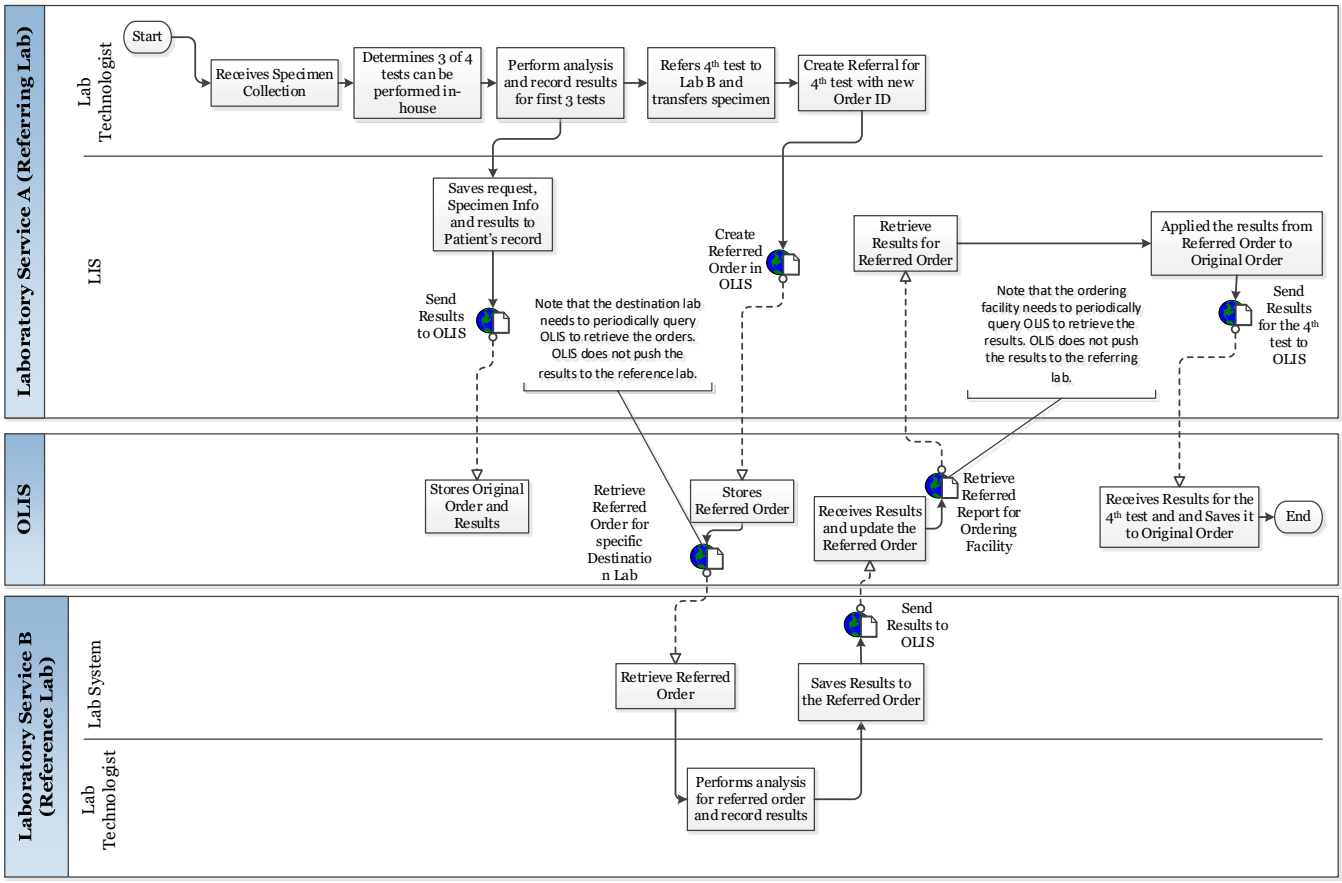
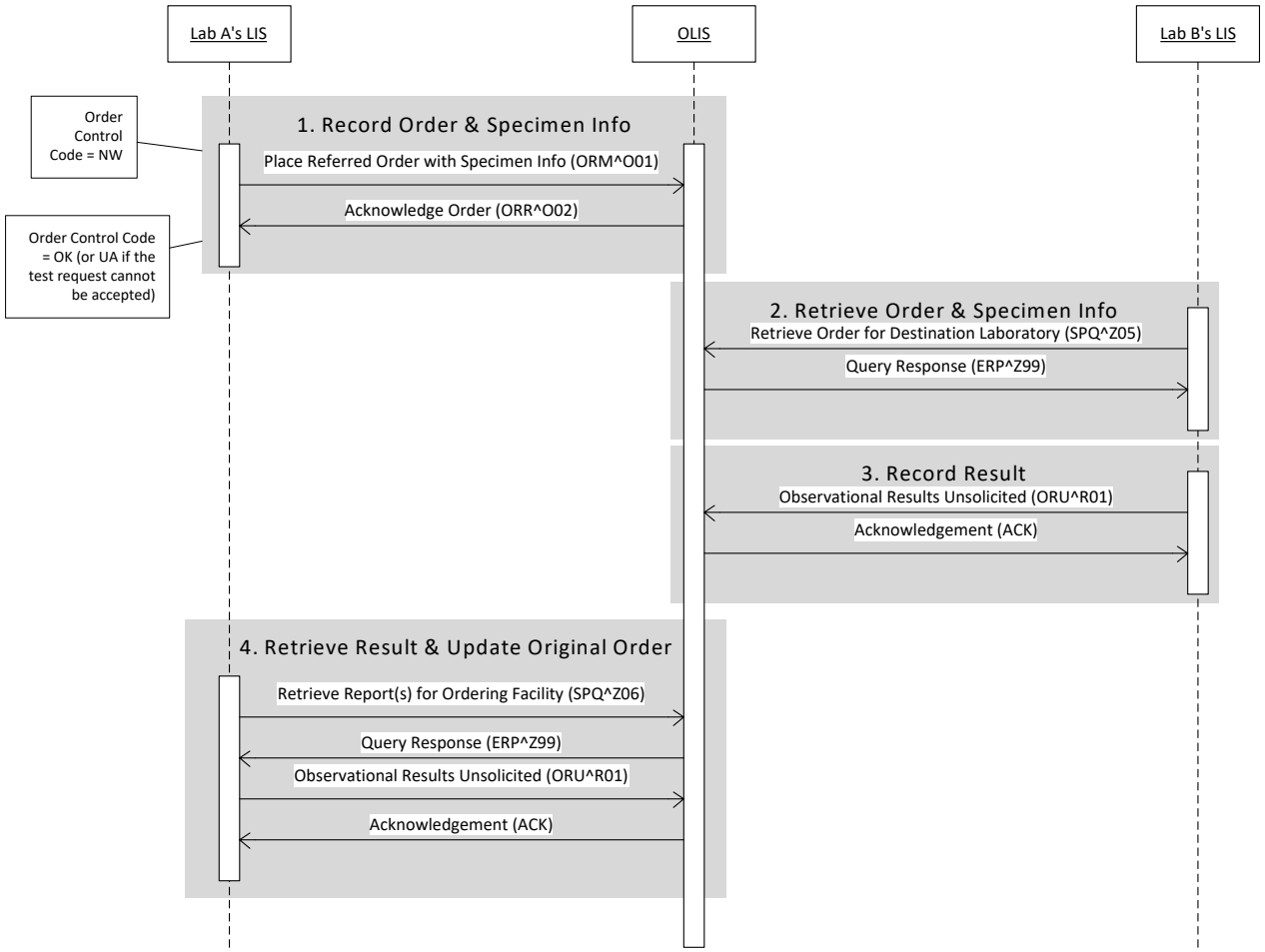


Table 12 Referred Test Request; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Send Results to OLIS	9.3.3.1 Report Test Result on page 88	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138
2	Create Referred Order in OLIS	9.5.4.1 Create Referred-out Order on page 119	10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile on page 134	10.2.2.4 Response Message – ORR^O02 Message-level Profile on page 135
3	Retrieve Referred Order for specific Destination Laboratory	9.4.4.5 Z05 – Retrieve Order/Report for Destination Lab on page 108	10.2.4.4 Initiating Message-level Profile for All Queries – SPQ^Znn Message-level Profile on page 146	10.2.4.5 Response Message for Queries Z01-Z11 – ERP^Znn Message-level Profile on page 146

4	Retrieve Referred Report for Ordering Facility	9.4.4.6 Z06 – Retrieve Order/Report for Ordering Facility on page 110	10.2.4.4 Initiating Message-level Profile for All Queries – SPQ^Znn Message-level Profile on page 146	10.2.4.5 Response Message for Queries Z01-Z11 – ERP^Znn Message-level Profile on page 146
5	Send Results for the 4th Test to OLIS	9.3.3.1 Report Test Result on page 88	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138

Figure 15 Referred Test Request; Interaction Diagram



8.1.9 Redirected Lab Test Request

Figure 16 Redirected Lab Test Request; Business Process Flow Diagram

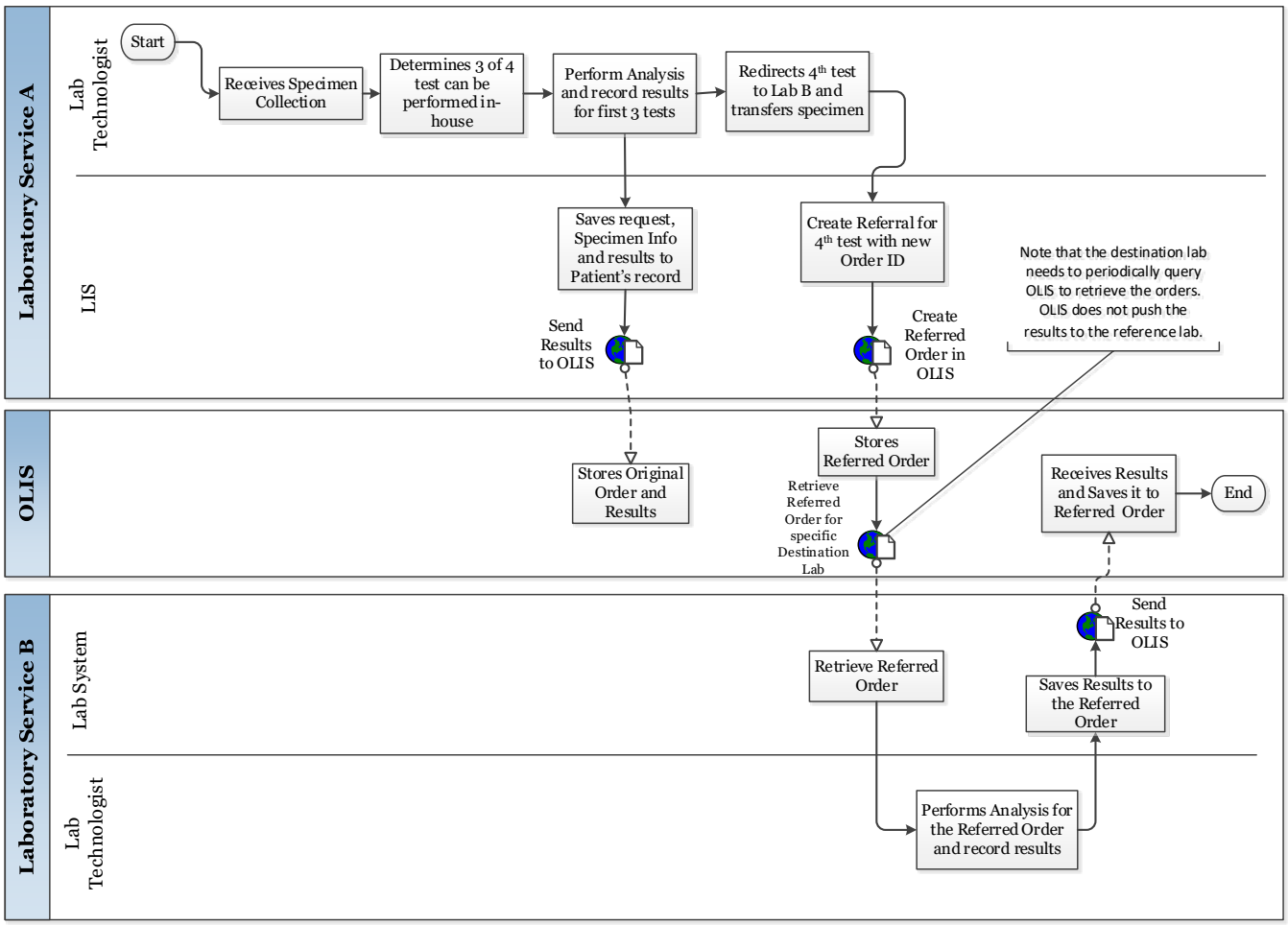
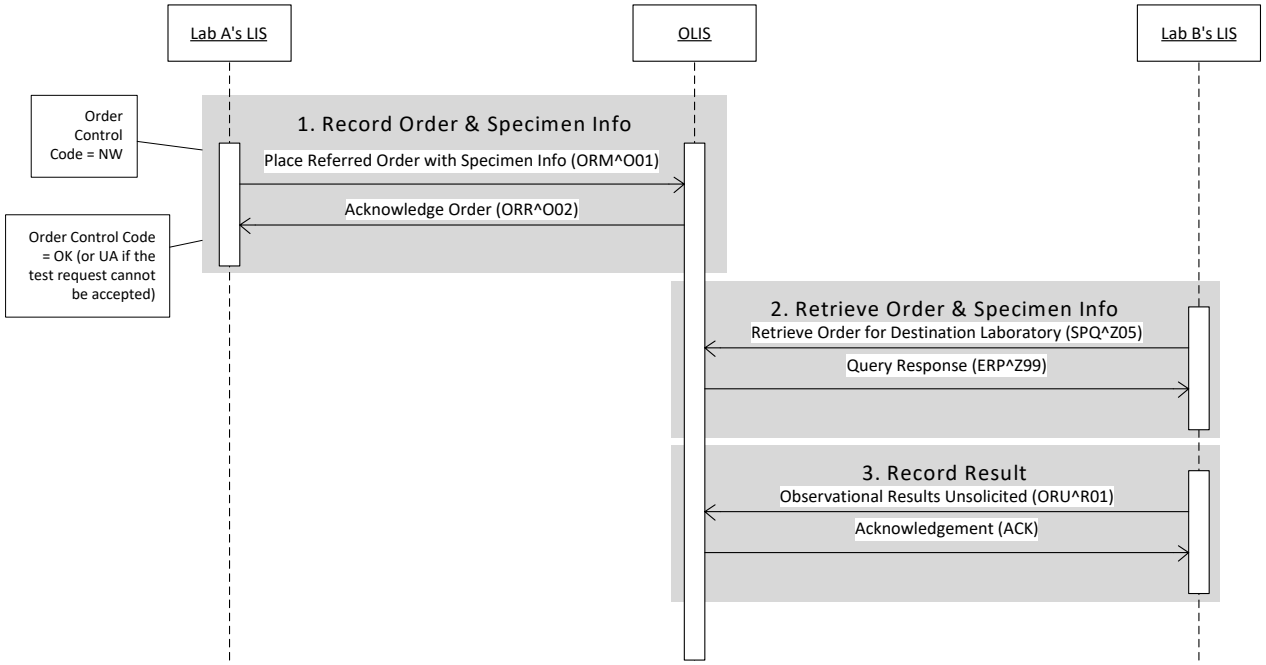


Table 13 Redirected Lab Test Request; Interactions and Corresponding Use Cases

#	Interaction Description	Use Case ID – Name	HL7 Message Request	HL7 Message Response
1	Send Results to OLIS	9.3.3.1 Report Test Result on page 88	10.2.3.2 Initiating Message – ORU^R01 Message-level Profile on page 137	10.2.3.3 Response Message – ACK Message-level Profile on page 138
2	Create Referred Order in OLIS	9.5.4.1 Create Referred-out Order on page 119	10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile on page 134	10.2.2.4 Response Message – ORR^O02 Message-level Profile on page 135
3	Retrieve Referred Order for specific Destination Lab	9.4.4.5 Z05 – Retrieve Order/Report for Destination Lab on page	10.2.4.4 Initiating Message-level Profile for All Queries – SPQ^Znn	10.2.4.5 Response Message for Queries Z01-Z11 – ERP^Znn Message-level

		108	Message-level Profile on page 146	Profile on page 146

Figure 17 Redirect Lab Test Request; Interaction Diagram



8.2 Entity Model

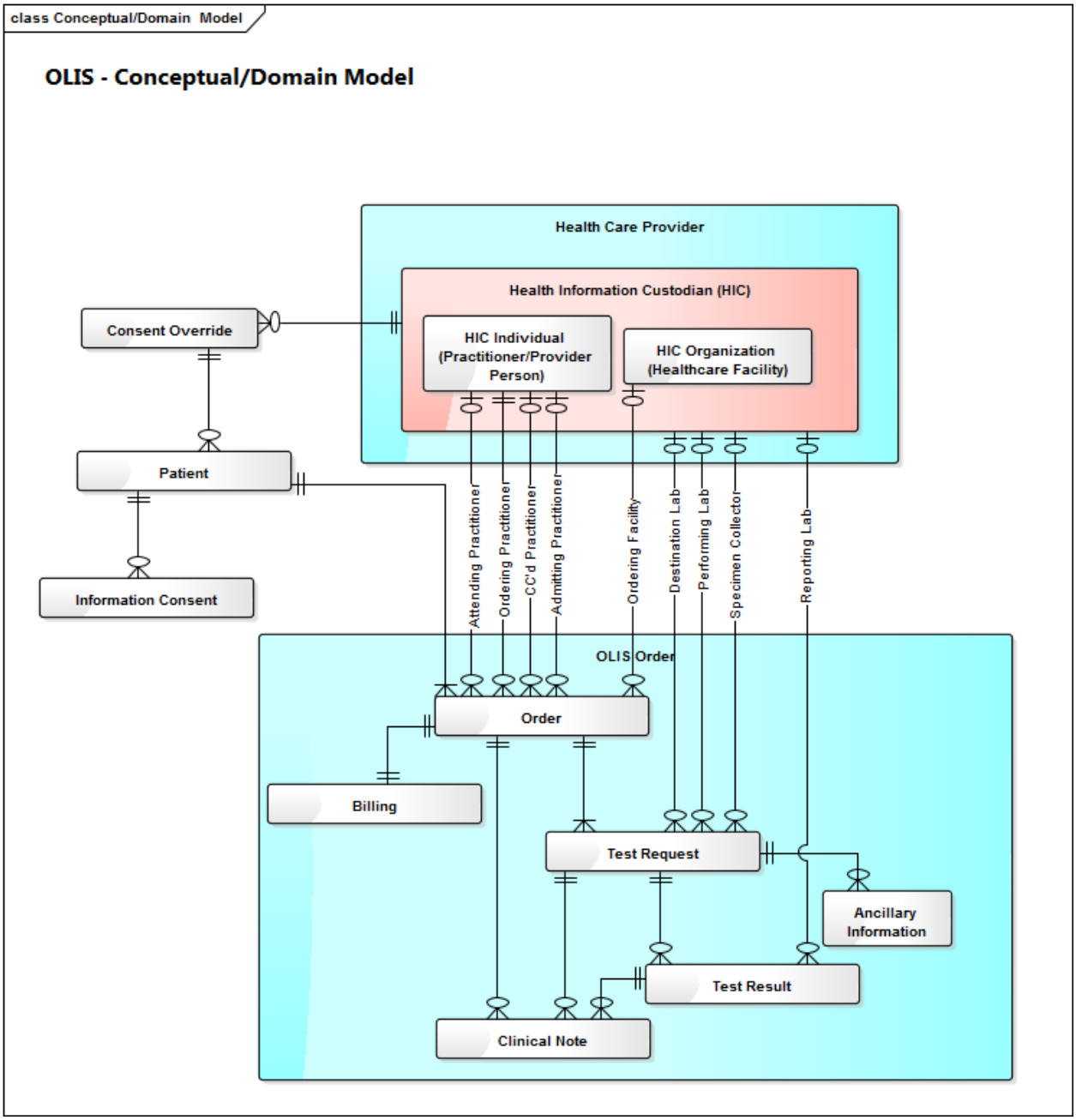


Figure 18 OLIS Entity Model

8.2.1 Patients

Patients are identified by the following identifiers:

8.2.1.1 Ontario Health Number

The Ontario Health Number is the primary patient identifier in OLIS. Some Ontario Health Numbers have a one or two-character suffix known as **version code** that is assigned whenever a replacement Health Card is issued. Although the version code assigned to a Health Number may change over time, the person identified by the Health Number never changes.

OLIS will accept orders and reports submitted with a **pre-assigned health number**. Pre-Assigned Health Numbers are Ontario Health Numbers issued to hospitals and midwives to allow newborns to be assigned an Ontario Health Number without delay. When the first order or report is submitted to OLIS for a pre-assigned health number, OLIS will perform reasonableness checks on the name, sex, and date of birth.

8.2.1.2 Alternative Patient Identifiers

For patients who do not have an Ontario Health Number, OLIS supports a number of alternative patient identifier types:

- **Medical Record Number -** This is the preferred patient identifier in the absence of an Ontario Health Number for Ontario residents or in the absence of another Provincial Health Number for non-Ontario residents. The Health Facility Medical Record Number (MRN) is the patient identifier as assigned to the patient by the Facilities Admissions System.
- **Other Provincial Health Number** – This is the preferred patient identifier in the absence of an Ontario Health Number for non-Ontario residents.
- **Facility-assigned Identifiers** – Identifiers assigned by Specimen Collection Centre or Laboratory.
- **Non-nominal Patient Identifier**

8.2.1.3 Patient Validation

When the patient is identified by an Ontario Health Number, OLIS validates the name, sex, and date of birth of the patient against registration information provided by the patient to the Ministry of Health and Long-Term Care. For Order/Report messages (ORU/ORM) sent to OLIS, patient first name and second name and last name is not mandatory. OLIS will not raise any error if the patient name does not match Ministry of Health and Long-Term Care registration information. However, a warning message will be raised.

For Alternative Patient Identifiers and pre-assigned health numbers, OLIS validates the name, sex and date of birth against the most recent information existing in OLIS Clinical Repository. To override this information, external system should set the Patient Identification Verified flag and the existing information in OLIS will be replaced by the submitted information.

Validation of patient names is case-insensitive.

Please also refer to:

10.2.5.2 PID – Patient Identification Segment on page 163
10.2.5.3.2.3 ZPD.2 Patient Identification Verified Flag on page 167

8.2.2 Health Information Custodian-Individuals (Practitioners)

OLIS recognizes five types of practitioners that are authorized to order medical laboratory tests – Physicians, Dentists, Midwives, Nurse Practitioners, Naturopaths and Pharmacists. For each type of practitioner, OLIS recognizes the practitioner by the licence number assigned to the practitioner by the applicable health profession regulatory college in Ontario. These colleges assign registration number identifiers to their members that do not change over

time and that do not change with changes to licence class or licence status. OLIS also allows out-of-province practitioners to be identified.

8.2.2.1 Physicians

Physicians are assigned registration numbers by the College of Physicians and Surgeons of Ontario (CPSO). The CPSO offers a search facility on its website (http://www.cpso.on.ca) that can be used to retrieve a physician's registration number and name.

8.2.2.2 Dentists

Dentists are assigned registration numbers by the Royal College of Dental Surgeons of Ontario (RCDSO). The RCDSO offers a search facility on its website (http://www.rcdso.org) that can be used to retrieve a dentist's registration number and name.

8.2.2.3 Nurse Practitioners

Nurse practitioners, also known as Registered Nurses in the Extended Class, are assigned registration numbers by the College of Nurses of Ontario (CNO). The College of Nurses of Ontario offers a search facility on its website (http://www.cno.org) that can be used to retrieve a nurse practitioner's registration number and name.

8.2.2.4 Midwives

Midwives are assigned registration numbers by the College of Midwives of Ontario (CMO). The CMO offers a search facility on its website (http://www.cmo.on.ca) that can be used to retrieve a midwife's registration number and name.

8.2.2.5 Naturopath

Naturopaths are assigned registration numbers by the College of Naturopaths of Ontario (CONO). The college offers a search facility on its website (http://www.collegeofnaturopaths.on.ca/) that can be used to retrieve a naturopath's registration number and name.

8.2.2.6 Pharmacist

Pharmacists are assigned registration numbers by the Ontario College of Pharmacists (OCP). The college offers a search facility on its website (https://www.ocpinfo.com/about/contact/) that can be used to retrieve a pharmacist's registration number and name.

8.2.2.7 Out-of-Province Practitioners

Out-of-province practitioners must be identified in the same manner as in-province practitioners. Indicate the province or state that licences the practitioner as per the Manitoba physician example in the Practitioner Identifier Usage Examples table.

Please also refer to:

10.2.5.5.2.5 PV1.7 Attending Practitioner on page 171
10.2.5.5.2.6 PV1.17 Admitting Practitioner on page 171
10.2.5.8.2.12 OBR.16 Ordering Practitioner on page 180
10.2.5.8.2.21 OBR.28 Result Copies To on page 184
10.2.4.8.14 Practitioner Parameters (@OBR.16, @OBR.28, @PV1.7, and @PV1.17) on page 155
10.2.4.8.7 Requesting HIC Parameter (@ZRP.1) on page 153

8.2.3 Health Information Custodian-Organisation (Healthcare Facilities)

All the healthcare facilities are identified in OLIS by an HL7 object identifier (OID). Following are the different types of healthcare facilities which are supported in OLIS:

8.2.3.1 Specimen Collection Centres

Specimen collection centres in Ontario are licensed by the Laboratories and Diagnostic Services Unit. The Laboratories and Diagnostic Services Unit assigns a licence number to each licensed specimen collection centre site in Ontario. A list of Ontario specimen collection centres is available for download from the OLIS website within http://www.eHealthOntario.ca.

OLIS utilizes the OID "`2.16.840.1.113883.3.59.2`" to identify the Specimen Collection Centre class of facilities. This OID is concatenated with a colon character and the SCC licence number to identify an individual SCC (e.g., "`2.16.840.1.113883.3.59.2:3999`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages.

Specimen Collection Centres may appear in the ZBR.2 Test Request Placer field, ZBR.3 Specimen Collector field, and ZBR.8 Destination Laboratory.
They may also be identified as the assigning authority for a placer group number (ORC.4), placer order number (OBR.2), filler order number (OBR.3), or alternative patient identifier (PID.3.4).

8.2.3.2 Laboratories

Medical laboratories in Ontario are licensed by the Laboratories and Diagnostic Services Unit. The Laboratories and Diagnostic Services Unit assigns a licence number to each licensed laboratory site in Ontario. A list of Ontario laboratories is available for download from the OLIS website within http://www.eHealthOntario.ca.

OLIS utilizes the OID "`2.16.840.1.113883.3.59.1`" to identify the Laboratory class of facilities. This OID is concatenated with a colon character and the laboratory licence number to identify an individual laboratory (e.g., "`2.16.840.1.113883.3.59.1:4999`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages.

Laboratories may appear in the ORC.21 Ordering Facility field, ZBR.2 Test Request Placer field, ZBR.3 Specimen Collector field, ZBR.4 Reporting Laboratory field, the ZBR.6 Performing Laboratory field, and the ZBR.8 Destination Laboratory field.
They may also be identified as the assigning authority for a placer group number (ORC.4), placer order number (OBR.2), filler order number (OBR.3), or alternative patient identifier (PID.3.4).

8.2.3.3 Out-of-Province Laboratories

OLIS also allows out-of-province Laboratories to be identified.

An out-of-province performing laboratory may be identified in ZBR.6 *Performing Laboratory*.

8.2.3.4 Hospitals

A list of Ontario hospitals and identifiers is available for download from the OLIS website within http://www.eHealthOntario.ca.

OLIS utilizes the OID "`2.16.840.1.113883.3.59.3`" to identify the Hospital class of facilities. This OID is concatenated with a colon character and the hospital facility number to identify an individual hospital (e.g., "`2.16.840.1.113883.3.59.3:0999`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages.

Hospitals may appear in the ORC.21 Ordering Facility field and ZBR.2 Test Request Placer field. They may also be identified as the assigning authority for a placer group number (ORC.4), placer order number (OBR.2), filler order number (OBR.3), or alternative patient identifier (PID.3.4).

8.2.3.5 Electronic Medical Record System Instances

OLIS utilizes the OID "`2.16.840.1.113883.3.239.14`" to identify instances of an Electronic Medical Record System. This OID is concatenated with a colon character and the EMR instance identifier assigned by Ontario Health (e.g., "`2.16.840.1.113883.3.239.14:AZ123`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages.

Please also refer to:

10.2.5.1.2.4 MSH.3 Sending Application on page 161
10.2.5.2.2.3 PID.3 Patient Identifier List on page 164
10.2.5.4.3.1.2 ZNT.1 Source Organizationon page 169
10.2.5.8.2.3 OBR.2 Placer Order Number on page 178
10.2.5.8.2.4 OBR.3 Filler Order Number on page 178
10.2.5.9.2.3 ZBR.2 Test Request Placer on page 187
10.2.5.9.2.4 ZBR.3 Specimen Collector on page 188
10.2.5.9.2.5 ZBR.4 Reporting Laboratory on page 188
10.2.5.9.2.7 ZBR.6 Performing Laboratory on page 189
10.2.5.9.2.9 ZBR.8 Destination Laboratory on page 189
10.2.5.7.1.1 ORC.4 Placer Group Number on page 173
10.2.5.7.1.3 ORC.21 Ordering Facility on page 174

8.2.3.6 Pharmacies

Pharmacies in Ontario are licensed by the Ontario College of Pharmacists (OCP). The college assigns a licence number to each licensed pharmacy in Ontario.
OLIS utilizes the OID "`2.16.840.1.113883.3.239.13.76`" to identify a pharmacy in Ontario. This OID is concatenated with a colon character and the pharmacy licence number to identify an individual pharmacy (e.g., "`2.16.840.1.113883.3.239.13.76:10012`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages

8.2.3.7 Long Term Care and Retirement Homes

OLIS utilizes the OID "`2.16.840.1.113883.3.239.3.59.10`" to identify a long term care and retirement homes in Ontario. This OID is concatenated with a unique identifier issued by the Ministry to identify this facility (e.g., "`2.16.840.1.113883.3.239.3.59.10: CB02`"). These identifiers are represented as the "`ISO`" universal ID type in OLIS messages

8.2.3.8 Universal Provider Identifier (UPI)

OLIS utilizes the OID "`2.16.840.1.113883.3.239.9`" to identify a health care facility (such as independent healthcare facility, clinics) in Ontario. This OID is concatenated with a unique identifier issued by Provincial Provider Registry (e.g., "`2.16.840.1.113883.3.239.9: 686104052245`"). The identifier for each organization will vary between the CST and Production environments. These identifiers are represented as the "`ISO`" universal ID type in OLIS messages

8.2.4 Orders/Reports

In OLIS, a laboratory order and laboratory report differ only in whether the results have been reported for the ordered tests, so the terms order and report are often used interchangeably.

An order identifies a patient, an ordering practitioner, a list of CC'd practitioners, and one or more tests ordered by the practitioner. The tests ordered by the practitioner are referred to as test requests. A report is an Order with Test Results associated with one or more Test Requests reported by an authorized Healthcare Facility.

Each order/report is identified by a globally unique identifier, known as the order ID, report ID, or Placer Group Number in HL7 terminology. An order or report message contains a single order or report ordered by a single practitioner. The Placer Group Number is conceptually equivalent to a requisition number assigned to all test requests in an order by an organization. The organization must ensure that this number is unique within its domain for all time.

Some LIS systems recycle order/accession numbers over time, and a variety of approaches may be taken to make the identifier unique. , however the identifier sent to OLIS must remain unique.

8.2.4.1 Order States

Order states are defined by Order Control codes, which determine whether an order is new, amended or cancelled. The following table illustrates the order control codes that may be used when creating or amending an Order.

Table 14 Order States

Order Message Variant	Initiating massage	Response message (success)	Response Message (Failure)
New Order	NW	OK*	UA
Amend Order – Add Test Request to Order	RO	RQ	UM
Amend Order – Update Test Request	XO	XR	UX
Amend Order – Cancel Test Request	CA	CR	UC

* *Note that the OK response only indicates that an individual test request in order message is free of errors. For example, a problem with the patient information could cause a message to be rejected even if all order control codes in the order response message indicate success.*

Please also refer to:

10.2.5.6.2.2 ORC.1 Order Control on page 173

10.2.5.12.2.2 MSA.1 Acknowledgment Code on page 193

8.2.4.2 Test Requests

A Test Request is an individual orderable item in the OLIS Test Request Nomenclature. The OLIS Test Request Nomenclature is available for download from the OLIS website within http://www.eHealthOntario.ca.

8.2.4.2.1 Test Request States

Each row in the following table identifies a legal state in which a test request may exist:

Table 15 Test Request States

Test Request State	Description	Notes
O	Order received; specimen not yet received.	The test request is recorded in OLIS but a specimen has not yet been collected.
I	No results available;	Specimen information has been recorded on the test request.

Test Request State	Description	Notes
	specimen received, procedure incomplete.	
P	Preliminary: A verified early result is available, final results not yet obtained.	One or more preliminary test results have been recorded on the test request.
A	Some, but not all, results available	Only some of the full complement of test results that the reporting laboratory ultimately intends to post is recorded in OLIS.
F	Final results; results stored and verified. Can only be changed with a corrected result.	Final test results have been recorded on the test request.
C	Correction to results	One or more test results have been amended.
X	No results available; Order cancelled.	The test request has been cancelled.

Whenever an external system amends a test request, or adds or amends test result information, OLIS will update an **OLIS maintained timestamp**, so that the ordering practitioner may then receive this update when the ordering practitioner executes the *Retrieve Laboratory Information Updates for Practitioner* use case.

Please also refer to:

10.2.5.8.2.17 OBR.22 Results Rpt/Status Chng – Date/Time on page 182

8.2.4.2.2Test Request State Chart

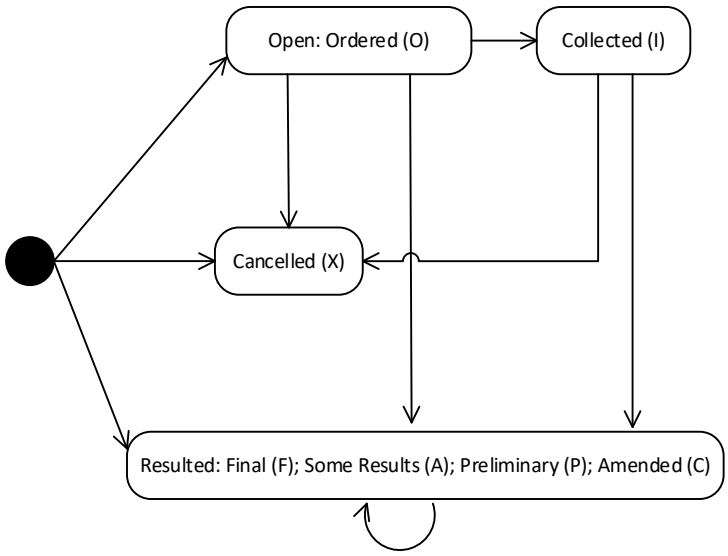


Figure 19 Test Request State Chart

8.2.4.3 Test Results

Test Results are uniquely described in the OLIS Test Result Nomenclature. The OLIS Test Result Nomenclature is available for download from the OLIS website within http://www.eHealthOntario.ca.

8.2.4.3.1 Test Result States

A Test Request can have one or more results associated to it, if it is in one of the test request states of (A, P, F, or C) in order for it to be associated with one or more test results. Once a test request has been placed into one of these four resulted states, it may only be changed to another one of the four resulted states. The legal states in which an individual test result may exist are identified in the following table:

Table 16 Test Result States

Test Result State	Description
P	Preliminary Result
F	Final Result
C	Amended Result
X	Could Not Obtain Result
W	Result Not Valid for Patient
Z	Ancillary Order Information*
N	Test Not Performed

Zero, one, or many test results may be associated with a test request. A state chart for test results is not provided in this specification, as OLIS does not enforce any state-change rules for test results. The only state change that is prohibited is to and from the "Z" status.

The "Test Not Performed" state allows a laboratory to indicate that a test was not performed rather than updating the test request state to "Cancelled", as the "Cancelled" test request state is intended to indicate that the Test Request Informant system that created the test request was the one who cancelled it. For example, if both a quantitative and qualitative tests were ordered for the same substance, the lab might perform the qualitative test and submit the quantitative test result as "not performed" if the result of the qualitative test is negative.

OLIS has introduced the "Z" test result status to support ancillary order information such as patient height and weight that may accompany a test request when an order is placed in OLIS. The "Z" status allows external systems to distinguish ancillary order information submitted by an order-placing system from test results reported by a laboratory when laboratory information is retrieved from OLIS.

The Z status is necessary because the HL7 Standard specifies that this type of information must appear in the same OBX segment type that contains test results and the OBX segments appear in the same position in the segment hierarchy of the order (ORM) and result (ORU) messages.

Please also refer to:

10.2.5.14.3.1.10 OBX.11 Observation Result Status on page 199

8.2.4.3.2 Specialized Laboratory Requisitions

Specialized laboratory requisitions have been created for certain laboratory tests to collect specific clinical information required to ensure that the correct test is performed and for proper interpretation of test results.

Many Public Health requisitions collect clinical information required by the performing Laboratory to perform the ordered test. Some examples of specialized laboratory requisitions are:

- Public Health Lab Requisition
- Public Health Reference Bacteriology Requisition
- Maternal Screening Requisition
- Prenatal Screening Requisition

- Newborn Screening Requisition
- HIV Serology Requisition
- HIV Viral Load Requisition

The clinical information captured by these requisitions can be transmitted in an HL7 message segment (Observation) in the Order message.

Where a suitable HL7 field or segment exists, the clinical information captured in these requisitions, will be communicated in the HL7 field (e.g., diagnosis segment). The observations are codified using LOINC.

8.2.4.3.3 Microorganisms

The OLIS Microorganism Nomenclature describes names and unique identifier codes for medically significant bacteria, fungi, and viruses. Microorganism information must be coded according to this nomenclature. The OLIS Microorganism Nomenclature is available for download from the OLIS website within http://www.eHealthOntario.ca.

Please also refer to:

10.2.5.14.3.1.6 OBX.5 Observation Value on page 197

10.3.2.3.6 Laboratory Records Microbiology and Sensitivity Test Results on page 225

9 Use Case Model

9.1 Overview

This section introduces OLIS use case model which includes four modules:

- **Orders:** This module includes all the use cases related to transmitting orders to OLIS.
- **Results:** This module includes all the use cases regarding transmitting results to OLIS.
- **Queries:** This module includes all the use cases regarding retrieving laboratory information from OLIS.
- **Referrals:** This module includes all the use case regarding laboratory test referrals and redirections via OLIS.

Please contact Ontario Health prior to implementing any of the modules or use cases thereof. Any plans of implementing net new use cases or changes to existing implementations must be provided to Ontario Health for review. The review will include any privacy, security, legal reviews and signoffs including mandatory conformance testing prior to implementation.

9.1.1 Use Case Actors

9.1.1.1 Test Request Informant

Practitioners and laboratory services provider staff act as test request informants when they create and amend orders, with or without specimen information, in their external systems and transmit them to OLIS.

9.1.1.2 Test Result Informant

Practitioners and Laboratory services provider staff act as test result informants when they record and amend test results in their external systems and transmit them to OLIS. A physician may also act as a test result informant when reporting the results of physician office tests to OLIS.

9.1.1.3 Laboratory Information Consumer

Practitioners and laboratory services provider staff act as laboratory information consumers when they use their external systems to retrieve laboratory information from OLIS.

9.1.1.4 Order Result Tracker

OLIS acts as the Order Result Tracker in each use case and interaction.

9.2 Orders

This module includes all the use cases in which an external system sends test request orders and order amendment, including specimen information, to OLIS.

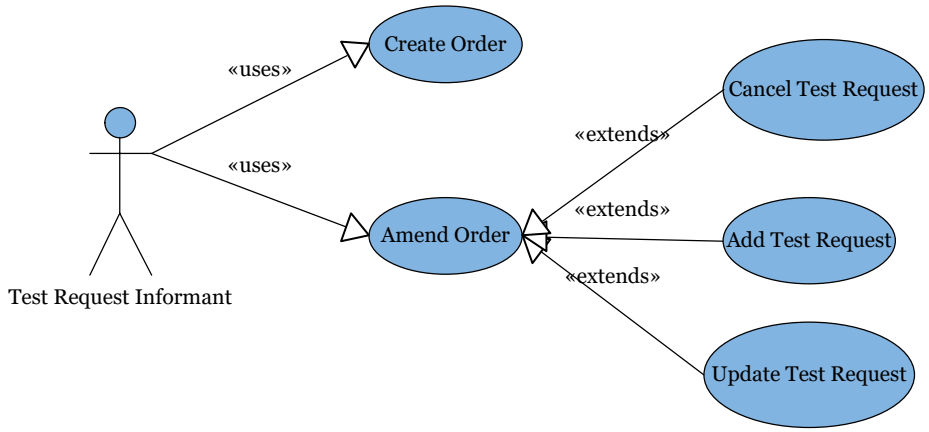


Figure 20 Orders Use Case Model Diagram

9.2.1 Use Cases Scope

9.2.1.1 In Scope

- Transmit new order information to OLIS (Create Order)
- Transmit cancel order information to OLIS (Cancel Order)
- Transmit add test request order information to OLIS (Add test request)
- Transmit updated test request order information to OLIS (Update test request information)

9.2.1.2 Out of Scope

- Create Referred Order in OLIS

9.2.2 Orders Use Case Actors and Roles

#	Use Case	Stakeholders	System	Role	Description
101	Create Order	Hospital with Order Management System; Hospital Laboratory; Community Laboratory; Public Health Laboratory; Practitioner; Private Clinic	HIS; LIS; EMR	Test Request Informant	Create orders, with or without specimen information, in their external systems and transmit them to OLIS.
102	Amend Order	Hospital with Order Management System; Hospital Laboratory; Community Laboratory; Public Health Laboratory; Practitioner	HIS; LIS; EMR	Test Request Informant	Amend orders, with or without specimen information, in their external systems and transmit them to OLIS.

Table 17 Orders Use Case Actors and Roles

9.2.3 Use Cases

9.2.3.1 Create Order

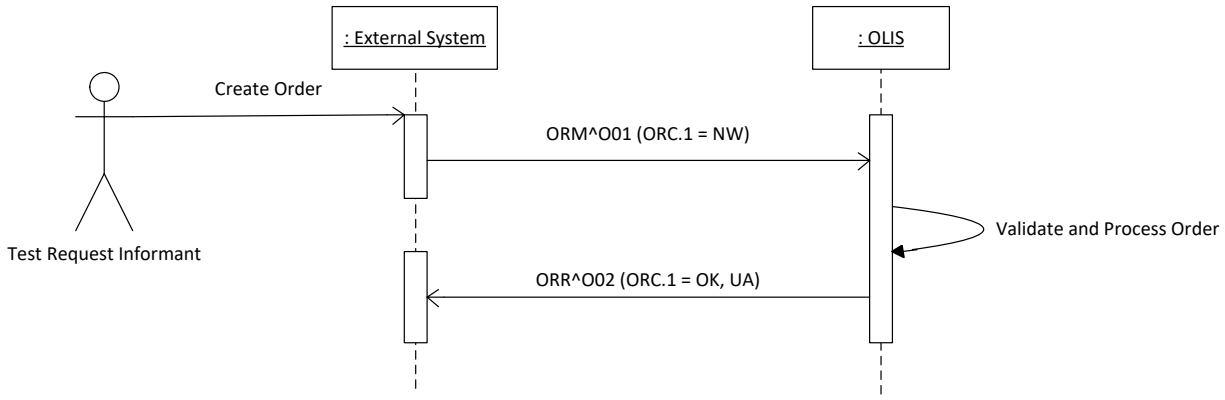


Figure 21 Create Order Interaction Diagram

Use Case:	Create Order
Id:	UC- <101>
Description	This use case allows an external system acting on behalf of a test request informant to create a new order in OLIS. Specimen information may be provided on any of the test requests in the order, but test results may not be submitted. Refer to the Report Test Results use case.
Level:	User Level
Primary Actor	External system (e.g. Practitioner's EMR)
Supporting Actors	
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, OLIS, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory order has been created in an external system, and the order needs to be communicated to OLIS in order to be fulfilled by a laboratory. For example, the order could originate from a practitioner's EMR; it could originate from a lab as a referral order; it could originate from the HIS system of a hospital that has a laboratory services contract with an external laboratory.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the new order. 2. The external system sets the Order Control Code in the HL7 message to "NW". 3. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 4. OLIS receives and parses the HL7 message. 5. OLIS validates the source, content, and data integrity of the HL7 message. 6. If OLIS does not detect any error conditions, it creates the order in the OLIS clinical repository. 7. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to the content of the initiating message. 8. OLIS transmits the HL7 message to the external system. 9. The external system receives and parses the HL7 acknowledgment message. 10. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, the external system restarts this use case to send a corrected order message to OLIS. 11. This use case ends.
Post	Success end condition:

Conditions	The new order is created in the OLIS clinical repository. Failure end condition: The new order is not created in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow	
Variations	
Frequency:	As required

9.2.3.1.1 Business Rules and Considerations for Implementation

Table 18 Create Order Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
1011	To create an Order the Order Control Code should be "NW".	ORM	ORC.1
1012	If the Order Control code is "NW", the Placer Group Number must not have been previously assigned as the Placer Group Number on any existing order in OLIS.	ORM	ORC.4
1013	The Placer Group Number must be identical for all the Test requests in one Order.	ORM	ORC.4
1014	If the Order Control Code is "NW" the Placer Order Number (Test request unique identifier) must not have been previously assigned as the Placer Order Number on an existing test request in OLIS.	ORM	OBR.2
1015	The submitted Practitioner last name must match the currently valid name in provider registry used by OLIS when an order is created in OLIS. Otherwise OLIS will reject the message.	ORM	ORC.21 ORC.24 OBR.16 OBR.17 OBR.28
1016	The *Sending Application* field must match the *Test request Placer* field.	ORM	MSH.3 ZBR.2
1017	OLIS supports the communication of human- and machine-readable specimen identifiers of the sending lab as well as the human-readable specimen identifier of the reference laboratory. Both types are supported because some LIS implementations use both a human-readable bar code and a shorter machine-readable bar code that is compatible with analyzers and specimen conveyor systems.	ORM	OBR.18 OBR.19 OBR.20
1018	Diagnosis information (e.g., diabetes mellitus status of the patient for maternal screening) is communicated to the laboratory using the HL7 diagnosis (DG1) segment.	ORM	DG1
1019	The Ordering Facility, Ordering Practitioner Address, Ordering Practitioner, Order Callback Phone Number, and Result Copies To (CC'd List) fields must be the same on all test requests in an order.	ORM	ORC.21 ORC.24 OBR.16 OBR.17 OBR.28
10116	The time before a lab order or result is available in OLIS for querying is 5 minutes from the time the acknowledgement is received from OLIS.	ORM	
Ancillary Order Information			
10110	An Order can include ancillary order information for each test request. Test result nomenclature codes are not supported here.	ORM	OBX-ZBX
10111	The Observation segment (OBX) is present in the order message (ORM) to allow the test-request placer to provide LOINC-encoded ancillary order information to the laboratory that may be required for the laboratory to provide an accurate result or interpretation.	ORM	OBX
10112	To report ancillary information the status of the result should be in "Z" state.	ORM	OBX.11
10113	To report ancillary information, the *Name of Coding System* value should be set to "LN".	ORM	OBX.3.3
10114	Ancillary Order Information may also be communicated as free-form text in	ORM	NTE

	an order-level or test-request-level note.		
Notes			
10115	OLIS preserves the notes received for an order and its test requests from each message-submitting organization to allow multiple organizations to correctly communicate with each other about a single order through OLIS.	ORM	NTE

Please also refer to:

10.2.2 Order Message Profile on page 133
10.3.2.1 UC-<101> Create Order Examples on page 211

9.2.3.2 Amend Order

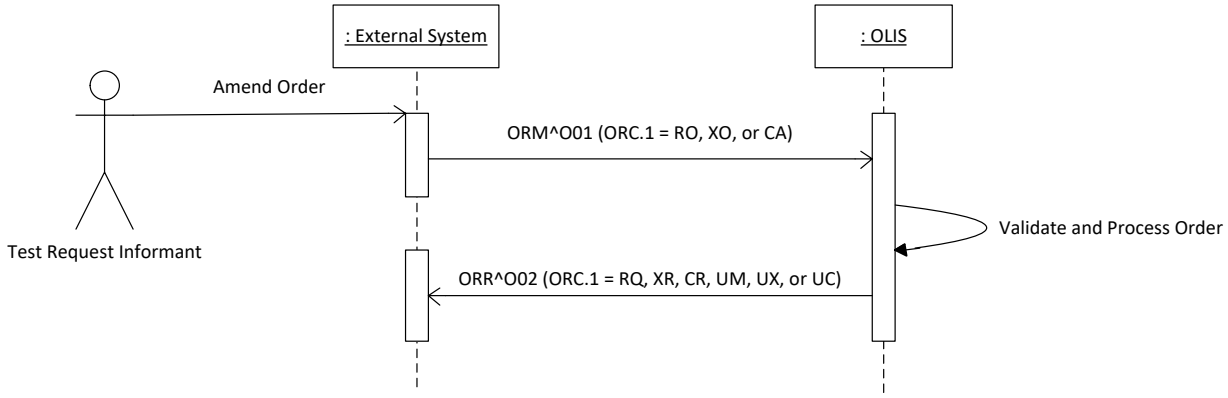


Figure 22 Amend Order Interaction Diagram

Use Case:	Amend Order
Id:	UC- <102>
Description	This use case allows an external system acting on behalf of a test request informant to amend an existing order in OLIS. The order may have been created by the same external system or a different external system. Examples of amendments include, but are not limited to: 1. Adding, changing, or removing specimen information 2. Adding practitioners to the CC list 3. Adding, changing, or removing order- or test-request-level notes 4. Adding test requests, including additional tests initiated by the laboratory 5. Cancelling test requests 6. Amend the details of test requests 7. Redirecting a test request to a specific destination laboratory 8. Add an Ontario Health Number to an existing order
Level:	User Level
Primary Actor	External system (e.g. Practitioner's EMR)
Supporting Actors	
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, OLIS, Hospital Information Systems
Assumptions	Reporting test results is not supported by this use case; refer to the Report Test Results use case.
Pre-Conditions	Order exists in the OLIS repository.
Trigger	This use case begins when an existing order in OLIS needs to be amended by an external system.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the order amendment. 2. If one or more test requests are added, Alternative Flow 1 is triggered. 3. If one or more test requests are updated, Alternate Flow 2 is triggered.

	4. If one or more test requests are cancelled, Alternative Flow 3 is triggered. 5. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 6. OLIS receives and parses the HL7 message. 7. OLIS validates the source, content, and data integrity of the HL7 message. 8. If OLIS does not detect any error conditions, the order is amended in the OLIS clinical repository. 9. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to content of the initiating message. 10. OLIS transmits the HL7 message to the external system. 11. The external system receives and parses the HL7 acknowledgment message. 12. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, this use case is restarted to send a corrected order amendment message to OLIS. 13. This use case ends.
Post Conditions	Success end condition: The existing order is not amended in the OLIS clinical repository. Failure end condition: The existing order is not amended in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow 1 – Add Test Request to Order	1. The external system will set the Order Control Code to RO. 2. Return to step 2 of the Main Success Scenario.
Alternative Flow 2 – Update Test Request	1. The external system will set the Order Control Code to XO. 2. Return to step 2 of the Main Success Scenario.
Alternative Flow 3 – Cancel Test Request	1. The external system will set the Order Control Code to CA. 2. Return to step 2 of the Main Success Scenario.
Variations	
Frequency:	As required

9.2.3.2.1 Business Rules and Considerations for Implementation

Table 19 Amend Order Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
1021	When OLIS receives an order amendment to update an existing order in the OLIS repository, OLIS will merge the existing order information with the information in the message. If all applicable business rules and data integrity checks succeed, OLIS will record the amended order in its repository.	ORM	
1022	Order amendment messages need not specify the entire content of each test request in the order; only the key identifiers must be specified (e.g., placer group number, placer order number).	ORM	
1023	The order amendment message must contain at least one patient identifier that matches a patient identifier on the order in OLIS.	ORM	PID
1024	The order amendment message must contain the patient's name, sex, and date of birth (except for non-nominal testing).	ORM	PID
1025	The order amendment message must contain at least one ORC-OBR-ZBR segment sequence in order to identify the order to which the amendment applies.	ORM	ORC; OBR; ZBR;
1026	When adding a test request to an existing order, the Ordering Facility, Ordering Practitioner Address, Ordering Practitioner, Order Callback Phone Number, and Result Copies To (CC'd List) fields must be the same as all the existing test	ORM	ORC.21; ORC.24; OBR.16;

	requests in the order.		OBR.17; OBR.28;
1027	Key identifiers on the order and test requests cannot be changed, such as: • the patient ID (e.g., health number, medical record number) • the order/report ID (known as the Placer Group Number in HL7 terminology) • the test request IDs (known as the Placer Order Number and Filler Order Number in HL7 terminology) • the test request code that identifies the test to be performed • the test result code that identifies the test that was performed	ORM	
1028	In order to support the queries for laboratory information updates by practitioner and ordering facility, the following fields must contain the same information in all test requests in an order: • Ordering Facility (ORC.21) • Ordering Practitioner Address (ORC.24) • Ordering Practitioner (OBR.16) • Order Callback Phone Number (OBR.17) • Result Copies To (OBR.28) • Referred Test Indicator (ZBR.12) This is an important consideration for a laboratory that adds a lab-initiated test to an existing order in OLIS.	ORM	ORC.21; ORC.24; OBR.16; OBR.17; OBR.28; ZBR.12;
1029	The ordering practitioner who creates an order in OLIS through his/her EMR system may subsequently amend the order up to the point that another organization or system contributes information to the order (e.g., SCC records specimen information on one of the test requests in the order).	ORM	
10210	To add an Ontario Health Number as a patient identifier, the external system does not need to send any segments to OLIS after the ORC segment unless the message amends other information.	ORM	
10211	When amending a lab order in OLIS, it is recommended that the entire report be submitted to OLIS, and not just the portions of the report that have been updated. This "snapshot mode" approach requires much less effort for the LIS system to emit, and it helps ensure that the order is fully and correctly recorded in OLIS.	ORM	
10222	The time before a lab order or result is available in OLIS for querying is 5 minutes from the time the acknowledgement is received from OLIS.	ORM	
Cancel Test Request			
10212	To cancel a test request, the external system must send "CA" in the order control code field and "X" in the test request status field.	ORM	
10213	A test request may only be cancelled if no other organization or system has recorded specimen information on the test request.	ORM	
10214	Once a Laboratory updates a test request to indicate that it was Not Performed/Cancelled, OLIS will update the OBR.22 Results Rpt/Status – Date/Time timestamp so that the ordering practitioner may receive this update when the ordering practitioner executes the Retrieve Order/Report for Practitioner query.		
Notes			
10215	The reporting laboratory may amend notes at the order level and test-request level at any time, regardless of whether a result has been recorded for the test request.	ORM	NTE-ZNT
10216	All applicable notes from the organization must be sent in each ORM message for the order and its test requests. If a given note has not changed from one message to the next, the organization simply sends in the unchanged note each time, and the note will effectively remain unchanged in OLIS.	ORM	NTE-ZNT
10217	Each organization has complete control over its own order notes and test request notes.	ORM	NTE-ZNT
10218	When OLIS receives an Order message from an organization, OLIS removes all existing notes from the organization for the order and test requests included in the message, and adds the notes submitted in the message.	ORM	NTE-ZNT
10219	Notes submitted by other organizations remain unchanged.	ORM	NTE-ZNT
10220	Accordingly, when sending messages to OLIS it is important not to echo messages from other organizations. OLIS distinguishes one message-	ORM	MSH.3

	submitting organization from another by the value submitted in Sending Application field (MSH.3).		
10221	To add and maintain order-level notes, the external system does not need to send any segments to OLIS after the ORC segment unless the message amends other information.	ORM	NTE-ZNT

Please also refer to:

10.2.2 Order Message Profile on page 133
10.2.5.4 NTE-ZNT Segment Pair on page 168
10.2.5.8.2.21 OBR.28 Result Copies To on page 184
10.3.2.2 UC-<102> Amend Order Examples on page 216

9.3 Results

OLIS is intended to make the ordering and reporting of laboratory information paperless, particularly in the community setting. Laboratories should submit a lab report electronically to OLIS whenever the lab would publish a lab report through existing paper and/or other electronic means, not only for final reports, but also for preliminary reports, partial or interim reports, and amended reports, to ensure that practitioners receive lab reports without delay.

This module includes all the use cases in which an external system sends lab test results to OLIS or amends existing test results existing in the OLIS repository.

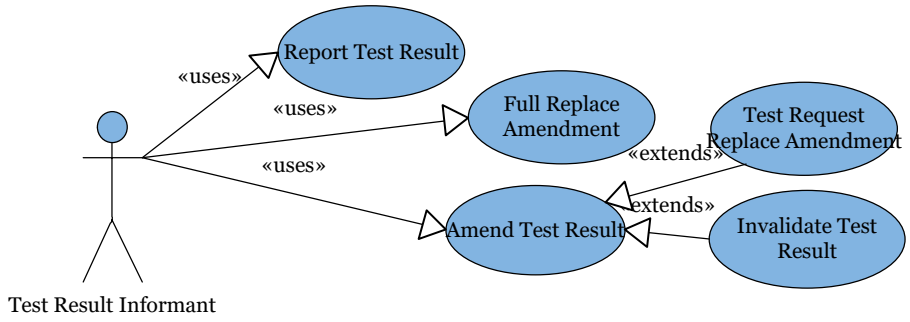


Figure 23 Results Use Case Model Diagram

9.3.1 Use Case Scope

9.3.1.1 In Scope

- Test result information insertion into OLIS (Report Test Result)
- Test result information update into OLIS (Amend Test Result)
- Full replace report amendment

9.3.2 Results Use Case Actors and Roles

#	Use Case	Probable Communities of Interest	System	Role	Description
1	Report Test Result	Hospital Laboratory; Community Laboratory;	LIS; EMR; HIS	Test Result Informant	Report results for an order that may or may not already exist in OLIS. Laboratory may also submit new results to OLIS that were not

		Public Health Laboratory; Practitioner			requested in the original order.
2	Amend Test Results	Hospital Laboratory; Community Laboratory; Public Health Laboratory; Practitioner	LIS; EMR; HIS	Test Result Informant	Amend test results that already exist in OLIS.
3	Full Replace Report Amendment	Hospital with Order Management System; Hospital Laboratory; Community Laboratory; Public Health Laboratory; Practitioner	HIS; LIS; EMR; eCHN; CCO	Test Result Informant	Remove a lab report (all test requests and associated test results) from a report that was previously submitted and replace it with the incoming report.
4	Test Request Replace Amendment	Hospital with Order Management System; Hospital Laboratory; Community Laboratory; Public Health Laboratory; Practitioner	HIS; LIS; EMR; eCHN; CCO	Test Result Informant	Remove test request(s) and any associated children test request(s) and/or results for Microbiology in a lab report and replace it with a new set of associated test request(s) and/or test result(s).

Table 20 Results Use Case Actors and Roles

9.3.3 Use Cases

9.3.3.1 Report Test Result

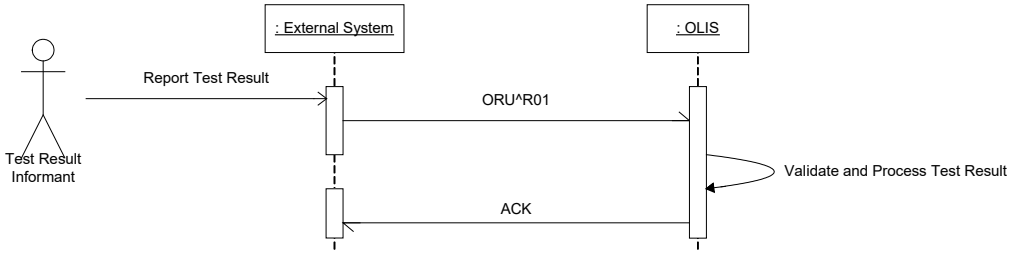


Figure 24 Report Test Result Interaction Diagram.

Use Case:	REPORT TEST RESULT
Id:	UC- <201>
Description	This use case allows external system acting on behalf of a test result informant (typically a laboratory) to report test results for an order that may or may not already exist in OLIS. It also allows the laboratory to submit a new order with results to OLIS. Note that a physician who performs lab tests for his/her own patients (physician office testing) may act as a Test Result Informant in order to report these test results to OLIS.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, OLIS, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when an external system needs to record test results in OLIS.

Main Success Scenario	1. The external system creates an HL7 message containing the details of the test results for a new order or for an existing order in OLIS. 2. The external system sets the result state to "P", "F", "N", or "X". 3. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 4. OLIS receives and parses the HL7 message. 5. OLIS validates the source, content, and data integrity of the HL7 message. 6. If OLIS does not detect any error conditions, the test results (and order information if necessary) are recorded in the OLIS clinical repository. 7. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to content of the initiating message. 8. OLIS transmits the HL7 message to the external system. 9. The external system receives and parses the HL7 acknowledgment message. 10. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, this use case is restarted to send a corrected result message to OLIS. 11. This use case ends.
Post Conditions	Success end condition: The test results (and order information if present) are recorded in the OLIS clinical repository. Failure end condition: The test results (and order information if present) are not recorded in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow	
Variations	
Frequency:	
Special Requirements	A Test Request status should reflect the children Test Result status in a clinically appropriate manner.

9.3.3.1.1 Business Rules and Considerations for Implementation

Table 21 Report Test Result Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
2011	To report test results against new orders, please refer to Table 18 Create Order Business Rules Table	ORU	
2012	Only one laboratory can record test results against a single test request.	ORU	
2013	A test request status must be in one of the four resulted states (P, F, A or C) in order for it to be associated with one or more test results.	ORU	OBX.11
2014	Once a test request has been placed into one of the four resulted states (P, F, A or C) it may only be changed to another one of the four resulted states.	ORU	OBX.11; OBR.25;
2015	Test result messages need not specify the entire content of each test request in the order; only the key identifiers must be specified (e.g., placer group number, placer order number).	ORU	OBR.2; ORC.4;
2016	A test result is uniquely identified in OLIS by the following fields: • Placer Group Number (Order/Report ID) • Placer Order Number (Test Request Identifier) • Observation Identifier (Test Result Code) • Observation Sub-ID • Test Result Release Date/Time	ORU	ORC.4; OBR.2; OBX.3; OBX.4; ZBX.1;
2017	To indicate that the observation segment contains results, the test result should be in one of the following states: • "F": Final test result. • "P": Preliminary test result.	ORU	OBX.11

2018	To indicate that the observation segment does not contain results, the test result should be in one of the following states: • "N": Test Not Performed. • "X": Could not Obtain Result.	ORU	OBX.11
2019	If the external system does not support the "N", "W" and "X" result states, it may instead indicate a state of "C", "F" or "P" with an explanation for why a test was not performed in lieu of a test result by submitting test in the observation value field, e.g., "specimen container damaged."	ORU	OBX.11; OBX.5;
20110	It is essential to include the units of measure in the *Units* field for all numeric results.	ORU	OBX.6; OBX.5;
20111	The HIC who reports the result to OLIS must identify itself in the *Reporting Lab* field.	ORU	ZBR.5;
20112	The HIC who performs the test must identify itself in the *Performing Lab* field.	ORU	ZBR.6;
20113	The laboratory that reports test results for a test request can change the test request's specimen information, even if authored by a different organization or system.	ORU; ORM;	ZBR.3; OBR.11; OBR.14; OBR.15; OBR.37; OBR.39;
20114	OLIS supports the reporting of supplemental results. The system that transmits a supplemental result to OLIS must clearly indicate in the text of the result that it is supplemental and provide a distinct value in the Observation Sub-ID field (OBX.4) so that OLIS does not interpret the supplemental result as a replacement for the earlier result.	ORU	OBX.4.1
20120	The time before a lab order or result is available in OLIS for querying is 5 minutes from the time the acknowledgement is received from OLIS.	ORU	
Ancillary Order Information			
20115	Observation segment in a result message may be used to report both results and ancillary order information.	ORU	OBX.5; OBX.11; OBX; ZBX;
20116	When test results appear in a query result set, it is necessary to distinguish between OBX segments created by the test request informant and those created by the test result informant.	ORU	OBX.11; OBX.5; OBX;
20117	To report ancillary information, the *Name of Coding System* value should be set to "LN" and the *Observation Identifier should be (OBX.3.1)* a LOINC code.	ORM; ORU;	OBX.3.3 OBX.3.1
20118	To report ancillary information the test result should be in "Z" state.	ORU	OBX.11
20119	Ancillary Order Information may also be communicated as free-form text in an order-level or test-request-level note.	ORU	NTE

Please also refer to:

10.2.3 Test Result Message Profile on page 136
10.2.5.14 OBX-ZBX Segment Pair on page 194
10.3.2.3 UC-<201> Report Test Result Message Example on page 220

9.3.3.2 Amend Test Result

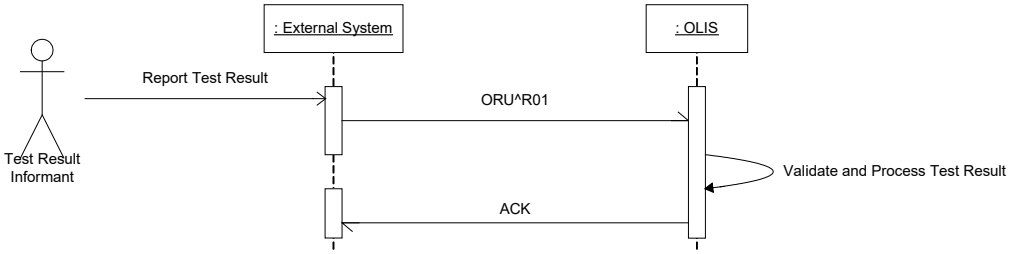


Figure 25 Amend Test Result Interaction Diagram

Use Case:	AMEND TEST RESULT
Id:	UC- <202>
Description	This use case allows an external system acting on behalf of a test result informant (typically a laboratory) to amend test results that already exist in OLIS. Note that a physician who performs lab tests for his/her own patients (physician office testing) may act as a Test Result Informant in order to report these test results to OLIS.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, OLIS, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when an external system needs to amend existing test results in OLIS.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the test result amendment for an existing order in OLIS. 2. The external system sets the result state to "P", "F", "X", "N", "C", or "W". Refer to 8.2.4.3.1 Test Result States on page 78. 3. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 4. OLIS receives and parses the HL7 message. 5. OLIS validates the source, content, and data integrity of the HL7 message. 6. If OLIS does not detect any error conditions, the test results (and order information if necessary) are recorded in the OLIS clinical repository. 7. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to content of the initiating message. 8. OLIS transmits the HL7 message to the external system. 9. The external system receives and parses the HL7 acknowledgment message. 10. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, the external system restarts this use case to send a corrected result message to OLIS. 11. This use case ends.
Post Conditions	Success end condition: The test results (and order information if necessary) are amended in the OLIS clinical repository. Failure end condition: The test results (and order information if necessary) are not amended in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow – Invalidate Test Result	1. Prepare the HL7 message to invalidate a test result based on the 3 approaches which OLIS supports. 2. Return to Step 3 of the Main Success Scenario.
Variations	
Frequency:	As Required

9.3.3.2.1 Business Rules and Considerations for Implementation

Table 22 Amend Test Result Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
2021	An amendment may correct a previously reported result, replace a previously reported result with no result (i.e., withdraw the result), or replace a non-result with a result.	ORU	OBX
2022	Once a test request has been placed into one of the four resulted states (F, P, A or C), it may only be changed to another one of those four resulted states.	ORU	OBX.11
2023	Each test result recorded in OLIS contains a Test Result Release Date/Time provided by the laboratory. If the laboratory wishes to amend the test result, it must provide the amended test result with a later Test Result Release Date/Time. OLIS will not accept two different test results for the same test reported with the same Test Result Release Date/Time.	ORU	OBX; ZBX.1;
2024	When a laboratory amends a test result in OLIS, it submits a later *Test Result Release Date/Time* value to indicate to OLIS that the result amends and replaces the previously reported value. OLIS will not accept an amendment from a laboratory unless the *Test Result Release Date/Time* value has changed.	ORU	ZBX.1
2025	It is also possible that the laboratory may correct the *Observation Date/Time* when amending a report.	ORU	OBR.7
2026	To amend a test result, the amendment message must include Note (NTE/ZNT) segments, following the Observation segment pair (OBX/ZBX), which contains: i. The originally transmitted observation value as sent in Observation Value (OBX.5) ii. *Test Result Release Date/Time* of the original test result. iii. The reason which explains why the test result is amended.	ORU	NTE; ZNT;
Invalidation of Test Result (3 approaches)			
2027	*Approach I (Preferred Approach)* 1. Test Request Status (OBR.25) = "C" 2. Value Type (OBX.2) = submit original value 3. Observation Value(OBX.5) = submit original value 4. Observation Result Status(OBX.11) = "W" 5. All other observation segment (OBX) fields to remain unchanged with respect to the originally transmitted result message. 6. The inclusion of a Note (NTE) segment, following the observation segments (OBX/ZBX) pair, which contains an explanation that the previously transmitted result was not valid for this patient.	ORU	OBR; OBX; ZBX; NTE;
2028	*Approach II (Alternative Approach)* 1. Test Request Status (OBR.25) = "C" 2. Value Type (OBX.2) = "ST" 3. Observation Value to contain an ASCII hyphen ("-") replacing the previously transmitted value (OBX.5). 4. Observation Result Status (OBX.11) = "W" 5. All other observation segment (OBX) fields to remain unchanged with respect to the originally transmitted result message. 6. The inclusion of a Note segment (NTE), following the Observation segment pair (OBX/ZBX), which contains: i. The originally transmitted Observation Value (OBX.5) as sent before. ii. An explanation that the previously transmitted result was not valid for this patient (unless that is made moot by the contents of Observation Value (OBX.5)) as well as the reason that it was invalidated (e.g. specimen mislabelled).	ORU	OBR; OBX; ZBX; NTE;
2029	*Approach III (Alternative Approach)* 1. Test Request Status (OBR.25) = "C" 2. Value Type (OBX.2) to be modified if necessary, to be consistent with respect to the text string transmitted in Observation Value (OBX.5) of the invalidation message	ORU	OBR; OBX; ZBX; NTE;

	3. Observation Value (OBX.5) to contain a text string replacing the previously transmitted value i. Note: the precise contents of this field will not be prescribed. Depending on the sending system, this string may vary. Typical examples: ii. e.g., "`Result not valid for this patient`" iii. e.g., "`XXXX`" iv. e.g., "`Specimen mislabelled`" 4. Observation Result Status (OBX.11) = "`C`" 5. All other Observation Segment (OBX) fields to remain unchanged with respect to the originally transmitted result message. 6. The inclusion of a Note (NTE) segment, following the Observation segment pair (OBX/ZBX), which contains: i. The originally transmitted observation value as sent in Observation Value (OBX.5) *ii.* An explanation that the previously transmitted result was not valid for this patient (unless that is made moot by the contents of Observation Value (OBX.5)) as well as the reason that it was invalidated (e.g., specimen mislabelled).		
20218	The time before a lab order or result is available in OLIS for querying is 5 minutes from the time the acknowledgement is received from OLIS.	ORU	
Notes			
20210	To correct or retract a note previously sent to OLIS on a test result, amend the test result with a later *Test Result Report Date/Time* value and attach the corrected note to the amended test result.	ORU	ZBX.1
20211	Test results in OLIS are immutable; therefore a note attached to a test result cannot be deleted.	ORU	NTE; ZNT;
20212	To amend order-level or test-request-level notes, the external system should resubmit the test result information with the appropriate notes and a later Test Result Release Date/Time to indicate that the test result and related note replaces the prior submission. This in turn will cause OLIS to update the Result Report/Status Change Date/Time (OBR.22) to make the updated information available to OBR.22-based queries such as the patient query and practitioner query.	ORU	OBR.22; NTE; ZNT;
20213	All applicable notes from the organization must be sent in each ORU message for the order and its test requests. If a given note has not changed from one message to the next, the organization simply sends in the unchanged note each time, and the note will be effectively remain unchanged in OLIS.	ORU	NTE; ZNT;
20214	Each organization has complete control over its own order notes and test request notes.	ORU	MSH.3; ZNT.1;
20215	When OLIS receives a Result message from an organization, OLIS removes all existing notes from the organization for the order and test requests included in the message, and adds the notes submitted in the message.	ORU	NTE; ZNT;
20216	The submitters are only allowed to change their own notes. Accordingly, when sending messages to OLIS it is important not to duplicate already existing notes from other organizations.	ORU	MSH.3; NTE; ZNT;
20217	To add and maintain order-level notes, the external system does not need to send any segments to OLIS after the ORC segment unless the message amends other information.	ORU	

Please also refer to:

10.2.3 Test Result Message Profile on page 136
10.2.5.14 OBX-ZBX Segment Pair on page 194
10.3.2.4 UC-<202> Amend Test Result Examples on page 231

9.3.3.3 Full Replace Report Amendment

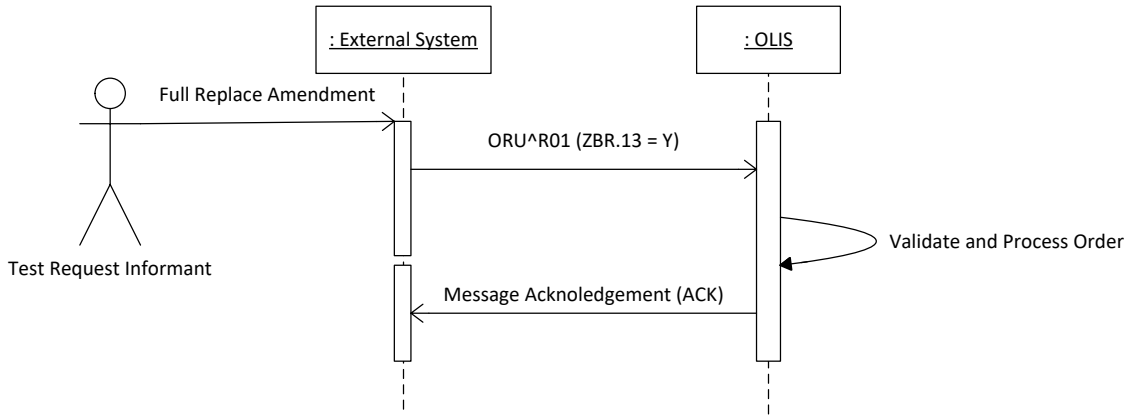


Figure 26 Full Replace Report Amendment

Use Case:	Full Replace Report Amendment
Id:	UC- <203>
Description	This use case allows external system to replace an existing report in OLIS repository with the incoming report.
Level:	User Level
Primary Actor	External system (e.g. LIS, Hospital Information Systems)
Supporting Actors	
Stakeholders and Interests	LIS, Hospital Information Systems
Assumptions	
Pre-Conditions	Report exists in the OLIS repository.
Trigger	This use case begins when external system decides to replace an existing report in OLIS repository with a new report.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the full replace report amendment. 2. The external system sets the full replace amendment flag to "Y" for all test requests on that order. 3. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 4. OLIS receives and parses the HL7 message. 5. OLIS validates the source, content, and data integrity of the HL7 message. 6. If OLIS does not detect any error conditions, an earlier version of a lab report is replaced, in entirety in the OLIS clinical repository. 7. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to content of the initiating message. 8. OLIS transmits the HL7 message to the external system. 9. The external system receives and parses the HL7 acknowledgment message. 10. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, this use case is restarted to send a corrected report amendment message to OLIS. 11. This use case ends.
Post Conditions	Success end condition: The existing report contents will be changed with the new report. Failure end condition: The existing report contents will not change in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire report message.

	Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow	
Variations	
Frequency:	*As required*

9.3.3.3.1 Business Rules and Considerations for Implementation

Table 23 Full Replace Amendment business rules table.

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
2031	For an existing report in OLIS repository, Full replace amendment is possible only with an ORU amend message.	ORU	
2032	Submitting lab is the existing test request placer for the test request or the submitting lab is the existing reporting lab for the test request.	ORU	ZBR.6, ZBR.2
2033	If the submitting lab decides to replace an earlier version of a lab report that has been sent to OLIS, in entirety, then full replace amendment (ZBR.13) flag corresponding to all the test requests on the new version of the report must be set to '`Y`'.	ORU	ZBR.13
2034	The full-replace amendment functionality must only be used in exceptional scenarios where the original amendment process does not allow the laboratory to make a necessary amendment.	ORU	
2035	Replace Test Request Amend Flag (ZBR.14) cannot be populated in the same message.	ORU	ZBR.13
2036	The Test Request Status (OBR.25) must be set to "`C`" when the Full Replace Amendment flag (ZBR.13) is set to "`Y`".	ORU	OBR.25
Note			
1	All existing notes at report level, test request level, and/or result level authored by the submitting lab for the report and for all test requests identified in the amending message will be removed, and the notes included in the amending message will be added. The lab will submit any and all currently applicable notes for each submitted test result.	ORU	NTE/ZNT

Please also refer to:

10.2.3 Test Result Message Profile on page 136
10.2.5.14 OBX-ZBX Segment Pair on page 194
10.3.2.5 UC-<203> Full Replace Amendment Examples

9.3.3.4 Test Request Replace Amendment

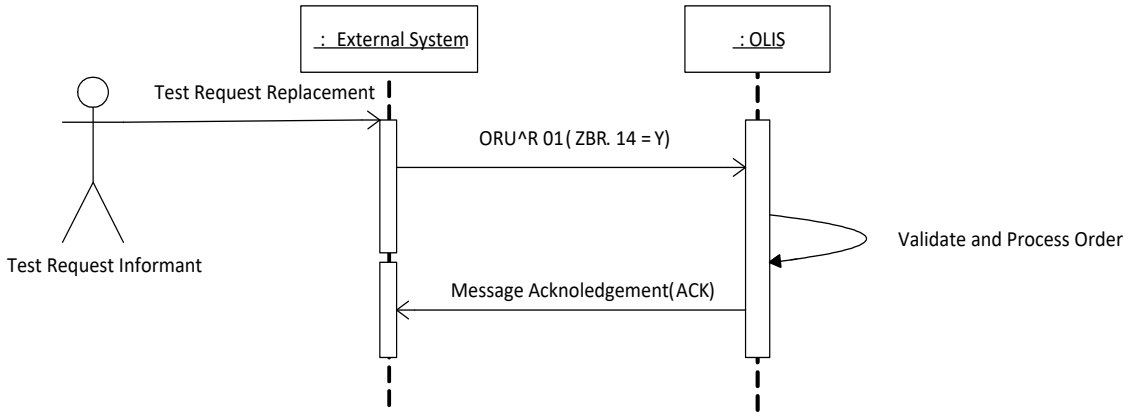


Figure 27 Test Request Replace Amendment

Use Case:	Test Request Replace Amendment
Id:	UC- <204>
Description	This use case allows external system to replace an existing report in OLIS repository with the incoming report, instead of replacing the entire lab order, only test request(s) and corresponding test request(s) and test result(s) sent in the incoming message will be replaced.
Level:	User Level
Primary Actor	External system (e.g. LIS, Hospital Information Systems)
Supporting Actors	
Stakeholders and Interests	LIS, Hospital Information Systems
Assumptions	
Pre-Conditions	Report exists in the OLIS repository. Test request replace amendment is only applicable for Microbiology modality. A parent test request and the children test requests will always be sent in one message.
Trigger	This use case begins when external system decides to replace an existing report in OLIS repository with a changed test request(s) along with any associated child test request(s).
Main Success Scenario	1. The external system creates an HL7 message containing the details of the test request replace amendment. 2. The external system sets the test request replace amendment flag to "Y" for the changed test request(s) along with any associated child test request(s) on that order. 3. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 4. OLIS receives and parses the HL7 message. 5. OLIS validates the source, content, and data integrity of the HL7 message. 6. If OLIS does not detect any error conditions, an earlier defined set of test request(s) or test result(s) is replaced, including all child test request(s) and result(s), with a new set of test request(s) or test result(s) in the OLIS clinical repository. 7. OLIS creates an HL7 acknowledgment message that may contain errors, warnings, or information related to content of the initiating message. 8. OLIS transmits the HL7 message to the external system.

	9. The external system receives and parses the HL7 acknowledgment message. 10. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, this use case is restarted to send a corrected report amendment message to OLIS. 11. This use case ends. Note: If the external system sends messages corresponding to a single order in batches, in the case of test request replacement, the set of messages related to an order arrive in OLIS separately, containing changes. However, each message must all associate child test request(s) and result(s) with Test request replacement flag set appropriately.
Post Conditions	Success end condition: The existing report contents will be replaced including all child test request(s) and result(s) with the new test request(s) or test result(s). Failure end condition: The existing report contents will not change in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire report message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow	
Variations	
Frequency:	*As required*

Please also refer to:

10.3.2.6UC-<204> Test Request Replace Amendment Examples on page 238

9.3.3.4.1 Business Rules and Considerations for Implementation

Table 24 Test Request Replace Amendment business rules table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
2037	Test Request Replace Amendment Flag (ZBR.14) must not be used for ORM type messages.	ORM	ZBR.14
2038	Test Request Replace Amendment Flag (ZBR.14) must not be used for the ORU Create message i.e. the placer group number ORC.4 does not exist in the OLIS Clinical repository.	ORU	ZBR.14
2039	The Replace All Amend Flag (ZBR.13) cannot be populated in the same message when the Test Request Replace Amendment flag has been used.	ORU	ZBR.13
2040	The Test Request Replace Amend flag (ZBR.14) can only be populated with 'Y'.	ORU	ZBR.14
2041	The parent test request must exist in the message marked for replacement whenever a child test request/child test result is being replaced.	ORU	OBR.2 OBR.29
2042	Parent test request marked for replacement must have a corresponding test request already present in OLIS i.e. shares the same placer order number (OBR.2). OLIS will perform cascade replace of a test request if it exists in OLIS.	ORU	OBR.2
2043	Test Request Placer (ZBR.2) and Reporting Laboratory (ZBR.4) both have the authority to replace a test request including all child test request(s) and result(s).	ORU	ZBR.14
2044	OLIS will perform cascading replace on the entire request along with the associated child test request(s) and result(s). Note: Includes replace of corresponding ORC-OBR-ZBR segments, corresponding notes NTE-ZNT, corresponding diagnosis segments DG,	ORU	ZBR.14

	corresponding results and ancillary information in OBX-ZBX segments along with corresponding notes NTE-ZNT, and the billing data in the BLG segment.		
2045	The Test Request Status (OBR.25) must be set to “C” when the Test Request Replace Amendment flag (ZBR.14) is set to “Y”. However, OLIS will not raise any warning or error if OBR.25 flag is not set.	ORU	OBR.25
2046	Test Request Replace Amendment functionality is specific only to the Microbiology modality and there can be significant patient risk if this is implemented for any other modality.	ORU	

9.4 Queries

This module includes all the use cases in which the external system retrieves lab orders/reports from OLIS e.g., Hospital viewers, EMR systems. External systems which want to obtain Order/Report updates from OLIS continuously will have to implement a polling functionality.

9.4.1 How polling works

OLIS maintains a timestamp on each order. When a test request is created and whenever any change occurs to the test request or its test results, OLIS updates this timestamp to the current date and time based on the OLIS system clock.

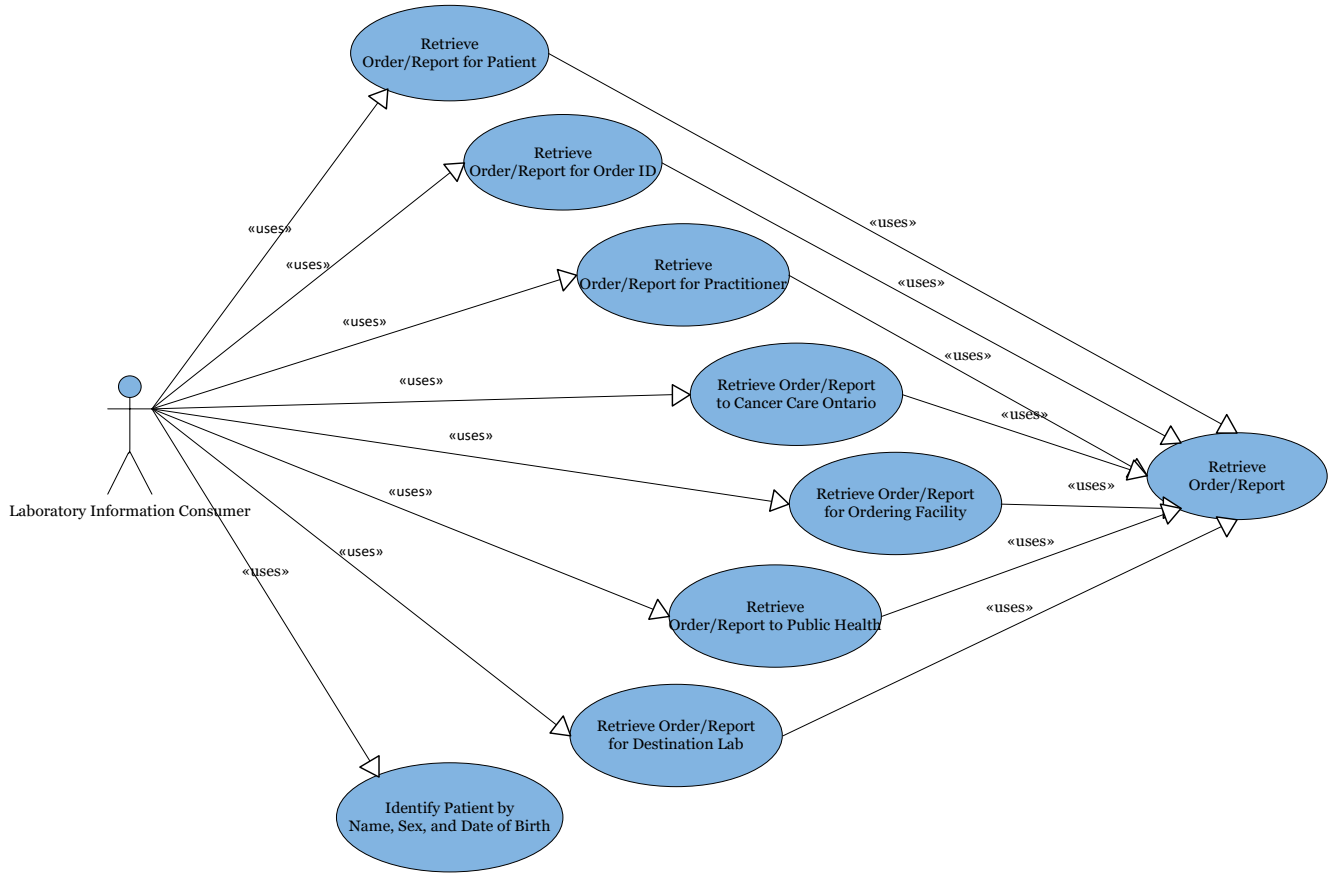
When an external system queries OLIS for laboratory information updates, it has to provide OLIS with a start timestamp and optionally an end timestamp. OLIS retrieves the orders/reports between the start and end timestamp and matching any other query criteria and returns those orders to the external system.

The latest timestamp present in the query response message (OBR.22) should be stored by the external system and used as the start timestamp of the next polling query. If a polling query returns no results, the same start timestamp should be submitted on subsequent queries until data is returned.

External systems which implement the polling functionality are recommended to use a polling interval of 30 minutes.

The external system should not use the end timestamp of one polling query as the start timestamp for the next polling query. The latest timestamp present in the query response message is to be used.

Figure 28 Queries Use Case Model Diagram



9.4.2 Use Case Scope

9.4.2.1 In Scope

- Order/Result retrieval from OLIS

9.4.2.2 Out of Scope

- Order/Result Status retrieval from OLIS

9.4.3 Queries Use Case Actors and Roles

Table 25 Queries Use Case Actors and Roles

#	Use Case	Probable Communities of Interest	System	Role	Description
1	Retrieve Order/Report	N/A	N/A	N/A	This is an abstract use case and cannot be used directly by any of the Communities of Interest. This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s). This use case

					and its business rules apply to all the Z queries except for Z50 query.
2	Z01-RETRIEVE ORDER/REPORT FOR PATIENT	EMR, Patients Laboratory (Hospital, Community, Public Health)	HIS; LIS EMR; OLIS	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting Health Information Custodian) to retrieve order(s)/report(s) for an individual patient and timeframe.
3	Z02-RETRIEVE ORDER/REPORT FOR ORDER ID	EMR, Patients; Laboratory (Hospital, Community, Public Health)	HIS; LIS; EMR; OLIS	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for an individual Order ID and timeframe.
4	Z04-RETRIEVE ORDER/REPORT FOR PRACTITIONER	EMR; Hospital;	EMR; OLIS	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/reports(s) for an individual practitioner and timeframe.
5	Z05-RETRIEVE ORDER/REPORT FOR DESTINATION LAB	Reference Laboratory;	LIS; OLIS	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/reports(s) for an individual destination lab (ZBR.8 *Destination Laboratory*) and timeframe.
6	Z06-RETRIEVE ORDER/REPORT FOR ORDERING FACILITY	Referring Laboratory; EMR; Hospitals	LIS; EMR; OLIS	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/reports(s) for an individual ordering facility (ORC.21 *Ordering Facility*) and timeframe.
7	Z07-RETRIEVE ORDER/REPORT REPORTABLE TO PUBLIC HEALTH	Public Health	LIS; Public Health Surveillance; OLIS	Laboratory Information Consumer	Used by external system acting on behalf of a laboratory information consumer (Public Health Division) to retrieve order(s)/reports(s) that is reportable to Public Health for a given timeframe.
8	Z08-RETRIEVE ORDER/REPORT REPORTABLE TO CANCER CARE ONTARIO	CCO	LIS; CCO System; OLIS	Laboratory Information Consumer	Used by external system acting on behalf of a laboratory information consumer (Cancer Care Ontario) to retrieve order(s)/reports(s) those are reportable to Cancer Care Ontario (ZBR.9 *Reportable Test Indicator*) for a given timeframe.
9	Z11-RETRIEVE LAB ORDER INFORMATION FOR PATIENT	Laboratory, SCC	LIS; OLIS-MORE;	Laboratory Information Consumer	Used by an external system acting on behalf of a laboratory information consumer (Requesting Health Information Custodian) to retrieve unfulfilled lab order(s) for an individual

					patient and timeframe.
10	Z50-IDENTIFY PATIENT BY NAME, SEX, AND DATE OF BIRTH	EMR, Hospital, Lab Patients	HIS; LIS; EMR; OLIS	Laboratory Information Consumer	Used by external system acting on behalf of a laboratory information consumer (Requesting HIC) to determine candidate identifiers for a patient (e.g., Ontario Health Number, hospital medical record number) by searching on name, sex, and date of birth.

9.4.4 Use Cases

9.4.4.1 Retrieve Order/Report

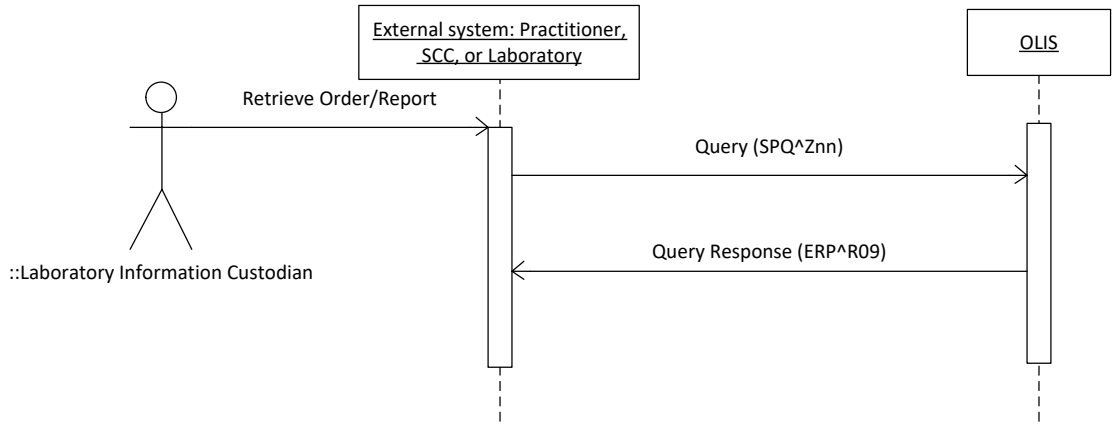


Figure 29 Retrieve Order/Report Interaction Diagram

Use Case:	RETRIEVE ORDER/REPORT
Id:	UC- <301>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s). This use case and its business rules apply to all the Z queries except for Z50 query.
Level:	User Level
Primary Actor	External system (e.g. Practitioner's EMR)
Supporting Actors	OLIS
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request laboratory information from OLIS.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the query request. 2. The external system transmits the HL7 message to OLIS and waits for a response message from OLIS. The external system may optionally specify a limit on the number of orders returned by OLIS in a single message. 3. OLIS receives and parses the HL7 message. 4. OLIS validates the source, content, and data integrity of the HL7 message. 5. If OLIS does not detect any error conditions, OLIS retrieves the requested information from the OLIS clinical repository, subject to blocking rules. 6. OLIS creates an HL7 response message that may contain the query result, errors, warnings, or information related to content of the initiating message.

	7. OLIS transmits the HL7 message to the external system. 8. The external system receives and parses the HL7 response message. 9. The external system reviews and reacts to any errors, warnings, or information messages returned by OLIS. If necessary, the external system restarts this use case to send a corrected query message to OLIS. 10. If a response message which is received by the external system contains query results, the query result is consumed by the external system and/or reviewed by the laboratory information consumer, as required. 11. If OLIS returned an indication that more information exists than was returned in the message (DSC segment), the external system may retrieve further result set information from OLIS by returning to step 1. 12. This use case ends.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or Polling

9.4.4.1.1 Business Rules and Considerations for Implementation

Table 26 Retrieve Laboratory Information Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3011	The external system may optionally request that the result set be limited according to a variety of constraints: • Practitioner (Ordering, Copied-to, Admitting, Attending) • Test Request Placer • Ordering Facility (deprecated for this query) • Specimen Collector • Laboratory (Destination (deprecated for this query), include/exclude Performing, include/exclude Reporting) • Priority • Test Request Code • Test Result Code • Test Request Status • Test Result Status (deprecated) • Abnormal Flag (deprecated) • Test Request Replaced Status	SPQ	SPR.4
3012	This query may return full or partial content of selected laboratory reports as published by the laboratory.	ERP	
3013	The lowest granularity returned by OLIS in a query response is a single lab report.	ERP	
3014	For resulted orders only the report with the latest test result is returned. Refer to 9.4.4.3 Z02 – Retrieve Order/Report for Order ID on page 105 to retrieve non-current test results for an order.	ERP	SPR.4 @ZBX.1
3015	A query that returns no records because no records matched the query criteria is indicated by a value of "NF" in the *Query Response Status* (QAK.2) field.	ERP	QAK.2
3016	Only test requests in the ordered, collected, or cancelled status are released for SCCs.	ERP	
3017	Test results are not released to the SCCs.	ERP	
30120	The time before a lab order or result is available in OLIS for querying is 5	ERP	

	minutes from the time the acknowledgement is received from OLIS.		
Patient Consent			
3018	Named HICs can always see orders/reports. All other HICs can only retrieve orders/reports if the patient does not have consent withdrawn.	SPQ	
3019	Requesting HIC information is used to determine requester access to lab orders/reports based on patient consent status.	SPQ	
30110	If patient has consent withdrawn, a non-named HIC can retrieve orders/reports only if a consent override exists for them.	ERP	
30111	OLIS will warn the Requesting HIC if blocked information exists in OLIS that has not been disclosed because the patient has not granted explicit consent to the HIC to view blocked information.	ERP	
30112	The HIC can specify patient consent directives to OLIS at the same time the query is placed in OLIS.	SPQ	SPR.4 @ZPD.1
30113	Patient-level and test-request-level blocks will be indicated within the orders/reports returned in the query response.	ERP	ZBR.1; ZPD.1;
30114	If information was excluded from the result set due to the patient having withdrawn consent, an ERR segment will returned with warning code 320.	ERP	ERR.1
Query Response Quantitative Limit			
30115	OLIS provides a mechanism to allow the external system to limit the number of orders returned in a single query response message by introducing *quantity-limited request parameter* in the query message, since the number of possible records returned by a query against OLIS is potentially very large.	SPQ	QRD.7
30116	The value passed in the *quantity-limited request parameter* will indicate the number of records OLIS will return, at maximum, to a particular query (subject to the maximum specified record set size by OLIS).	SPQ	QRD.7
30117	OLIS will also pass back a *continuation pointer* which can be submitted along with a copy of the original query message to retrieve additional orders from the query result set.	ERP	DSC.1
30118	If no value of *quantity-limited request parameter* (@QRD.7) is supplied, or the value is large, OLIS may limit the number of returned records. A continuation pointer will automatically be issued when this occurs, along with the query response message. It is therefore necessary for systems querying OLIS to support the continuation query.	SPQ	QRD.7
30119	A *continuation pointer* is only guaranteed to be valid for 10 minutes, after which time OLIS may purge the retrieved record set from its memory. In that case, the query would have to be re-issued in full.	ERP	DSC.1
30121	For all Query requests identified with Replace Flag (ZBQ.14) set to 'Y', the query result set will be further restricted to the orders containing any orders that were replaced either via the Replace All Flag (ZBR.13) or Test Request Amend Flag (ZBR.14) or both flags.	ERP	ZBQ.14
Example for Query Response Quantitative Limit:	*For example, if the quantity-limited request parameter (@QRD.7) parameter is 100, but OLIS has 250 records matching the query parameters, it will respond with 100 orders and a continuation pointer (DSC.1) value. The sending system can then resend the original query message with the original parameters and specify the continuation pointer to retrieve orders 101-200 from OLIS. OLIS will respond with a new continuation pointer (DSC.1), indicating that there are still more orders for that query. The sending system could re-query with the same parameters and this second continuation pointer and retrieve the remaining 50 orders.*		

Please also refer to:

10.2.4Query Message Profile on page 138

9.4.4.2 Z01 – Retrieve Order/Report for Patient

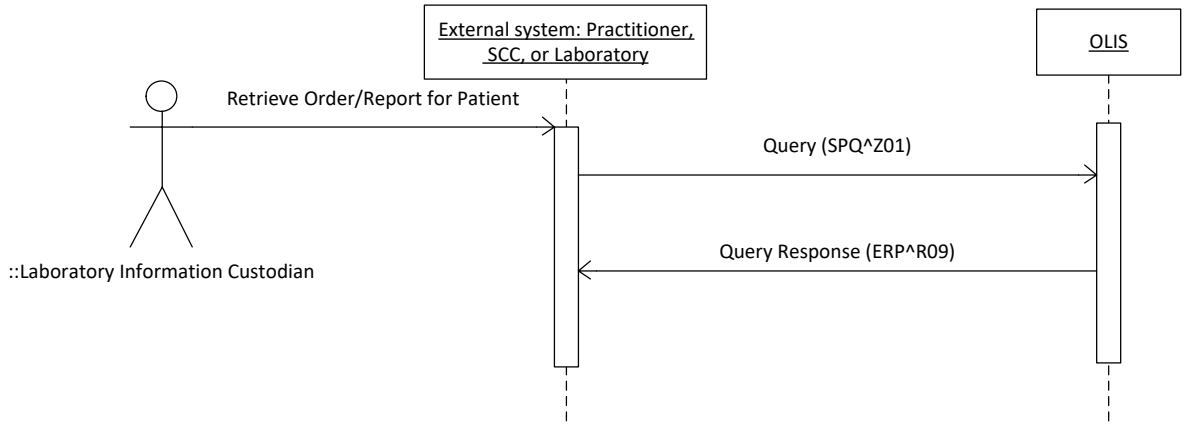


Figure 30 Z01 – Retrieve Order/Report for Patient Interaction Diagram.

Use Case:	Z01-RETRIEVE ORDER/REPORT FOR PATIENT
Id:	UC- <302>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for an individual patient and timeframe.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request laboratory information for a patient from OLIS.
Main Success Scenario	1. Retrieve Order/Report include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required

9.4.4.2.1 Business Rules and Considerations for Implementation

Table 27 Z01 – Retrieve Order/Report for Patient Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message

			Details
3021	OLIS retrieves all the order(s)/report(s) which match the *Patient ID (PID.3)* to the query parameter in query request.	SPQ	SPR.4 @PID.3
3023	For all requests identified with Replace Flag (ZBQ.14) set to 'Y', the query result set will be further restricted to the orders containing any orders that were replaced either via the Replace All Flag (ZBR.13) or Test Request Amend Flag (ZBR.14) or both flags.	SPQ	ZBQ.14
3024	OLIS by default will return all orders (replaced or not replaced). The optional query parameter Replaced Flag (ZBQ.14) must be flagged with 'Y', in order to return only orders where either Replace All (ZBR.13) or Replace Test Request Amend (ZBR.14) flag is set to 'Y'. If the query parameter Replaced Flag (ZBQ.14) is provided as a parameter and the value is not set as 'Y', OLIS will identify an error condition.	SPQ	ZBQ.14
Patient Blocking and Consent			
3022	In the patient query, warning 920 will be returned if a patient-level block currently exists.	ERP	ERR.1

The Retrieve Laboratory Information for Patient query supports optional parameters and some of these parameters apply to different levels of the laboratory information hierarchy (e.g., test request code and test result code). Implementers are discouraged from submitting queries that contain optional parameters that apply to different levels of the laboratory information hierarchy, as the query may return a response that does not match the implementer's expectations.

Please also refer to:

10.2.4.2.1 Z01 – Retrieve Order/Report for Patient on page 139
10.2.4.8.1 Patient Identifier (@PID.3) on page 152

9.4.4.3 Z02 – Retrieve Order/Report for Order ID

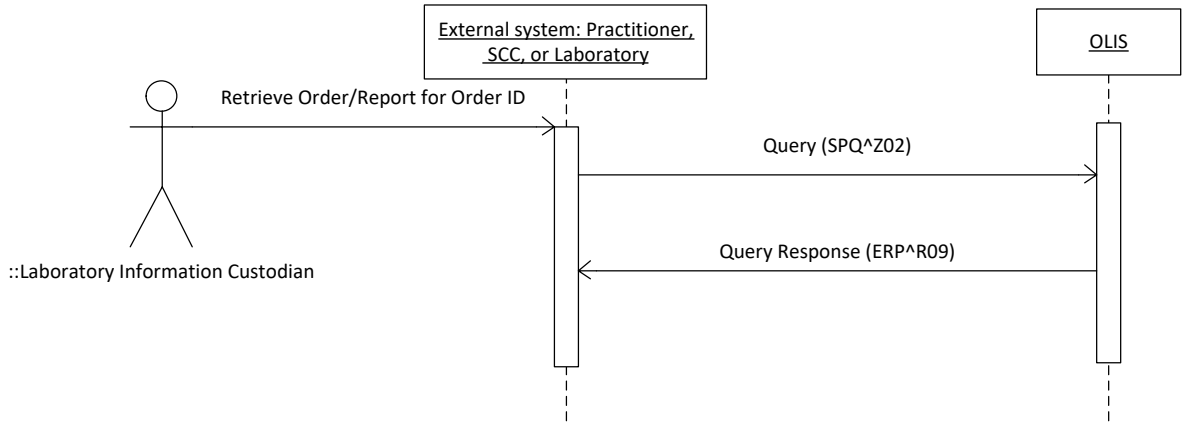


Figure 31 Z02 – Retrieve Order/Report for Order ID Interaction Diagram.

Use Case:	Z02-RETRIEVE ORDER/REPORT FOR ORDER ID
Id:	UC- <303>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for an Order ID (Placer Group Number (ORC.4)).
Level:	User Level
Primary Actor	External system (e.g. Practitioner's EMR)
Supporting	OLIS

Actors	
Stakeholders and Interests	EMR Systems, Laboratory Information Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request laboratory information for an order from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency	As required

9.4.4.3.1 Business Rules and Considerations for Implementation

Table 28 Z02 – Retrieve Order/Report for Order ID Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3031	OLIS retrieves all the order(s)/report(s) which match the *Placer Group Number (ORC.4)* to the query parameter in query request.	SPQ	SPR.4 @ORC.4
3032	The external system may optionally request both current test results and test results that were previously reported to OLIS and subsequently amended.	SPQ	SPR.4 @ZBX.1
3033	To retrieve a prior test result that has been subsequently amended by a later test result the optional history flag must be set in the query.	SPQ	SPR.4 @ZBX.1
Patient Consent			
3034	The Order ID query will return warning code 920 if a patient-level block exists at the time of query execution regardless of whether any reports are present in the query response.	ERP	ERR.1

Please also refer to:

10.2.4.2.2 Z02 – Retrieve Order/Report for Order ID on page 140
10.2.4.8.17 Placer Group Number Parameter (@ORC.4) on page 156

9.4.4.4 Z04 – Retrieve Order/Report for Practitioner

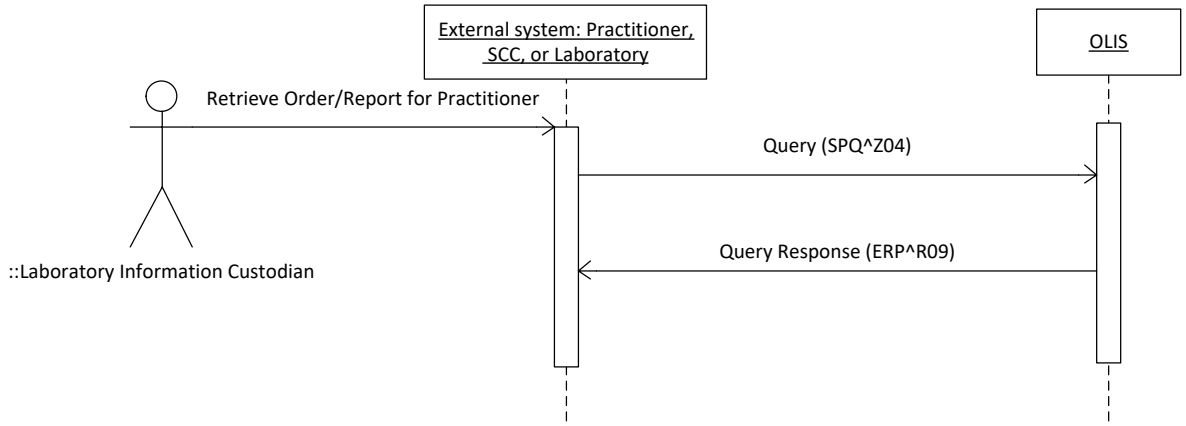


Figure 32 Z04 – Retrieve Order/Report for Practitioner Interaction Diagram.

Use Case:	Z04-RETRIEVE ORDER/REPORT FOR PRACTITIONER
Id:	UC- <304>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for an individual practitioner and timeframe.
Level:	User Level
Primary Actor	External system (e.g. Practitioner's EMR)
Supporting Actors	OLIS
Stakeholders and Interests	EMR Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request order(s)/report(s) for a practitioner from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or Polling

9.4.4.4.1 Business Rules and Considerations for Implementation

Table 29 Z04 – Retrieve Order/Report for Practitioner Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3041	OLIS will retrieve order(s)/report(s) that identifies the Requesting HIC Individual as the ordering practitioner, a CC'd practitioner, admitting practitioner, or attending practitioner.	SPQ	SPR.4 @OBR.16 @OBR.28 @PV1.7 @PV1.17
3042	A Practitioner's EMR may utilize this use case on a periodic or ad hoc basis to retrieve updates on existing test requests (e.g., status changes), new and updated test requests (e.g., lab-generated and reflex tests), and test results from OLIS.	SPQ	
3043	If a practitioner utilizes different EMR systems for different practice locations, when creating the order, the practitioner's EMR may populate the Ordering Provider Address (ORC.24) field with information that allows the EMR systems to determine which orders should be stored in which EMR system.	SPQ	

The *Retrieve Order/Report for Practitioner* query support optional parameters and some of these parameters apply to different levels of the laboratory information hierarchy (e.g., test request code and test result code). Implementers are discouraged from submitting queries that contain optional parameters that apply to different levels of the laboratory information hierarchy, as the query may return a response that does not match the implementer's expectations. For example by EMR solutions, as the EMR may not receive all reports from OLIS if the optional parameters are used.

Please also refer to:

Z04 – Retrieve Order/Report for Practitioner on page 140

10.2.4.8.14 Practitioner Parameters (@OBR.16, @OBR.28, @PV1.7, and @PV1.17) on page 155

9.4.4.5 Z05 – Retrieve Order/Report for Destination Lab

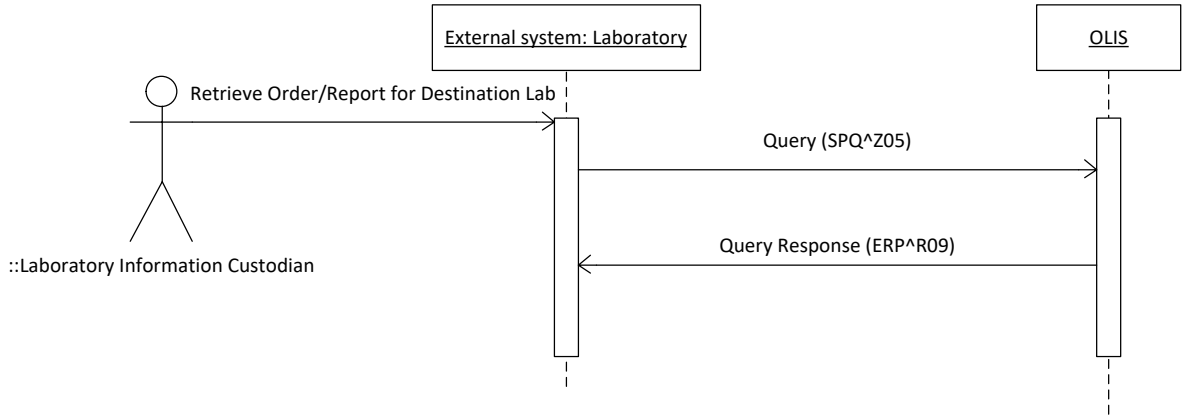


Figure 33 Z05 – Retrieve Order/Report for Destination Lab Interaction Diagram.

Use Case:	Z05 – RETRIEVE ORDER/REPORT FOR DESTINATION LAB
Id:	UC- <305>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for a destination lab (Destination Laboratory (ZBR.8)) and timeframe. This query retrieves all order(s)/report(s) within the specified timeframe that specifically identifies the requesting laboratory as the destination laboratory.
Level:	User Level
Primary Actor	External system (e.g. LIS)

Supporting Actors	OLIS
Stakeholders and Interests	Laboratory Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request order(s)/report(s) for a destination lab from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or Polling

9.4.4.5.1 Business Rules and Considerations for Implementation

Table 30 Z05 – Retrieve Order/Report for Destination Lab Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
	OLIS retrieves all the order(s)/report(s) which match the *Destination Laboratory field (ZBR.8)* to the query parameter in query request.	SPQ	SPR.4 @ZBR.8
	A laboratory's LIS may utilize this use case on a periodic or ad hoc basis to retrieve orders that have been referred or redirected to it through OLIS.	SPQ	

Please also refer to:

10.2.4.2.4 Z05 – Retrieve Order/Report for Destination Laboratory on page 141
10.2.4.8.15 Destination Laboratory Parameter (@ZBR.8) on page 155

9.4.4.6 Z06 – Retrieve Order/Report for Ordering Facility

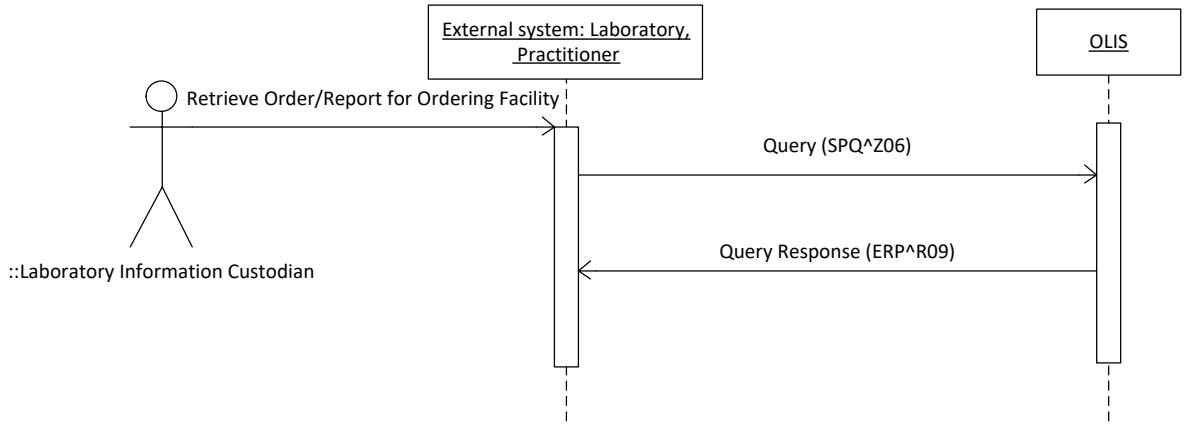


Figure 34 Z06 – Retrieve Order/Report for Ordering Facility Interaction Diagram.

Use Case:	Z06-RETRIEVE ORDER/REPORT FOR ORDERING FACILITY
Id:	UC- <306>
Description	This use case allows external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve order(s)/report(s) for an individual ordering facility (Ordering Facility (ORC.21)) and timeframe. A healthcare facility or laboratory can retrieve results for tests referred out to an external or reference laboratory through this use case.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	Laboratory Systems, Hospital Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request order(s)/report(s) for an ordering facility lab from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or Polling

9.4.4.6.1 Business Rules and Considerations for Implementation

Table 31 Z06 – Retrieve Order/Report for Ordering Facility Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3061	OLIS retrieves all the order(s)/report(s) which match the *Ordering Facility field (ORC.21)* to the query parameter in query request. Refer to 10.2.4.8.12 Ordering Facility Parameter (@ORC.21) on page 155.	SPQ	SPR.4 @ORC.21

Note that because the query is based on a timeframe, recently placed referred-out orders will be echoed back when this query is executed for the timeframe in which the referred-out orders were created.

9.4.4.7 Z07 – Retrieve Order/Report for Public Health

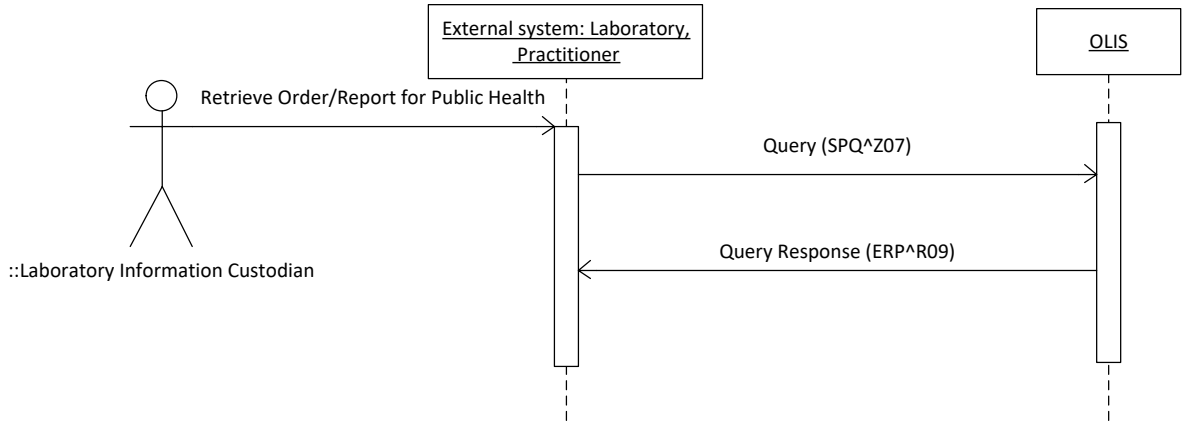


Figure 35 Z07 – Retrieve Order/Report for Public Health Interaction Diagram

Use Case:	Z07-RETRIEVE ORDER/REPORT REPORTABLE TO PUBLIC HEALTH
Id:	UC- <307>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Public Health Division) to retrieve order(s)/report(s) that are reportable to Public Health for a given timeframe. OLIS will return all laboratory information within the specified timeframe that has been identified as reportable to Public Health by the reporting laboratory (Reportable Test Indicator (ZBR.9)).
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	Public Health Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request order(s)/report(s) reportable to public health from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report.*
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as

	required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or polling

9.4.4.7.1 Business Rules and Considerations for Implementation

Table 32 Z07 – Retrieve Order/Report for Public Health Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3071	This query retrieves all the order(s)/report(s) from OLIS repository which have the Reportable Test Indicator field (ZBR.9) set to "PH2".	SPQ	

Please also refer to:

10.2.4.2.6 Z07 – Retrieve Order/Report Reportable to Public Health on page 142

9.4.4.8 Z08 – Retrieve Order/Report Reportable to CCO

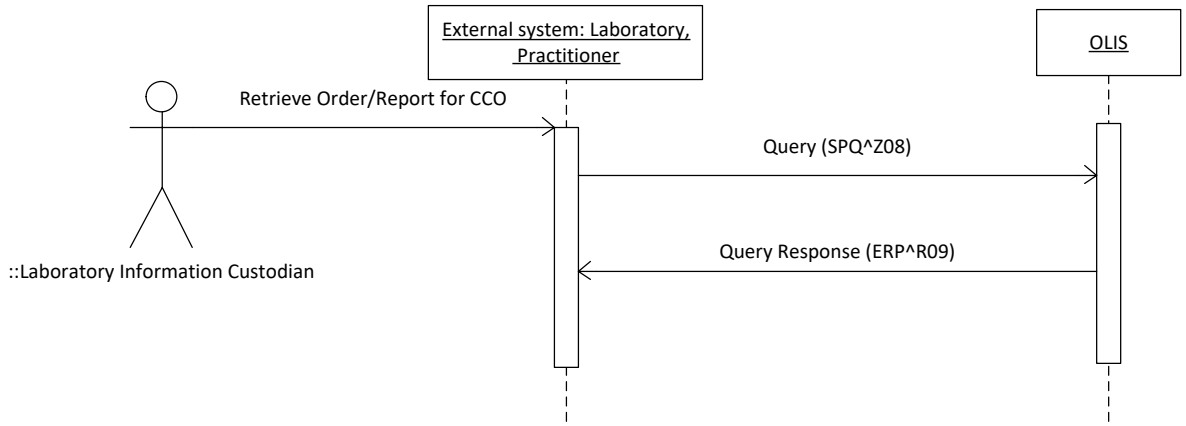


Figure 36 Z08 – Retrieve Order/Report Reportable to CCO Interaction Diagram

Use Case:	Z08-RETRIEVE ORDER\REPORT REPORTABLE TO CCO
Id:	UC- <308>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Cancer Care Ontario) to retrieve order(s)/report(s) that are reportable to Cancer Care Ontario (Reportable Test Indicator (ZBR.9)) for a given timeframe.
Level:	User Level
Primary Actor	External system (e.g. CCO Systems)
Supporting Actors	OLIS
Stakeholders and Interests	CCO

Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer decides to order(s)/report(s) reportable to Cancer Care Ontario from OLIS.
Main Success Scenario	1. Retrieve Laboratory Information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required or polling

9.4.4.8.1 Business Rules and Considerations for Implementation

Table 33 Z08 – Retrieve Order/Report Reportable to CCO Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3081	This query retrieves all the order(s)/report(s) from OLIS repository which have the *Reportable Test Indicator field (ZBR.9)* set to "cco".	SPQ	

Please also refer to:

10.2.4.2.7 Z08 – Retrieve Order/Report Reportable to Cancer Care Ontario on page 142

9.4.4.9 Z11 – Retrieve Lab Order Information for Patient

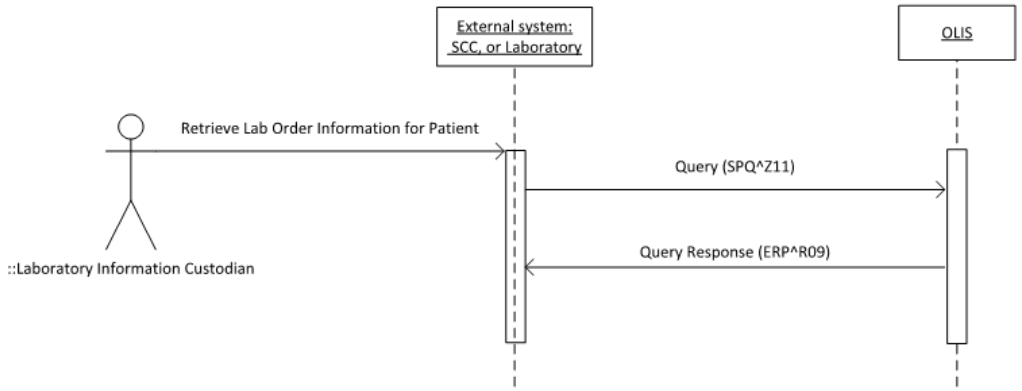


Figure 37 Z11 – Retrieve Lab Order Information for Patient Interaction Diagram

Use Case:	Z11-RETRIEVE LAB ORDER INFORMATION FOR PATIENT
Id:	UC- <310>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to retrieve unfulfilled lab order(s) for an individual patient and timeframe.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting Actors	OLIS
Stakeholders and Interests	Laboratory Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer (Requesting HIC) decides to request unfulfilled laboratory order information for a patient from OLIS.
Main Success Scenario	1. Retrieve Lab Order information include *UC-<301> Retrieve Order/Report*.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required

9.4.4.9.1 Business Rules and Considerations for Implementation

Table 34 Z11 – Retrieve Laboratory Order Information for Patient Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3082	OLIS retrieves all the unfulfilled lab order(s) which match the *Patient ID (PID.3)* to the query parameter in query request. Any lab orders that are marked with OBR.11 set to 'L' will be excluded	SPQ	SPR.4 @PID.3
3083	OLIS by default will retrieve unfulfilled lab orders where the test request status (OBR.25) is O along with any ancillary information for the specified criteria. This behaviour can be overridden by setting the @OBR.25 parameter value to any combination of O, I or X. If any other value is provided in the parameter, user will receive an error with error code 110.	SPQ	SPR.4, @PID.3, @OBR.25
3084	Records can only be retrieved for a maximum of 185 days from the current date. The earliest start timestamp provided in the search criteria cannot be earlier than 185 days from the current date and the end timestamp provided in the search criteria cannot be greater than current datetime. If this rule is violated, user will receive an error with error code 110.	SPQ	SPR.4, @PID.3, @OBR.22
3085	Referred and Redirected orders are excluded from the result set	SPQ	SPR.4 @PID.3
Patient Blocking and Consent			
3022	In the patient query for lab orders, warning 920 will be returned if a patient-level block currently exists for.	ERP	ERR.1

Please also refer to:

10.2.4.2.8 Z11 – Retrieve Laboratory Order Information for Patient on page 143
10.2.4.8.1 Patient Identifier (@PID.3) on page 152
10.2.4.8.20 Test Request Status Parameter (@OBR.25) on page 156

9.4.4.10 Z50 – Identify Patient by Name, Sex and Date of Birth

Will be deprecated in the future

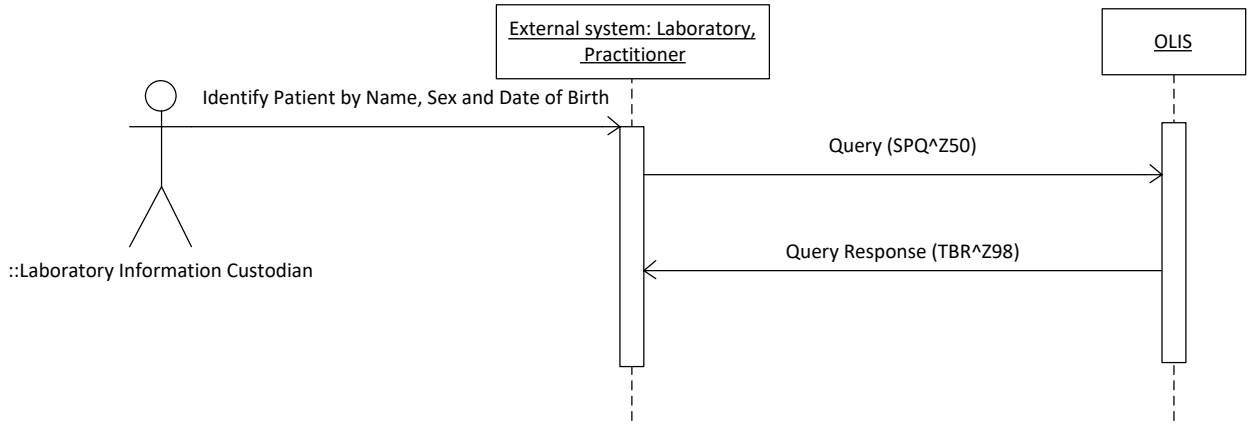


Figure 38 Z50 – Identify Patient by Name, Sex and Date of Birth Interaction Diagram

Use Case:	Z50-IDENTIFY PATIENT BY NAME, SEX, AND DATE OF BIRTH
Id:	UC- <309>
Description	This use case allows an external system acting on behalf of a laboratory information consumer (Requesting HIC) to determine candidate identifiers for a patient (e.g., Ontario Health Number, hospital medical record number) as well as demographics by searching on name, sex, and date of birth.
Level:	User Level
Primary Actor	External system (e.g. EMR System)
Supporting Actors	OLIS
Stakeholders and Interests	TBD
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory information consumer decides to request candidate identifiers for a patient from OLIS.
Main Success Scenario	1. The external system creates an HL7 message containing the details of the query request. 2. The external system transmits the HL7 message to OLIS and waits for an acknowledgment message from OLIS. 3. OLIS receives and parses the HL7 message. 4. OLIS validates the source, content, and data integrity of the HL7 message. 5. If OLIS does not detect any error conditions, OLIS retrieves the requested information from the OLIS clinical repository. 6. OLIS creates an HL7 acknowledgment message that may contain the query result, errors, warnings, or information related to content of the initiating message. 7. OLIS transmits the HL7 message to the external system. 8. The external system receives and parses the HL7 acknowledgment message. 9. The external system reviews and reacts to any errors, warnings, or information

	messages returned by OLIS. If necessary, the external system restarts this use case to send a corrected query message to OLIS. 10. If a query result is received by the external system, the query result is consumed by the external system and/or reviewed by the laboratory information consumer, as required. *11.* This use case ends.
Post Conditions	Success end condition: The query result set (that may contain data or may be empty) is returned to the external system for use by the external system and/or the laboratory information consumer, as required. Failure end condition: One or more error conditions are returned to the external system, and no result set is returned. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message.
Alternative Flow	
Variations	
Frequency:	As required

9.4.4.10.1 Business Rules and Considerations for Implementation

Table 35 Z50 – Identify Patient by Name, Sex and Date of Birth Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
3091	The external system must specify the patient's last name, sex, date of birth, and usually a given name. OLIS will query the clinical repository for patient information that matches the given name, last name, sex, and date of birth criteria.	SPQ	
3092	The given name matching criteria varies according to the input. Refer to the next three business rules.	SPQ	
3093	If more than one character is provided for the given name, OLIS search for candidate patient identifiers where all first or second names that exactly match the given name provided.	SPQ	
3094	If a single character is provided for the given name, OLIS will search for candidate patient identifiers where the first or second names begin with this character.	SPQ	
3095	If no characters are provided for the given name, OLIS will search for candidate patient IDs that have no first name and no second name.	SPQ	
3096	OLIS will return all patient identifiers, first name, second name, last name, sex, date of birth, addresses, and ordering practitioner from the latest entry in the clinical repository that matches the search criteria. No clinical data is returned.	TBR	
3097	This query (Identify Patient by Name, Sex, and Date of Birth) compares the submitted given name to both the patient first and second names in the OLIS Clinical Repository to identify a potential match.	SPQ	

Please also refer to:

9.5 Referrals

This module includes all the use cases in which an external system refers or redirects one or more test requests to another Lab by placing orders in OLIS.

9.5.1 Background Information

A referrals scenario begins when a laboratory accepts a requisition from a practitioner which includes test request(s) that the lab is not licensed to perform. This laboratory is known as the "Referring Lab". The Referring Lab contracts the services of a partner lab to process the test and produce the results. The (partner) laboratory is known as the "Reference Lab".

The Referring Lab sends a "Referred Order" and specimen(s) to the Reference Lab for processing. The OLIS referrals process is an electronic exchange of laboratory data between laboratories via OLIS. OLIS facilitates the exchange and data storage. The parties involved collaborate to produce an electronic laboratory report. The status of the order is automatically maintained by OLIS and the parties involved.

Laboratories that exchange referred orders and results electronically through OLIS have the opportunity to avoid re-labelling specimens upon accessioning at the reference laboratory if the sending lab's LIS is able to create specimen IDs that are consumable directly by the reference laboratory's LIS and bar code readers.

Note: Please note that OLIS will not process any referrals for which there is a consent directive in OLIS. Labs participating in Referrals and Redirects in OLIS should follow the alternate path to complete the referral reporting process and any amendments thereof; once a consent directive has been identified. Labs with the legal responsibility of providing the ordering practitioner and OLIS of the report, should always maintain the most recent report of the original order in OLIS.

9.5.1.1 Key Terms

9.5.1.1.1 Original Order

An Order submitted to OLIS with one or more Test Requests which need to be referred out by the referring lab.

9.5.1.1.2 Referred Order

An order submitted to OLIS with one or more referred Test Requests.

9.5.1.1.3 Referring Lab

This is a Laboratory with the following characteristics:

- Has a valid requisition from practitioner.
- Is unable to perform one or more of the requisitioned laboratory tests in-house or wishes to have the reference lab perform confirmatory testing.
- Has the necessary specimen(s).
- Submits the referred order to OLIS.
- Transfers the specimen(s) to the reference lab.
- Can act as the Reporting Lab.
- Reports the results (which can be viewed by a practitioner) to OLIS.

9.5.1.1.4 Reference Lab

This is a Laboratory with the following characteristics:

- Queries OLIS to retrieve referred orders.
- Receives specimen from referring lab.
- Matches specimen with order.
- Can act as the Reporting Lab.
- Acts as the Performing Lab i.e. performs lab work (tests).

- Submits results to OLIS for referring lab to retrieve.

9.5.1.2 Referrals Scenarios

There are two possible scenarios which can be addressed using the use cases in this module:

9.5.1.2.1 Referrals

1. In referrals, referring lab submits a Referred Order with the Referral flag set to “Y” to OLIS, specifying the Reference Lab as the Destination Lab.
2. Reference Lab queries OLIS to obtain all Referred Orders designated for their facility.
3. Reference Lab performs tests and submits results against the Referred Order which is visible only to the Referring and Reference Lab.
4. Referring Lab queries OLIS to obtain results for the Referred Order.
5. Referring Lab updates their LIS.
6. Referring Lab reports final results to OLIS against the Original Order.

Refer to Figure 14 Referred Test Request; Business Process Flow Diagram In a referral scenario, the Referring Lab maintains the legal responsibility of providing the ordering practitioner and OLIS with the final laboratory report.

9.5.1.2.2 Redirections

1. In redirections, referring lab submits a Referred Order with the Referral flag set to "D", specifying the Reference Lab as the Destination Lab.
2. Reference Lab queries OLIS to obtain all Referred Orders designated for their facility.
3. Reference Lab performs tests and submits results against the Referred Order.
4. Reference Lab reports results to OLIS.

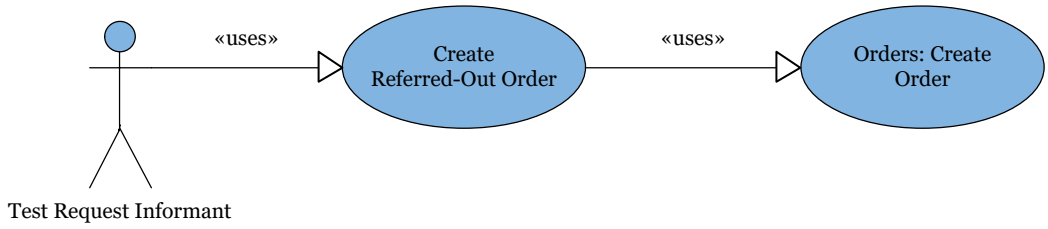
Refer to Figure 16 Redirected Lab Test Request; Business Process Flow Diagram In a redirection scenario, the Reference Lab maintains the legal responsibility of providing the ordering practitioner and OLIS with the final laboratory report.

9.5.1.3 Benefits

The benefits of referrals include but are not limited to:

- Automates manual (paper-based) processes.
- Reduces the chances of human error.
- Potential to save time and money, and reduce turn-around time.
- Simplifies the electronic referrals process because the same OLIS referrals interface can be used with multiple referrals partners.
- No need to develop custom interfaces.
- Large volumes of referred orders can be managed between the referring lab and the reference lab by utilizing one or more of the following fields:
    - Referring Lab User-readable Specimen Identifier (OBR.18)
    - Referring Lab Specimen Bar Code Number (OBR.19)
    - Performing Lab User-readable Specimen Identifier (OBR.20)

Figure 39 Referrals Use Case Model Diagram



9.5.2 Use Cases Scope

9.5.2.1 In Scope

- Order information insertion into OLIS (Create Referred out Order).

9.5.2.2 Out of Scope

- Result information retrieval from OLIS (OLIS Result Message for the referred order)).

9.5.3 Referrals Use Case Actors and Roles

Table 36 Referrals Use Case Actors and Roles

#	Use Case	Probable Communities of Interest	System	Role	Description
1	Create Referred-out Order	Hospital Laboratory; Community Laboratory; Public Health Laboratory	LIS	Test Request Informant	Create orders, with or without specimen information, in their LIS and transmit to OLIS.

9.5.4 Use Cases

9.5.4.1 Create Referred-out Order

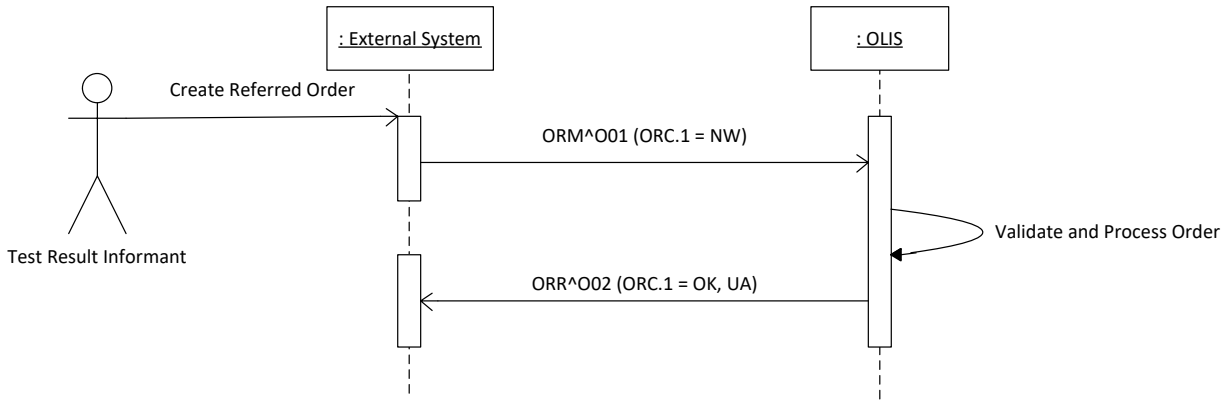


Figure 40 Create Referred Order Interaction Diagram

Use Case:	CREATE REFERRED-OUT ORDER
Id:	UC- <401>
Description	This use case allows external system acting on behalf of a test result informant to create a new referred order in OLIS. Specimen information may be provided on any of the test requests in the order, but test results may not be submitted.
Level:	User Level
Primary Actor	External system (e.g. LIS)
Supporting	OLIS

Actors	
Stakeholders and Interests	Laboratory Information Systems
Assumptions	
Pre-Conditions	
Trigger	This use case begins when a laboratory is unable to perform one or more of the requisitioned laboratory test in-house or wishes to have the reference lab perform the testing and the referred Order needs to be communicated to OLIS in order to be fulfilled by the referring laboratory.
Main Success Scenario	1. Create Referred-out Order include *UC-<101> Create Order*.
Post Conditions	Success end condition: The new referred order is created in the OLIS clinical repository. Failure end condition: The new referred order is not created in the OLIS clinical repository. Note that any error identified causes OLIS to reject the entire order message. Minimal Guarantee: The external system will receive a response message with an Acknowledgement Code.
Alternative Flow	
Variations	
Frequency	As Required

9.5.4.1.1 Business Rules and Considerations for Implementation

Table 37 Create Referred-Out Order for Referrals and Redirect Business Rules Table

Business Rules #	Business Rule Description	HL7 Message	HL7 Message Details
4011	If the *Referred Test Indicator flag (ZBR.12)* is set to 'Y', the reference order in OLIS is visible only to the ordering facility (ORC.21) and the destination lab (ZBR.8) identified on the order. A reference order is not visible to a practitioner who queries OLIS.	ORM	ZBR.12; ORC.21; ZBR.8;
4012	When the *referring laboratory* retrieves the test results for the reference order from OLIS and the *Referred Test Indicator flag (ZBR.12)* is set to 'Y', it will report these results to OLIS against the original order, identifying the *performing laboratory* that actually performed the tests. Although the same test requests and results will be stored in OLIS twice, only the original order will be visible to anyone other than laboratory service providers that are party to the reference order.	ORM	ZBR.12;
4013	The only necessary differences between the Original Order and the Referred Order are that the order ID (placer group number) and test request IDs (placer order numbers) must be different in the Referred Order, and the ZBR.12 Referred Test Indicator flag must be set to 'Y' in referral scenarios.	ORM	ORC.4; OBR.2;
4014	All of the results submitted for a referred-out order which has the *Referred Test Indicator flag (ZBR.12)* set to 'Y', are only visible to the ordering facility (referring lab).	ORU	ZBR.12
4015	If the *Referred Test Indicator flag (ZBR.12)* is set to 'D', the order is being redirected via OLIS; the order can be queried by all providers; except in cases where a consent directive exists; in which case it can only be viewed by the named provider(s).	ORM, ORU	ZBR.12
4016	When referenced laboratory retrieves the redirected order (i.e. ZBR.12 is set to 'D') from OLIS, it is expected that the lab will create a new result message (ORU) in OLIS with a new Placer Group Number (ORC.4), a new Placer Order Number (OBR.2) and maintain the Specimen Collector (ZBR.3) from the original redirected order	ORM, ORU	ORC.4; OBR.2; ZBR.3 ZBR.12
4017	Once a value has been set in the Referred Test Indicator flag (ZBR.12), the value cannot be changed in subsequent transactions.	ORM, ORU	ZBR.12

The destination laboratory can retrieve the reference order through the 9.4.4.5 **Z05 – Retrieve Order/Report for Destination Lab** on page 108 use case.

The referring laboratory can monitor the reference order for results through the 9.4.4.6 **Z06 – Retrieve Order/Report for Ordering Facility** on page 110 use case.

Note that the test request that the laboratory needs to refer out may already exist in OLIS, for example, if placed by a practitioner's EMR system. In this case, the referring laboratory still creates a separate reference order for the test requests being referred out.

10 HL7 Message Specification

This section describes the OLIS HL7 application-level message specification that external systems must support to communicate with OLIS. This section assumes that the reader is familiar with the HL7 standards.

10.1 HL7 Messaging Considerations

10.1.1 Support for Multiple Versions of HL7

The OLIS HL7 Message Specification was developed based on the HL7 2.3.1 Standard.

HL7 Version 3.0 will be supported when it is sufficiently defined and accepted in the laboratory domain by the HL7 standards organization.

10.1.2 Concepts Borrowed from Later HL7 2.X Versions

In order to minimize the number of Z-segments and Z-fields in this specification, concepts required by OLIS have been borrowed from later 2.x versions of the HL7 Standard where they exist. The following concepts have been borrowed from later versions of the HL7 Standard:

- PID Data Type – Assigning Jurisdiction (2.5)
- PID Data Type – Version Code (2.7)
- Query Parameter Identification (2.4)
- some Vocabulary Table Values (2.5)
- Segment Group Names (2.5)

10.1.3 Support Statement Regarding Special HL7 Protocols

10.1.3.1 HL7 Batch Protocol

OLIS does not support HL7 Batch Protocol.

External systems may execute batch processes that extract and transmit laboratory information to OLIS on a periodic basis; however, these batch processes will interface with the OLIS online transaction processing (OLTP) interface in the same manner as an interactive user. OLIS does not support the ability to receive a file of laboratory information messages from an external system.

10.1.3.2 HL7 Sequence Protocol

OLIS does not support the HL7 Sequence Protocol.

10.1.3.3 Message Continuation Protocol

OLIS does not support the receipt of messages that have been split using the message continuation protocol; however, OLIS may use the query continuation protocol for “continuation query” response messages when a query returns a very large number of orders.

Please also refer to:

9.4.4.1 Retrieve Order/Report on page 101

10.1.4 Segment Continuation Protocol

OLIS does not support segment continuation protocol.

10.1.5 Character Set Support

OLIS supports the displayable characters from the ISO 8859-1 (Latin-1) character set. This single-byte character set is a superset of ASCII and provides support for French-language characters containing diacritics such as the cedilla, and the acute, circumflex, and grave accents.

Most-significant Nibble

Least-significant Nibble (hex)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p			NBSP	°	À	Ð	à	ð
1			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w			§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
D			–	=	M	]	m	}			SHY	½	Í	Ý	í	ý
E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F			/	?	O	_	o				¯	¿	Ï	ß	ï	ÿ

ISO/IEC-8859-1 Character Set Table

Figure 41 OLIS Character Set Support

The ISO/IEC documentation of the 8859-1 character set can be retrieved from the following URL: http://std.dkuug.dk/JTC1/SC2/WG3/docs/n411.pdf

OLIS does not support the escape sequences identified in the HL7 Standard to switch to alternative character sets within a message.

> The ISO-8859-1 character set is similar to, but not identical to, the Windows-1252 character set. Text data is sometimes mislabelled with the character set label ISO-8859-1, even though the data is really Windows-1252 encoded. In the Windows-1252 character set, codes between 128 (0x80h) and 159 (0x9Fh) are used for letters and punctuation, whereas they are control codes in ISO-8859-1. The ISO-8859-1 character set explicitly does not define displayable characters for positions 0-31 (0 – 0x1Fh) and 127-159 (0x7Fh – 0x9Fh).

10.1.6 Hub-and-Spoke Network Model

Most HL7 interfaces provide direct point-to-point communication between two systems. In contrast, OLIS is the hub of a hub-and-spoke model, in which order-placing systems create orders in OLIS, which are then retrieved by specimen collection centre systems and laboratory information systems (LIS). The order-placing systems and LIS systems are not directly interfaced. They communicate indirectly with one another by submitting and querying information in OLIS.

External systems always initiate business transactions with OLIS. OLIS does not send unsolicited messages to external systems.

Please also refer to:

Figure 1 OLIS Context – OLIS is the Laboratory Information Domain Repository for province of Ontario interfacing with different types of stakeholders, e.g. SCCs, HISs, EMRs, etc. on page 34

10.1.7 HL7 Message Encoding Rules

10.1.7.1 ER7 Vertical-Bar (Pipe) Encoding

OLIS supports HL7 ER7 Vertical Bar (Pipe) encoding.

10.1.7.1.1 Segments

A message is composed of a group of segments in a defined sequence. Segments are logical groupings of data fields. Each segment has a name and a three-character identifier. A segment may be "mandatory", "required but may be empty", and some may be repeated in certain contexts. In message-level profiles, "required but may be empty" segments, or groups of "required but may be empty" segments, are surrounded by square brackets. Repeatable segments, or groups of repeatable segments, are surrounded by curly braces.

Each segment must be of a valid type, and must appear in the expected sequence. Segments must also be contextually correct (e.g., a non-repeating segment must appear only once within a message) according to the message profile.

10.1.7.1.2 Fields

Fields within HL7 segments are defined by HL7. When fields are transmitted, they are sent as character strings. Except where noted, HL7 data fields may take on the null value. Sending the null value, which is transmitted as two double-quote marks ("""), is different from omitting a data field. The difference appears when the contents of a message will be used to update a record in OLIS rather than create a new one. If no value is sent, (i.e., it is omitted) the old value remains unchanged. If the null value is sent, the old value is to be changed to null.

The allowable information that may be contained in each field is constrained in the message profile by specifying a data type, a maximum number of characters that a single instance of the field may occupy, and an optionality indicator. Some fields are further constrained by a table of legal values that may appear in the field.

When implementing the HL7 standard with XML encoding, it has been determined by HL7 that identifying the structural differences among the various component (CM) data types is necessary to have a fully specified XML encoding of the standard, and HL7 has published an addendum to identify normative XML labels on a field-by-field basis for each field of data type CM in version 2.3.1 of the HL7 Standard. This specification has adopted the relevant normative XML labels published in the addendum as the data type identifiers for each CM data type. For example, the *Message Type* field (MSH.9) in the Message Header Segment was originally defined as a CM data type, but the addendum has assigned an XML label of 'MSG' to MSH.9. Accordingly, this specification identifies the data type of the MSH.9 field as 'MSG' rather than 'CM', thus eliminating the ambiguity inherent in the CM data type.

10.1.7.1.3 Field Components and Sub-components

Some data types are composed of component fields which in turn may be composed of subcomponent fields. In the message profile, each component and subcomponent field is assigned a data type, a maximum number of characters that a single instance of the field may occupy, an optionality indicator, and where relevant, a table of legal values that the field may contain. Component fields are identified in blue text, while subcomponent fields are identified in plum text.

10.1.7.1.4 Delimiters

ER7 message encoding is a variable-length format. OLIS supports the HL7-recommended delimiters to separate segments, fields, components, and subcomponents for ER7 message encoding:

Delimiter	ISO 8859/1 Character Code	Structure	Purpose
Carriage return	13	Segment	The segment terminator is always a carriage return. It is represented by <CR> in this specification.
|	124	Field	Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.

^	94	Component	Separates adjacent components of data fields where allowed.
&	38	Subcomponent	Separates adjacent subcomponents of data fields where allowed.
~	126	Repetition	Separates multiple occurrences of a field where allowed.
\	92	Escape	Introduces an escape sequence that represents an ER7 reserved character that would otherwise be mistaken as mark-up or a delimiter.

Table 38 HL7 - recommended Delimiters to Separate Segments, Fields, Components and Subcomponents for ER7 Message Encoding that OLIS Supports

The ER7 encoding format identifies several reserved characters that must be replaced with escape sequences when creating a message and these same escape sequences must be un-escaped when parsing a message.

10.1.7.1.5 Escape Sequences for ER7 Reserved Characters

OLIS supports the following escape sequences to allow the following HL7 reserved characters to be represented in message fields of data type ST, TX, and FT:

Special Character	Escape Sequence
|	\F\
^	\S\
&	\T\
~	\R\
\	\E\

Table 39 Escape Sequences which OLIS Supports

Original Text	Escaped Text
HEMOGLOBIN & HEMATOCRIT PANEL	HEMOGLOBIN \T\ HEMATOCRIT PANEL
BODY WEIGHT:MASS:PT:^FETUS:QN:US.ESTIMATED FROM AC&BPD	BODY WEIGHT:MASS:PT:\S\FETUS:QN:US.ESTIMATED FROM AC\T\BPD

Table 40 Examples from OLIS Test Request and Test Result Nomenclatures for Escape Sequences

10.1.7.1.6 Unsupported Escape Sequences

The vertical bar character encoding mechanism using \Xxxx\ as a character reference, and \Zxxx\ to refer to a locally defined character reference is not supported in OLIS.

The XML character references to Unicode characters (e.g., &#n, &#xNNNN) are not supported in OLIS.

10.1.8 Optionality

This specification defines the optionality of segments, fields, field components, and field subcomponents in each message profile using the values in the following table[1].

[1] Adapted from the HL7 Standard, version 2.5

Table 41 Optionality of Segments, Fields, Field Components and Field Subcomponents in OLIS

Value	Description	Definition
R	Required	Implementers are required to support the interchange of this information. A conformant sending application shall populate all “R” elements with a non-empty value. Conforming receiving application shall process the information conveyed by required elements. Implementers are required to support the interchange of this information. A conformant receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.
RE	Required but may be empty in some messages	Implementers are required to support the interchange of this information. The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conformant sending application must be **capable** of providing all “RE” elements. If the conformant sending application knows the required values for the element, then it must send that element. If the conformant sending application does not know the required values, then that element will be omitted. A conformant receiving application is expected to process data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).
C	Conditional	Implementers are required to support the interchange of this information. This usage has an associated condition predicate. **If the predicate is satisfied:** A conformant sending application must always send the element. A conformant receiving application must process the element. It may raise an error if the element is not present. **If the predicate is not satisfied:** A conformant sending application must not send the element. A conformant receiving application must not raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element is present.

Value	Description	Definition
CE	Conditional but it may be empty in some messages	Implementers are required to support the interchange of this information. This usage has an associated condition predicate. **If the predicate is satisfied:** If the conformant sending application knows the required values for the element, then the application must send the element. If the conformant sending application does not know the values required for this element, then the element shall be omitted. The conformant sending application must be **capable** of knowing the element (when the predicate is true) for all 'CE' elements. If the element is present, the conformant receiving application shall process (display/print/archive/etc.) the values of that element. If the element is not present, the conformant receiving application shall **not** raise an error due to the presence or absence of the element. **If the predicate is not satisfied:** The conformant sending application shall not populate the element. The conformant receiving application may raise an application error if the element is present.
D	Deprecated	Deprecated – there is no requirement to populate this field. This element may become Not Supported in a future release of this specification.
X	Not supported	Conformant sending applications will not send the element. Conformant receiving applications (i.e., OLIS) will raise an application error.

1. Correct interpretation of optionality in this specification requires proper interpretation of optionality information at the message, segment, field, and field-component level. For example:
   a. The DG1 diagnosis segment is not a mandatory segment in the ORM, ORU, and ERP messages; however, when the diagnosis segment is present in a message three fields are identified as mandatory, and all three components of the third field (diagnosis code) are mandatory.
   b. The NTE note segment is not a mandatory segment in the ORM, ORU, and ERP messages; however, when the NTE segment is present in a message it must be immediately followed by a ZNT segment.
   c. The OBR.22 (Results Rpt/Status Chng – Date/Time) field is not supported in the ORM and ORU messages, but it is mandatory in the ORR and ERP messages.
   d. The data types indicated at the field level in the specification match the data types indicated in the HL7 Standard; however, the definition of some component data types varies from field to field. For example, The OBR.39 Collector's Comment field is identified as a coded element (CE) data type, but only the second component of the data type is used in OLIS.
2. Implementers are advised to carefully review the OLIS Usage Notes associated with a given element to fully understand how and when the element must be populated.
3. The optionality of a given element or segment may vary from one message, event, or Order Control Code to another. Implementers are encouraged to study the message definitions carefully.

10.1.9 Supported HL7 Data Types

OLIS supports the following data types from HL7:

Table 42 Supported HL7 Data Types

Data Type	Description
Character Data (ST/TX/FT)	Character data includes any displayable characters in the supported character set. Leading and trailing spaces must not appear in any field that supports character data. The HL7 Standard further states that trailing spaces, if present, are to be discarded by the receiving interface. The ER7 encoding format identifies several reserved characters that must be replaced with escape sequences when creating a message and these same escape sequences must be un-escaped when parsing a message. OLIS validates much of the content of incoming messages, and supports validating text (e.g., names of patients, practitioners, and tests) in a case-insensitive manner. In contrast, escape sequences for reserved characters and formatted text (0 *Formatted Text Data*) must appear in the case stated in this specification.
Coded Element Data (CE)	Components: <Identifier (ID or ST)>^<Text (ST)>^<Name of Coding System (ST)> The coded element data type unambiguously expresses a coded concept from a value domain with the corresponding text definition and value domain identifier. Refer to specific segment and field definitions for the usage of the CE data type, which varies by field. Some uses of the CE data type only support one or two of the three defined components. Leading, embedded and trailing spaces must not appear in any field that supports character data. OLIS does not support the three additional "alternate components" given in the abstract coded element data type definition in the HL7 Standard.
Numeric Data (NM)	Numeric data may contain only the digits 0 through 9, plus a decimal point "." And/or negative sign "-" when appropriate. No other characters are supported. Decimal points must always be explicitly used when needed. Leading, embedded and trailing spaces must not appear in any field that contains numeric data
Structured Numeric Data (SN)	Components: <comparator (ST)> ^ <num1 (NM)> ^ <separator/suffix (ST)> ^ <num2 (NM)> The structured numeric data type is used to unambiguously express numeric clinical results along with qualifications. This enables receiving systems to store the components separately, and facilitates the use of numeric database queries. The corresponding sets of values indicated with the <comparator> and <separator/suffix> components are intended to be the authoritative and complete set of values. If <num1> and <num2> are both non-null, then the separator/suffix must be non-null. If the separator is "-", the data range is inclusive; e.g., <num1> - <num2> defines a range of numbers x, such that: <num1> ≤ x ≤ <num2>. The comparator is defined as greater than, less than, greater than or equal, less than or equal, equal, and not equal, respectively. If this component is not valued, it defaults to equal ("="). The separator/suffix is defined as "-" or "+" or "/" or "." Or ":". *Examples:*

	`|>^100|` (greater than 100) `|^100^-^200|` (equal to range of 100 through 200) `|^1^:^228|` (ratio of 1 to 128, e.g., the results of a serological test) `|^2^+|` (categorical response, e.g., occult blood positivity) The ER7 encoding format identifies several reserved characters that must be replaced with escape sequences when creating a message and these same escape sequences must be un-escaped when parsing a message. Leading, embedded and trailing spaces must not appear in any field that contains structured numeric data.
Date/Time Data (TS)	A date/time field may contain a date, or a date and time, according to the level of precision specified in the message profile definition. Dates are always represented as CCYYMMDD where: • CC is the century, followed by • YY is the year, followed by • MM is the month, followed by • DD is the day For example, November 4th, 2006 is represented as 20061104. Time is always represented as: HHMMSS+/-ZZZZ where: • HH is hours in 24-hour format, followed by • MM is minutes, followed by • SS is the seconds, followed by • "+" or "-" is the offset from UTC, followed by • ZZZZ is the UTC offset to a legally defined time zone in HHMM format. For example, 12:30pm EST on November 4th, 2006 would be represented as: 20061104123000-0500. External systems must indicate the UTC offset that represents local time at the site where the system is installed, and the UTC offset will change according to the start and end of daylight savings time where applicable.
Encapsulated Data	OLIS supports test results such as electronic documents, faxes, and images.
Formatted Text Data (ST/TX/FT)	Formatted text, string, and text fields may contain embedded formatting commands. These commands are case sensitive. The following formatting commands are available: **ER7 Syntax** | **Description**

\H\	start highlighting text
\N\	normal text (stop highlighting)
\.sp <number>\	End current output line and skip <number> vertical spaces. <number> is a positive integer or absent. If <number> is absent, skip one space. The horizontal character position remains unchanged. This operating-system independent syntax must be used instead of carriage return, linefeed, or newline characters
\.br\	Begin new output line. Set the horizontal position to the current left margin and increment the vertical position by 1. This operating-system independent syntax must be used instead of carriage return, linefeed, or newline characters.
\.in <number>\	Indent <number> of spaces, where <number> is a positive or negative integer. This command cannot appear after the first printable character of a line.
\.ti <number>\	Temporarily indent <number> of spaces where number is a positive or negative integer. This command cannot appear after the first printable character of a line.
\.sk <number>\	Skip <number> spaces to the right.
\.ce\	End current output line and center the next line.

Examples of formatting instructions that are NOT included in this data type include: width of display, position on page or screen, wrap/no-wrap mode, and type of output devices.

For Implementation Notes refer to:

* For structured numeric data examples: Refer to the message example in section 12.1.1 LABORATORY RECORDS MICROBIOLOGY AND SENSITIVITY TEST RESULTS on page 255.
* Refer to section 6.1.1.8 ER7 VERTICAL-BAR (PIPE) ENCODING on page 24.
* For the definition of encapsulated data refer to OBX.5 Observation value in section OBX-ZBX

Please also refer to:

For structured numeric data examples, refer to the message example in 10.3.2.3.6Laboratory Records Microbiology and Sensitivity Test Resultson page 225

For definition of encapsulated data, refer to 10.2.5.14.3.1.6OBX.5 Observation Valueon page 197

10.1.10 Deleting Information

An external system that needs to update the contents of a field to remove the existing information must send a null value by including a pair of double-quotes (“”) in the field, as per the HL7 Standard, subject to certain exceptions at section 10.1.10.1. Sending empty HL7 fields does not replace data already stored in OLIS; previously submitted data will be retained. In contrast, OLIS will not send double-quotes in fields to an external system to indicate that

information has been removed; the field will be represented as an empty field in order response messages and query response messages.

In order to delete a field that consists of components, it is necessary to provide double quotes (null value) at the component level in each component that needs to be deleted (placing double quotes at the field level will serve only to delete the first component, or sub-component as the case may be).

Similarly, in order to delete a field component that consists of sub-components, it is necessary to provide double quotes in each sub-component which needs to be deleted.

Some fields support multiple values, also referred to as repeating fields, and OLIS applies specific rules to determine how to remove or update information in a repeating field. For example, if an external system indicates double quotes in all components of PID.13 Phone Number – Home then all patient phone numbers will be deleted from the order. If the field originally contained two phone numbers, and the external system wants to remove one of them, it will send only the phone number that is to remain.

10.1.10.1 Where Double Quotes are permitted

In general, a field, component or sub-component containing double quotes are considered empty when OLIS validates the contents of a submitted message. This means that double quotes are not permitted in required fields, components or sub-components. There are a few fields and components which are exceptions to this rule:

Required fields which OLIS considers to be populated when double quotes are present:

- DG1.3

The following required-but-may-be-empty fields do not support double quotes in the ORM and ORU messages:

- ZPD.2
- ORC.21
- OBR.3
- ZBR.4, ZBR.5, ZBR.9, ZBR.10

Conditional field components that do not support double quotes:

- PID.3.4, PID.3.9

Double quotes cannot be present in any field, component, sub-component, or parameter of an inquiry (SPQ) message.

The following ER7-syntax examples illustrate how to remove an entire DG1 segment:

- DG1 segment:
  ```
  DG1|||88553^""^""<CR>
  ```
- OBX-ZBX (containing ancillary information):
  ```
  OBX|1|""|3142-7^BODY WEIGHT:MASS:PT:\S\PATIENT:QN:STATED^LN||""|""|||||Z|||20060511<CR>
  ZBX|20060515235959-0500<CR>
  ```

10.1.11 Acknowledgement Mode

OLIS supports the HL7 immediate, original acknowledgement mode. The HL7 deferred or enhanced acknowledgment mode is not supported. OLIS has a target response time of 5 seconds and a maximum response time of 15 seconds to issue an acknowledgement message once an incoming message is received.

10.2 HL7 Message Structure

10.2.1 Messages

A message is the atomic unit of data transferred between systems. Each message has a message type that defines its purpose. In general terms, OLIS supports input messages for orders (ORM), report (ORU), and queries (SPQ).

OLIS supports a single output message (ERP) that allows laboratory order and report information to be received from OLIS exactly* as the information was submitted to OLIS in ORM and ORU messages. OLIS does not add, change, or remove any of the laboratory information content, but it does validate much of the information to ensure that the

human-readable portion of the messages is no different than the machine-readable portion. OLIS will append information to HL7 messages at the time of receipt to track the date and time the message was received in OLIS.

Each message is composed of segments that contain specific types of information. The following orientation provides a high-level description of how laboratory information is organized within OLIS messages:

In OLIS, a laboratory order and laboratory report differ only in whether results have been reported for the ordered tests, so the terms *order* and *report* are often used interchangeably. Each *order/report* is identified by a globally unique identifier, known as the order ID, report ID, or Placer Group Number in HL7 terminology. An *order* or *report* message contains a single *order* or *report* ordered by a single practitioner. An order identifies a patient, an ordering practitioner, a list of CC'd practitioners, and one or more tests ordered by the practitioner. The tests ordered by the practitioner are referred to as *test requests*.

The PID segment contains information that identifies the patient. In ERP messages that contain multiple *orders/reports*, the PID segment indicates the beginning of a new *order/report*, even for the same patient.

The ORC-OBR-ZBR segments always occur as a group. This group of segments contains *test request* information, practitioner information, specimen information, and context information. Each ORC segment contains the Placer Group Number to group the *test requests* in the *order/report*.

The OBX-ZBX segments always occur as a group. This group of segments contains *test result* information provided by a laboratory. Each *test request* may have zero, one, or many *test results*.

The NTE-ZNT segments always occur as a group. This group of segments contains notes that can be associated with the *order/report*, with an individual *test request*, or with an individual *test result*.

A few fields are either input-only or output-only for workflow, consent, and technical reasons. Specific fields that are input-only to OLIS are the fields in the MSH, the ZPD.2 field, and the ZBR.10 Business Rule Intervention Code field. The OBR.22 Results Rpt/Status Chng – Date/Time field is output-only, as the values in this field are maintained by OLIS.X.

10.2.1.1 HL7 Message Profiles

An HL7 message profile is an unambiguous specification of one or more standard HL7 messages that have been analyzed for a particular use case. It prescribes a set of precise constraints upon one or more standard HL7 messages.

An HL7 V2.x Message Profile defines both the static structure and content of the message and the dynamic interaction, which involves the communication of the message from the sending application to one or more receiving applications.

HL7 V2.x Message Profiles must consist of the following components:

- Use Case Model, which may be a use case diagram supported with text or just a textual description. The Use Case Model must:
  - Provide a name that clearly and concisely defines the exchange.
  - Define the actors, including the sending and receiving applications.
  - Define the responsibilities of these actors.
  - Document the situations in which the exchange of a particular HL7 Message Profile is required.
  - Document the purpose for each message exchange.
- Dynamic Definition, which consists of an Interaction Model and Dynamic Profile.
  - The Interaction Model includes interaction diagrams that illustrate the sequence of trigger event and resulting message flows between the sending and receiving applications.
  - The Dynamic Profile identifies the acknowledgment mode supported for the interaction between the sending application and the receiving application(s). This model defines specific interactions between the applications that support message profile communication requirements.
- Static Definition, which consists of a Message-Level Profile, Segment-Level Profile, and Field-Level Profile. A static profile identifies only those specific elements of a standard HL7 message that are used in the exchange. A static profile removes all instances of optionality, defining explicitly:
  - Segments, segment groups, fields and components
  - Cardinalities

- Value sets and coding systems.

All of the message profiles in this specification are of the "implementation profile" type, the most detailed level of specification required for unambiguous message interface implementation.

10.2.1.2 Segment Definition Tables User Guide

A Segment Definition Table is provided in this specification for each segment of an OLIS message. This table indicates the sequence of the field within the segment, the field name, the HL7 data type of the field, the corresponding table number that defines legal values for the field (if applicable), the maximum length of a single instance of the field, an optionality indicator, a cardinality indicator, and an example value (if applicable).

The Sequence Number identifies the offset of the field within the segment. For component and subcomponent fields, the offset appears in dotted notation (e.g., the *Message Code* component field is defined as sequence number 9.1).

The definition of component data types such as HD and CE varies from field to field (e.g., MSH.3 and MSH.4 employ different implementations of the HD data type). The definition of HL7 primitive data types used in this specification appears in Supported HL7 Data Types on page 128.

The table column identifies the table number in Table 101 Data Definition Tables on page 294 that contains the set of legal values for the field.

All supported fields appear in **black** text. Supported component fields appear in **blue** text, and supported subcomponent fields appear in **plum** text.

Unsupported fields, components, and subcomponents appear in grey text. To ensure semantically complete exchange of laboratory information, external systems must not send data to OLIS in any field, component, or subcomponent that is identified in this specification as unsupported or is undefined.

The Optionality column defines whether each field, component, and subcomponent is supported by OLIS.

For fields that consist of components, the optionality code for the field defines whether the field is supported, while the optionality codes for the components and subcomponents define the proper usage of the field components and subcomponents when the field appears in a message. For example, PID.11 *Patient Address* has an optionality code of RE because an address must be sent if available. The *Street Address* component (PID.11.1) has an optionality code of R because this component must always be populated whenever an address is provided.

10.2.2 Order Message Profile

10.2.2.1 Dynamic Definition

The Order Message Profile supports the following use cases:

1. *UC-<101>* Create Order on page 82.
2. *UC-<401>* Create Referred-out Order on page 119.
3. *UC-<102>* Amend Order on page 91.

10.2.2.1.1 Dynamic Interaction Model

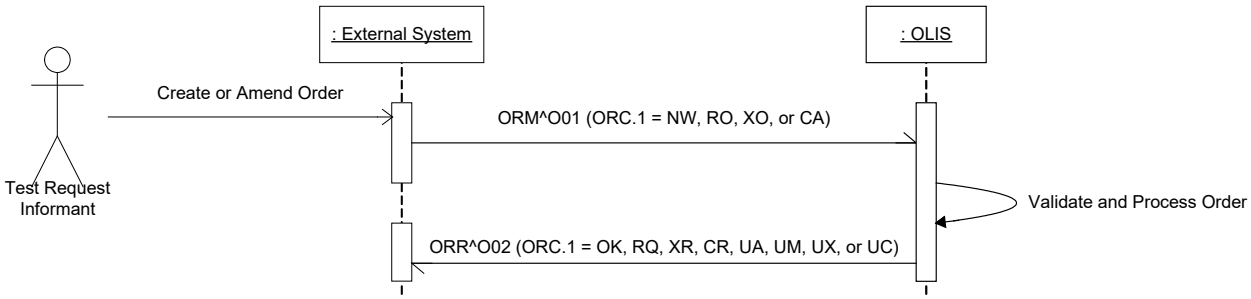


Figure 42 Order Message Profile Interaction Model Diagram

10.2.2.1.2 Activity Diagram

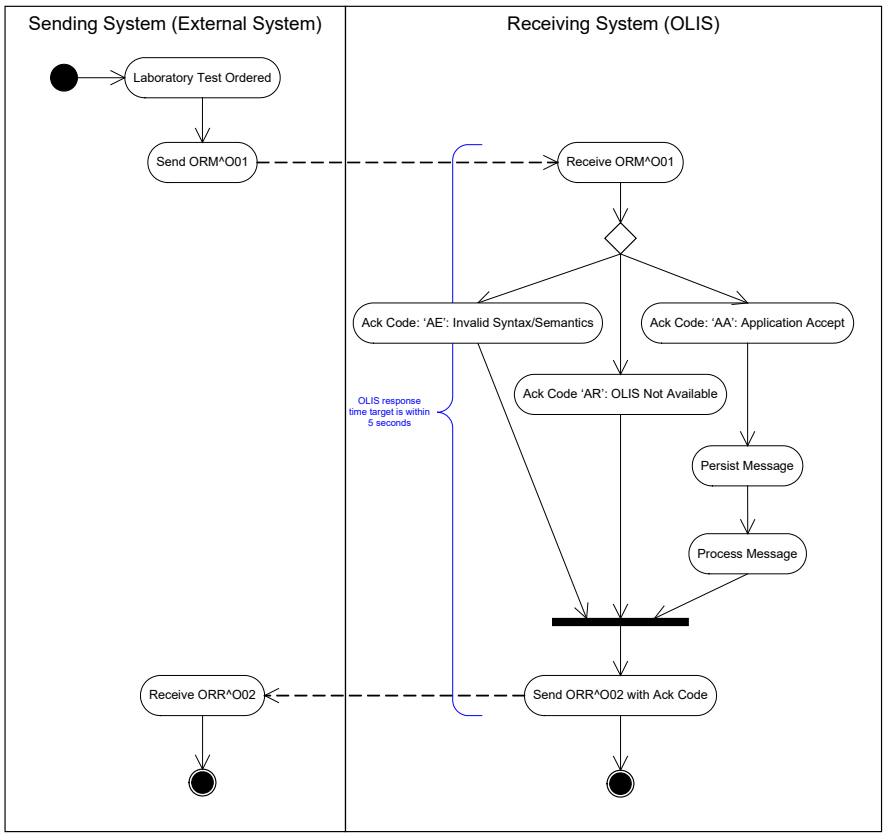


Figure 43 Order Message Profile Activity Diagram

10.2.2.2 Static Definition

If the order message received by OLIS contains a new order (i.e., order control code is "**NW**" on all test requests), then this static definition applies to the incoming message.

If the order message received by OLIS is an order amendment (i.e., none of the order control codes are "**NW**"), then this static definition applies to the combination of the order information that exists in OLIS as amended by the order amendment message.

10.2.2.3 Initiating Message – ORM^O01 Message-Level Profile

Table 43 ORM^O01 Message-level Profile

ORM^O01^ORM_O01	Usage	Cardinality	General Order Message
MSH	R	1..1	Message Header
	R	1..1	--- PATIENT begin
PID	R	1..1	Patient Identification
[ZPD]	RE	0..1	OLIS Patient Identification Extension
[{	RE	0..5	--- ORDER_NOTE begin
NTE	R	1..1	Notes and Comments (for Order)
ZNT	R	1..1	OLIS Note Extension
}]			--- ORDER_NOTE end
[	RE	0..1	--- PATIENT_VISIT begin

ORM^O01^ORM_O01	Usage	Cardinality	General Order Message
PV1	RE	1..1	Patient Visit
]			--- PATIENT_VISIT end
			--- PATIENT end
{	R	1..100	--- ORDER begin
ORC	R	1..1	Common Order
			--- ORDER_DETAIL begin
OBR	R	1..1	Observation Request
ZBR	R	1..1	OLIS Order Detail Extension
[{	RE	0..5	--- TEST_REQUEST_NOTE begin
NTE	R	1..1	Notes and Comments (for Test Request)
ZNT	R	1..1	OLIS Note Extension
}]			--- TEST_REQUEST_NOTE end
[{DG1}]	RE	0..5	Diagnosis
[{	RE	0..100	--- OBSERVATION begin
OBX	R	1..1	Observation (Ancillary Order Information)
ZBX	R	1..1	OLIS Observation Extension
[{	=23140 –		--- OBSERVATION_NOTE begin
NTE	R	1..1	Notes and Comments (for OBSERVATION)
ZNT	R	1..1	OLIS Note Extension
}]			--- OBSERVATION_NOTE end
}]			--- OBSERVATION end
			--- ORDER_DETAIL end
[BLG]	RE	0..1	Billing
}			--- ORDER end

10.2.2.4 Response Message – ORR^O02 Message-level Profile

Table 44 ORR^O02 Message-level Profile

ORR^O02^ORR_O02	Usage	Cardinality	General Order Acknowledgement Message
MSH	R	1..1	Message Header
MSA	R	1..1	Message Acknowledgment
[ERR]	RE	0..1	Error
[	RE	0..1	--- RESPONSE begin
	R	1..1	--- PATIENT begin
PID	R	1..1	Patient Identification
[{	RE	0..5	--- ORDER_NOTE begin
NTE	R	1..1	Notes and Comments (for Order)
ZNT	R	1..1	OLIS Note Extension
}]			--- ORDER_NOTE end
			--- PATIENT end
{	R	1..100	--- ORDER begin

ORR^O02^ORR_O02	Usage	Cardinality	General Order Acknowledgement Message
ORC	R	1..1	Common Order
OBR	R	1..1	Observation Request
ZBR	R	1..1	OLIS Observation Request Extension
[{	RE	0..5	--- TEST_REQUEST_NOTE begin
NTE	R	1..1	Notes and Comments (for Test Request)
ZNT	R	1..1	OLIS Note Extension
}]			--- TEST_REQUEST_NOTE end
}			--- ORDER end
]			--- RESPONSE end

1. With the exception of the MSH, MSA, and ERR segments, the ORR response message echoes portions of the information sent to OLIS in the ORM message.
2. Several segments of the ORM message are not echoed in the ORR message; however, the ORR may indicate errors relating to any part of the ORM message.
3. The external system must consider the MSA.1 Acknowledgment Code to determine whether the information in the ORM message has been accepted by OLIS. A value of “AA” indicates that OLIS has accepted the message, while a value of “AE” indicates that the message has been rejected. If the MSA.1 Acknowledgment Code contains “AR” (Application Reject), then OLIS is presently unable to accept and process the ORM message.
4. If a value of “AE” was returned in the ORR message, the external application must review the order control codes of the ORC segments in the ORR message to determine which test requests contained errors. The specific error conditions identified by OLIS will be contained in the ERR segment in the ORR message.
5. Note that OLIS either accepts or rejects the entire ORM message; OLIS does not accept the parts of a message that are free of errors if errors exist elsewhere in the message.
6. The ORR message may not echo any segments from the PID onward if any of the segments in this range contain data that is not syntactically valid according to the segment and field formatting rules given in the ORM message definition.

10.2.3 Test Result Message Profile

10.2.3.1 Dynamic Definition

The Test Result Message Profile supports the following use cases:

1. *UC-<201>* Report Test Result on page 88.
2. *UC-<202>* Amend Test Result on page 91.

10.2.3.1.1 Dynamic Interaction Model

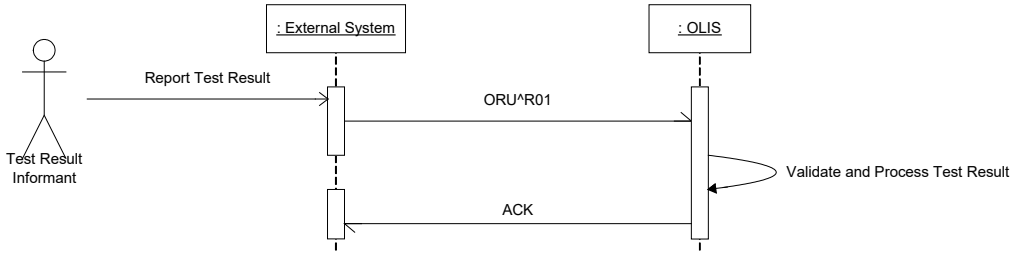


Figure 44 Test Result Message Profile Interaction Model Diagram

10.2.3.1.2 Activity Diagram

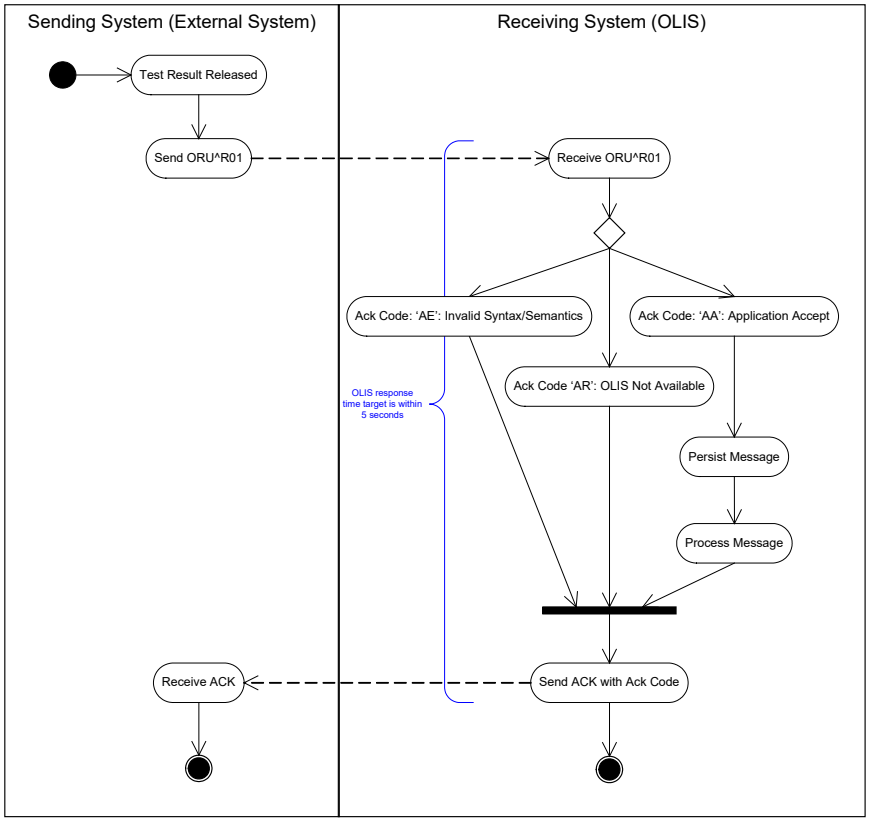


Figure 45 Test Result Message Profile Activity Diagram

10.2.3.2 Initiating Message – ORU^R01 Message-level Profile

Table 45 ORU^R01 Message-level Profile

ORU^R01^ORU_R01	Usage	Cardinality	Unsolicited Observation Message
MSH	R	1..1	Message Header
	R	1..1	--- PATIENT_RESULT begin
	R	1..1	--- PATIENT begin
PID	R	1..1	Patient Identification
[ZPD]	RE	0..1	OLIS Patient Identification Extension
[{	RE	0..5	--- ORDER_NOTE begin
NTE	R	1..1	Notes and Comments (for Order)
ZNT	R	1..1	OLIS Note Extension

ORU^R01^ORU_R01	Usage	Cardinality	Unsolicited Observation Message
}]			--- ORDER_NOTE end
[	R	0..1	--- PATIENT_VISIT begin
PV1	R	1..1	Patient Visit
]			--- PATIENT_VISIT end
			--- PATIENT end
{	R	1..100	--- ORDER_OBSERVATION begin
ORC	R	1..1	Common Order
OBR	R	1..1	Order Detail Segment
ZBR	R	1..1	OLIS Order Detail Extension
[{	RE	0..5	--- TEST_REQUEST_NOTE begin
NTE	R	1..1	Notes and Comments (for Test Request)
ZNT	R	1..1	OLIS Note Extension
}]			--- TEST_REQUEST_NOTE end
[{DG1}]	RE	0..5	Diagnosis
{	R	1..100	--- OBSERVATION begin
OBX	R	1..1	Observation/Result
ZBX	R	1..1	OLIS Observation/Result Extension
[{	RE	0..5	--- OBSERVATION_NOTE begin
NTE	R	1..1	Notes and Comments (for Observation)
ZNT	R	1..1	OLIS Note Extension
}]			--- OBSERVATION_NOTE end
}			--- OBSERVATION end
[BLG]	RE	0..1	Billing Segment
}			--- ORDER_OBSERVATION end
			--- PATIENT_RESULT end

10.2.3.3 Response Message – ACK Message-level Profile

Table 46 ACK Message-level Profile

ACK^R01^ACK	Usage	Cardinality	General Acknowledgement Message
MSH	R	1..1	Message Header
MSA	R	1..1	Message Acknowledgment
[ERR]	RE	0..1	Error

10.2.4 Query Message Profile

10.2.4.1 Overview

A total of eight queries have been identified to allow OLIS to support laboratory information retrieval by practitioners, specimen collection centres, laboratories, and healthcare facilities, as well as Public Health and Cancer Care Ontario. A unique Query ID has been assigned to each query type in the following table. The Query ID appears in the MSH.9.2 *Trigger Event* field of the SPQ query message.

Table 47 Queries and their Description

Query ID	Query Name
Z01	Retrieve Order/Report for Patient
Z02	Retrieve Order/Report for Order ID
Z03	(not used)
Z04	Retrieve Order/Report for Practitioner
Z05	Retrieve Order/Report for Laboratory
Z06	Retrieve Order/Report for Ordering Facility
Z07	Retrieve Order/Report Reportable to Public Health
Z08	Retrieve Order/Report to Cancer Care Ontario
Z11	Retrieve Laboratory Order Information for Patient
Z50	Identify Patient by Name, Sex and Date of Birth

10.2.4.2 Query Conformance Statements

10.2.4.2.1 Z01 – Retrieve Order/Report for Patient

Table 48 Z01 – Retrieve Order/Report for Patient Query Conformance Statement

Query Statement ID:	**Z01**
Type:	Query
Stored Procedure Name:	Z_QryLabInfoForPatientID
Query Trigger (=MSH.9):	SPQ^Z01^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository for a specified Patient ID
Query Characteristics:	The Patient ID, Date of Birth, Start Timestamp and Requesting HIC are mandatory parameters. Patient's sex at birth is now an optional parameter. The Requesting HIC may assert consent to view a patient's blocked order/report. OLIS will accept patient sex, and date of birth information that is currently valid or that was formerly valid. A report that contains a non-nominal patient identifier can only be retrieved by the practitioner(s) and lab(s) named on the report.

Response Characteristics:	This query returns all orders/reports that meet the query criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe **or** an OBR.7 Observation Date/Time (specimen collection date/time) within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order) unless a test-request-level block exists. If the @OBR.22 timestamp(s) are specified in the query parameters, the orders returned in the response will be sorted in descending sequence by the test request date (OBR.27.4) in the order so that the most recently updated order is returned first. If an order contains multiple, different test request dates, the earliest test request date within the order is used in the sort. If the @OBR.7 timestamp(s) are specified in the query parameters, the orders returned in the response will be sorted in descending sequence by the observation date/time (OBR.7) in the order so that the most recently updated order is returned first. If an order contains multiple, different observation date/times, the earliest observation date/time within the order is used in the sort.
Based on Segment Pattern:	ERP

10.2.4.2.2 Z02 – Retrieve Order/Report for Order ID

Table 49 Z02 – Retrieve Order/Report for Order ID Query Conformance Statement

Query Statement ID:	**Z02**
Type:	Query
Stored Procedure Name	Z_QryLabInfoForOrderID
Query Trigger (=MSH.9):	SPQ^Z02^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns the laboratory order/report from the OLIS Clinical Repository for a specified Order ID (Placer Group Number)
Query Characteristics:	The Placer Group Number, Requesting HIC, and Patient Identifier parameters are mandatory. The Requesting HIC may assert consent to view a patient's blocked order/report. OLIS will accept patient sex, and date of birth information that is currently valid or that was formerly valid. A report that contains a non-nominal patient identifier can only be retrieved by the practitioner(s) and lab(s) named on the report.
Response Characteristics:	This query returns full orders/reports (i.e., all test requests and test results for the order) unless a test-request-level block exists. This query optionally also returns all historical test results that have been subsequently amended.
Based on Segment Pattern:	ERP

10.2.4.2.3 Z04 – Retrieve Order/Report for Practitioner

Table 50 Z04 – Retrieve Order/Report for Practitioner Query Conformance Statement

Query Statement ID:	**Z04**

Type:	Query
Stored Procedure Name	Z_QryLabInfoUpdatesForPractitionerID
Query Trigger (=MSH.9):	SPQ^Z04^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository that has been created or updated in a specified timeframe, and that identifies the specified practitioner (HIC Individual) as a report recipient.
Query Characteristics:	The Start Timestamp and Requesting HIC parameters are mandatory.
Response Characteristics:	This query allows a HIC Individual (Practitioner) to keep up to date with laboratory order/report updates in OLIS where the practitioner is identified as a report recipient. OLIS will identify a match the submitted Practitioner ID on any of the following fields: OBR.16 Ordering Practitioner OBR.28 Copied-to Practitioner PV1.7 Attending Practitioner PV1.17 Admitting Practitioner This query returns reports that meet the practitioner ID criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order).
Based on Segment Pattern:	ERP

10.2.4.2.4 Z05 – Retrieve Order/Report for Destination Laboratory

Table 51 Z05 – Retrieve Order/Report for Destination Laboratory Query Conformance Statement

Query Statement ID:	**Z05**
Type:	Query
Stored Procedure Name	Z_QryLabInfoUpdatesForLaboratoryID
Query Trigger (= MSH.9):	SPQ^Z05^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository that has been created or updated in a specified timeframe and that identifies the submitted laboratory ID in the Destination Laboratory field.
Query Characteristics:	The Start Timestamp and Destination Laboratory ID parameters are mandatory. The Laboratory must identify itself in the Destination Laboratory ID parameter.
Response Characteristics:	This query allows a laboratory to retrieve laboratory orders/reports that have been created or updated in the specified timeframe where the submitted laboratory ID is identified as the destination laboratory. This query returns all orders/reports that meet the laboratory ID criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order).

Based on Segment Pattern:	ERP

10.2.4.2.5 Z06 – Retrieve Order/Report for Ordering Facility

Table 52 Z06 – Retrieve Order/Report for Ordering Facility Query Conformance Statement

Query Statement ID:	**Z06**
Type:	Query
Stored Procedure Name	Z_QryLabInfoUpdatesForHCFID
Query Trigger (= MSH.9):	SPQ^Z06^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository that have been created or updated in a specified timeframe that is associated with the specified facility in the Ordering Facility field.
Query Characteristics:	The Start Timestamp and Ordering Facility ID are mandatory parameters.
Response Characteristics:	This query allows a healthcare facility to retrieve laboratory orders/reports that have been created or updated in the specified timeframe where the submitted healthcare facility ID is identified as the ordering facility. This query returns all orders/reports that meet the healthcare facility ID criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order).
Based on Segment Pattern:	ERP

10.2.4.2.6 Z07 – Retrieve Order/Report Reportable to Public Health

Table 53 Z07 – Retrieve Order/Report Reportable to Public Health Query Conformance Statement

Query Statement ID:	**Z07**
Type:	Query
Stored Procedure Name	Z_QryLabInfoByPHBReportFlag
Query Trigger (= MSH.9):	SPQ^Z07^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository that have been created or updated in a specified timeframe where the test result is identified as reportable to Public Health in the ZBR.9 *Reportable Test Indicator* field.
Query Characteristics:	The Start Timestamp is a mandatory parameter.
Response Characteristics:	This query returns all orders/reports that meet the reportable criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order).
Based on Segment Pattern:	ERP

10.2.4.2.7 Z08 – Retrieve Order/Report Reportable to Cancer Care Ontario

Table 54 Z08 – Retrieve Order/Report Reportable to Cancer Care Ontario Query Conformance Statement

Query Statement ID:	**Z08**
Type:	Query
Stored Procedure Name	Z_QryLabInfoByCCOReportFlag
Query Trigger (= MSH.9):	SPQ^Z08^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns laboratory orders/reports from the OLIS Clinical Repository that have been created or updated in a specified timeframe where the test result is identified as reportable to Cancer Care Ontario in the ZBR.9 *Reportable Test Indicator* field.
Query Characteristics:	The Start Timestamp is a mandatory parameter.
Response Characteristics:	This query returns all orders/reports that meet the reportable criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe. This query returns full orders/reports (i.e., all test requests and test results for the order).
Based on Segment Pattern:	ERP

10.2.4.2.8 Z11 – Retrieve Laboratory Order Information for Patient

Table 55 Z11 – Retrieve Laboratory Order Information for Patient Query Conformance Statement

Query Statement ID:	**Z11**
Type:	Query
Stored Procedure Name:	Z_QryLabOrderForPatientID
Query Trigger (=MSH.9):	SPQ^Z11^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	ERP^Z99^ERP_R09
Purpose:	This query returns unfulfilled laboratory orders from the OLIS Clinical Repository for a specified Patient ID for the last 185 days
Query Characteristics:	The Patient ID, Date of Birth, Start Timestamp and Requesting HIC are mandatory parameters. The Requesting HIC may assert consent to view a patient's blocked order. OLIS will accept patient sex, and date of birth information that is currently valid or that was formerly valid. A lab order that contains a non-nominal patient identifier can only be retrieved by the practitioner(s) and lab(s) named on the order.

Response Characteristics:	This query returns only unfulfilled lab orders that meet the query criteria and that have an OBR.22 *Results Rpt/Status Chng – Date/Time* Timestamp within the specified timeframe unless there is a patient or test-request-level consent block. The orders returned in the response will be sorted in descending sequence by the test request date (OBR.27.4) in the order so that the most recently updated order is returned first. If an order contains multiple, different test request dates, the earliest test request date within the order is used in the sort. If an order contains multiple, different observation date/times, the earliest observation date/time within the order is used in the sort.
Based on Segment Pattern:	ERP

10.2.4.2.9 Z50 – Identify Patient by Name, Sex, and Date of Birth

Table 56 Z50 – Identify Patient by Name, Sex, and Date of Birth Query Conformance Statement

Query Statement ID:	**Z50**
Type:	Query
Stored Procedure Name	Z_IDPatientByNameSexDoB
Query Trigger (= MSH.9):	SPQ^Z50^SPQ_Q08
Query Mode:	Real time
Response Trigger (=MSH.9):	TBR^Z98^TBR_R08
Purpose:	This query returns Patient Identifier, practitioner identifier, demographic, and address information from OLIS that matches on Name, Sex, and Date of Birth according to criteria defined within OLIS.
Query Characteristics:	First Name, Last Name, Sex, and Date of Birth are mandatory parameters.
Response Characteristics:	The tabular result set returned by this query is defined in section 10.2.5.20 RDF Segment Definition for Query ID Z50 on page 205. Non-nominal name types will not be returned.

10.2.4.3 Dynamic Definition

The Query Message Profile supports the following use cases:

1. *UC-<302>* Retrieve Order/Report for Patient on page 104.
2. *UC-<303>* Retrieve Order/Report for Order ID on page 105.
3. *UC-<304>* Retrieve Order/Report for Practitioner on page 107.
4. *UC-<306>* Retrieve Order/Report for Destination Laboratory on page 108.
5. *UC-<305>* Retrieve Order/Report for Ordering Facility on page 110.
6. *UC-<307>* Retrieve Order/Report Reportable to Public Health on page 111
7. *UC-<308>* Retrieve Order/Report Reportable to Cancer Care Ontario on page 112.
8. *UC-<310>* Retrieve Lab Order for Patient on page 113.
9. *UC-<309>* Identify Patient by Name, Sex, and Date of Birth on page 115.

10.2.4.3.1 Interaction Diagram

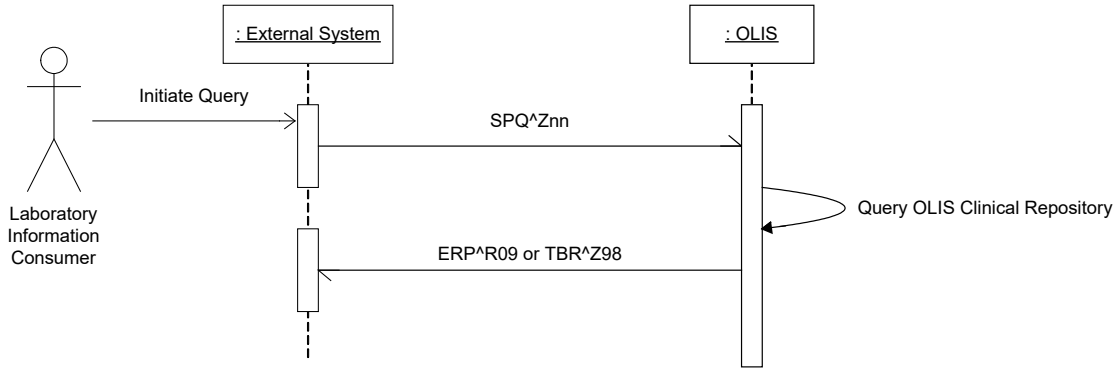


Figure 46 Query Message-level Profile Interaction Diagram

10.2.4.3.2 Activity Diagram

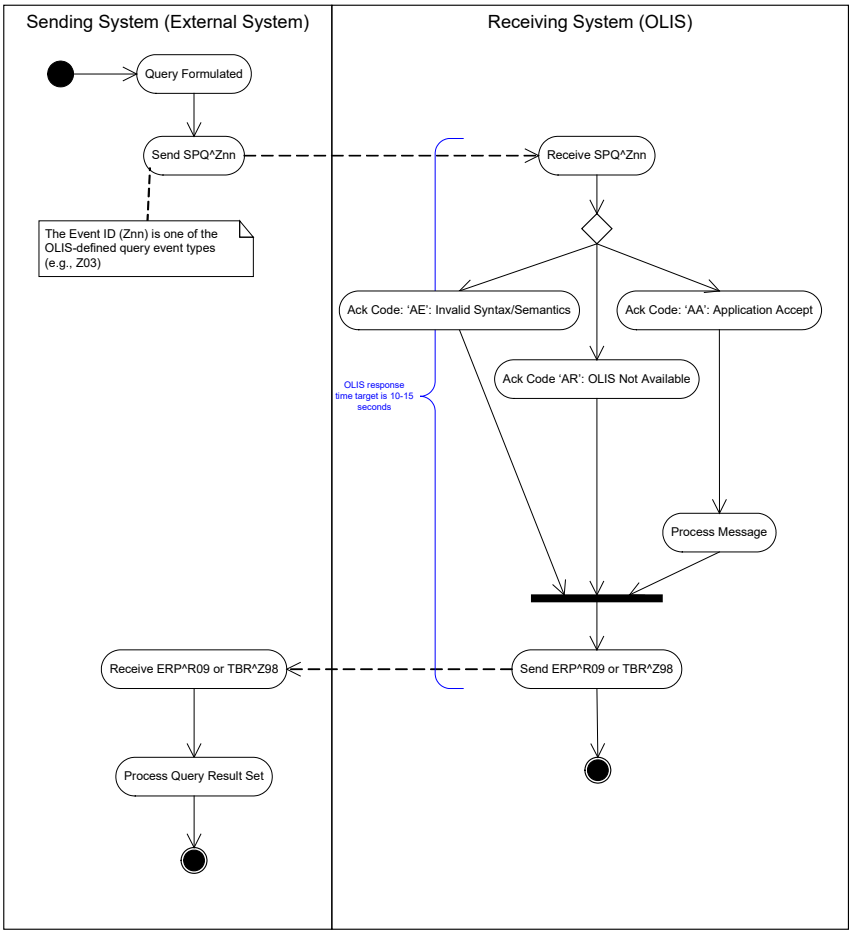


Figure 47 Query Message-level Profile Activity Diagram

10.2.4.4 Initiating Message-level Profile for All Queries – SPQ^Znn Message-level Profile

Table 57 SPQ^Znn Message-level Profile

SPQ^Znn^SPQ_Q08	Usage	Cardinality	Stored Procedure Request
MSH	R	1..1	Message Header
ZSH	C[1]	0..1	OLIS Message Header Extension
SPR	R	1..1	Stored Procedure Request
[DSC]	RE	0..1	Continuation Segment

* *Note that the ZSH segment was introduced after several OLIS viewer applications had been developed. Ontario Health will work with the owners of these viewer applications to determine the timing to meet this patient privacy requirement. The initial implementation of this segment will allow this segment to be omitted to allow time for existing viewer applications to conform to this requirement.*

10.2.4.5 Response Message for Queries Z01-Z11 – ERP^Znn Message-level Profile

The response grammar for seven of the eight queries is identical.

Table 58 ERP^Znn Message-level Profile

ERP^Znn^ERP_R09	Usage	Cardinality	Event Replay Message
MSH	R	1..1	Message Header

ERP^Znn^ERP_R09	Usage	Cardinality	Event Replay Message
MSA	R	1..1	Message Acknowledgement
[ERR]	RE	0..1	Error
QAK	R	1..1	Query Acknowledgement
ERQ	R	1..1	Event Replay Query
[{	RE	0..*	--- PATIENT_RESULT begin
	R	1..1	--- PATIENT begin
PID	R	1..1	Patient Identification
[ZPD]	RE	0..1	OLIS Patient Identification Extension
[{	RE	0..5	--- ORDER_NOTE begin
NTE	R	1..1	Notes and Comments (for Order)
ZNT	R	1..1	OLIS Note Extension
}]			--- ORDER_NOTE end
	R	1..1	--- PATIENT_VISIT begin
PV1	R	1..1	Patient Visit
			--- PATIENT_VISIT end
			--- PATIENT end
{	R	1..100	--- ORDER_OBSERVATION begin
ORC	R	1..1	Common Order
OBR	R	1..1	Order Detail Segment
ZBR	R	1..1	OLIS Order Detail Extension
[{	RE	0..5	--- TEST_REQUEST_NOTE begin
NTE	R	1..1	Notes and Comments (for Test Request)
ZNT	R	1..1	OLIS Note Extension
}]			--- TEST_REQUEST_NOTE end
[{DG1}]	RE	0..5	Diagnosis
[{	RE	0..100	--- OBSERVATION begin
OBX	R	1..1	Observation/Result
ZBX	R	1..1	OLIS Observation/Result Extension
[{	RE	0..5	--- OBSERVATION_NOTE begin
NTE	R	1..1	Notes and Comments (for Observation)
ZNT	R	1..1	OLIS Note Extension
}]			--- OBSERVATION_NOTE end
}]			--- OBSERVATION end
BLG	R	1..1	Billing Segment
}			--- ORDER_OBSERVATION end
}]			--- PATIENT_RESULT end
[DSC]	RE	0..1	Continuation Pointer

10.2.4.6 Response Message for Query Z50 – TBR^Z98 Message-level Profile

Table 59 TBR^Z98 Message-level Profile

TBR^Znn^TBR_R08	Usage	Cardinality	Tabular Data Response
MSH	R	1..1	Message Header
MSA	R	1..1	Message Acknowledgement
[ERR]	RE	0..1	Error
QAK	R	1..1	Query Acknowledgement
RDF	R	1..1	Table Row Definition
[{RDT}]	RE	0..*	Table Row Data
[DSC]	RE	0..1	Continuation Pointer

10.2.4.7 Query Parameters

For a given query an individual parameter may be mandatory, optional, or not supported. A mandatory parameter may be further constrained to a single allowable value.

The Start Timestamp parameter is mandatory for nearly all queries, and specifies the earliest point in time to query the OLIS Clinical Repository for laboratory information. Both the Start Timestamp and the End Timestamp fields are compared to the timestamp in the OBR.22 *Results Rpt/Status Chng – Date/Time* field which is updated by OLIS with the current date and time whenever a change occurs to the test request (ORC-OBR-ZBR segment sequence) and whenever a test result (OBX segment) is recorded on the test request.

OLIS will return records that match all of the parameters supplied (logical AND).

10.2.4.7.1 Specification of Simple Parameter Values

Query parameters are specified in the SPR.4 *Input Parameter List* of the SPR segment. Each parameter consists of two components; the first component identifies the HL7 field to which the parameter applies and the second component identifies the parameter value. The HL7 field is identified using a dotted notation that specifies the segment name and field offset, with component and subcomponent offsets if required. For example, the test request status parameter is identified as @OBR.25 and a query for 'ordered' tests would contain the following value in SPR.4 *Input Parameter List*:

Example:

```
|@OBR.25^O|
```

10.2.4.7.2 Specification of Parameters That Have No Value

A simple parameter that has no value is simply omitted from the parameter information submitted by the external system. In contrast, all components of a complex parameter must be submitted regardless of whether the component has a value. Refer to the *Specification of Complex Parameter Values* topic that follows for an example.

10.2.4.7.3 Specification of Multiple Values for a Simple Parameter

A query for tests with in the "ordered" or "collected" status would contain the following values in SPR.4 *Input Parameter List*.

Example:

```
|@OBR.25^O&I|
```

OLIS will return records that match any of the values (logical OR) supplied when multiple values are specified for a single parameter.

10.2.4.7.4 Specification of Complex Parameter Values

Many of the parameters that identify patients, practitioners, laboratories, and hospitals contain multiple components. For example, a patient is identified by an ID Number that is qualified by an Identifier Type Code and an Assigning Jurisdiction or Assigning Authority, which in turn is scoped by a coding system. The SPR.4 *Input Parameter List* field as defined by HL7 only supports parameters that contain multiple components as a series of simple parameters. For example, a patient is identified as follows in SPR.4 *Input Parameter List*:

Example:

```
|@PID.3.1^1234567890~@PID.3.4.2~@PID3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL7034
7~@PID.8^M~@PID.7^20040213|
```

Note that all components of a complex parameter are required when the complex parameter is used in a query message, even when the parameter does not contain a value. In the preceding example, the @PID.3.4.2 and @PID.3.4.3 parameters are supplied with no value because Ontario Health Numbers are described by assigning jurisdiction rather than assigning authority.

10.2.4.7.5 Specification of Multiple Values for a Complex Parameter

Multiple values for a complex parameter must be specified as a series of values for each component parameter. For example, a query on two OLIS Test Result Nomenclature values is specified as two instances of the value parameter (10470-3 and 10488-5 in the following example) and two instances of the coding system parameter (HL79902, which

is the OLIS Test Result Nomenclature). OLIS will interpret all of the first instance values as the first complex parameter value, all of the second instance values as the second complex parameter value, and so on. The same number of instances must be specified for each component of a Complex Parameter.

Example:

```
|@OBX.3.1^10470-3&10488-5~@OBX.3.3^HL79902&HL79902|
```

OLIS will return records that match any of the values (logical OR) supplied when multiple values are specified for a single parameter.

10.2.4.7.6 Use of Multiple Optional Parameters to Query

Some queries support multiple optional parameters. Implementers are cautioned that querying with multiple parameters that exist at different levels of the laboratory information hierarchy (e.g., using the test request code parameter and test result code parameter in the same query) is discouraged, as the information returned from OLIS may not match the implementer's expectations.

10.2.4.8 Query Parameters Matrix

ID	Query Name ▼ Parameter Name ▶	Start Timestamp (@OBR.22)	Earliest Observation Date/Time (@OBR.7)	Retrieve All Test Results (@ZBX.1)	Quality Limited Request (@QRD.7)	Requesting HIC (@ZRP.1)	Consent to View Blocked Information (@ZPD.1)	Specimen Collector (@ZBR.3)	Performing Laboratory (@ZBR.6)	Exclude Reporting Laboratory (@ZBE.6)	Reporting Laboratory (@ZBR.4)	Exclude Reporting Laboratory (@ZBE.4)	Ordering Facility ID (@ORC.21)	Patient Identifier (@PID.3)	Ordering Practitioner (@OBR.16)	Copied-to-Practitioner (@OBR.28)	Destination Laboratory (@ZBR.8)	Attending Practitioner (@PV1.7)	Admitting Practitioner (@PV1.17)	Test Request Placer (@ZBR.2)	Priority (@OBR.27.6)	Test Request Code (@OBR.4)	Placer Group Number (@ORC.4)	Test Request Status (@OBR.25)	Test Result Code (@OBX.3)	Observation Result Status (@OBX.11)	Abnormal Flags (@OBX.8)	Patient First Name (@PID.5.2) - ZZ50 Query Only	Patient Last Name (@PID.5.1) - Z50 Query Only	Patient Sex (@PID.8)	Patient Date of Birth (@PID.7)	Test Request Replaced Status (@ZBQ.14) - Z01 Query Only	Patient Class (@PVE.2)	Order Callback Phone Number Area Code (@OBR.17.6)	Order Callback Phone Number Local Number (@OBR.17.7)
	Multiple Parameter Values Allowed:																				*Y*	*Y1*		*Y*	*Y2*	*Y*									
	Complex Parameter:				*C*	*C*		*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*	*C*		*C*	*C*		*C*										
Z01	Retrieve Order/Report for Patient	MX	MX		O	M	O	O	O	O	O	O	D	M	O	O	D	O	O	O	D	O	O	O	O	D	O			O	ME	O				
Z02	Retrieve Order/Report for Order Id			O		M	O							M									M													
Z04	Retrieve Order/Report for Practitioner	M			O	M			O	O	O	O	O									O		O	O	O							O	OM	OM	
Z05	Retrieve Order/Report for Destination Laboratory	M			O												M							O												
Z06	Retrieve Order/Report for Ordering Facility	M			O								M											O												
Z07	Retrieve Order/Report for Public Health	M			O																															
Z08	Retrieve Order/Report for Cancer Care Ontario	M			O																															
Z11	Retrieve Lab Order for Patient	M			O	M	O							M	O								O	O						O	M					

Table 60 Query Parameter Matrix

*Query Z50 will be deprecated in future.

M = Mandatory
O = Optional
Blank = Not supported
D = Deprecated – Support for this parameters in the indicated query will be removed from OLIS in the future.
M2 = Mandatory. The result set of the Z50 query will be limited to patients who match on last name, sex, and date of birth who have no first name.
ME = Mandatory but might be empty. If this is non-nominal report or the information is not available this field might be empty.
MX = One of @OBR.7 and @OBR.22 must be submitted. Each of @OBR.7 and @OBR.22 support the submission of an open-ended time frame (start time only) or a closed timeframe (start and end).
OM = Both parameters are mandatory if either @OBR.17.6 or @OBR.17.7 is populated.

Y = Up to fifteen codes may be submitted. **Y1** = Up to 100 codes may be submitted. **Y2** = Up to 200 codes may be submitted.

* *OLIS interprets multiple values submitted in a single parameter to be logically OR'd.*
* *Complex parameters are identified in the second row of the table. Refer to the previous pages for detailed definition of complex parameters.*

10.2.4.8.1 Patient Identifier (@PID.3)

Note that in version 1.07 of this specification, the following components of this parameter are no longer required.

@PID.5.1 Last Name

@PID.5.2 First Name

@PID.5.3 Second Name

To support applications already conformance tested that provide these fields, OLIS will accept and ignore these components if they are submitted.

OLIS will accept a @PID.3 parameter that includes all three of these components, or a @PID.3 parameter that excludes all three of these components.

10.2.4.8.2 Patient Sex (@PID.8)

Note that as of version 1.23 of the specification, this parameter is no longer mandatory

@PID.8 Patient Sex

To support applications already conformance tested that provide this parameter, OLIS will accept and validate this parameter when submitted.

10.2.4.8.3 Start and End Timestamp Parameters (@OBR.22)

When a single date/time value is provided in the @OBR.22 parameter, it identifies is the earliest point in time that will be considered by the query. Records time stamped by OLIS in the OBR.22 field that is greater that this value will be considered.

When two date/time values are provided in the @OBR.22 parameter, it identifies an inclusive date/time range that will be considered by the query.

Z04 query - The maximum date/time range to use should not exceed 31 days. OLIS will reject the request with the error code 324 and prompt the user to resubmit the request for a shorter timeframe with the message "Maximum search range must not exceed 31 days."

Z11 query – The maximum date/range for the Z11 query cannot exceed 185 days from the current date for the @OBR.22 parameter. If the date(s) provided exceeds this date/time range for the Z11 query, OLIS will reject the request with the error code 110 indicating that the structure/content is not valid, and the user will need to resubmit the request.

The date/time format of the @OBR.22 parameter is CCYYMMDDHHMMSS-ZZZZ

If two date/time values are separated by \T\, this will be accepted by OLIS but will be removed from the specifications in the future, currently a warning message will be issued:

Error code 911: The format of the content used in @OBR.22 will be deprecated in the future. Please make necessary changes to your interface to support the standard format defined in the OLIS interface specifications or reach out to Ontario Health for further assistance.

10.2.4.8.4 Earliest and Latest Observation Date/Time Parameters (@OBR.7)

When a single date/time value is provided in the @OBR.7 parameter, it identifies is the earliest specimen collection date/time that will be considered by the query. Records with a specimen collection date/time that is greater that this value will be considered.

When two date/time values are provided in the @OBR.7 parameter, it identifies an inclusive specimen collection date/time range that will be considered by the query.

The date/time format of the @OBR.7 parameter is CCYYMMDDHHMMSS-ZZZZ

If two date/time values are separated by \T\, this will be accepted by OLIS but will be removed from the specifications in the future, currently a warning message will be issued:

Error code 911: The format of the content used in @OBR.7 will be deprecated in the future. Please make necessary changes to your interface to support the standard format defined in the OLIS interface specifications or reach out to Ontario Health for further assistance.

10.2.4.8.5 Retrieve All Test Results Parameter (@ZBX.1)

The ZBX.1 parameter is only available for the Z02 query *Retrieve Laboratory Information for Order ID*. If no value is specified, only current test results are returned; a prior test result is not returned if it has been subsequently amended by a later test result. The Laboratory Information Consumer may optionally request to receive all test results ever reported for the test requests in the order by submitting an asterisk in this parameter. Note that the data type of this parameter is not the same as the related field *ZBX.1 Test Result Report Date/Time*.

Example:
```
|@ZBX.1^*|
```

10.2.4.8.6 Quantity-Limited Request Parameter (@QRD.7)

The QRD.7 Quantity Limited Request parameter allows the external system to indicate to OLIS that the number of records in the query result set must not exceed a specified number of orders/reports.

Example:
```
|@QRD.7.1^25~@QRD.7.2.1^RD~@QRD.7.2.3^HL70126|
```

10.2.4.8.7 Requesting HIC Parameter (@ZRP.1)

This parameter was formerly known as the Requesting Practitioner Parameter. The definition of the parameter has been enhanced to support both HIC Individuals and HIC Organizations in a backwards-compatible manner.

This information is required in the Z01 Retrieve Laboratory Information for Patient query, the Z02 Retrieve Laboratory Information for Order ID query, the Z04 Retrieve Laboratory Information Updates for Practitioner query and the Z11 Retrieve Laboratory Order Information for Patient.

For HIC Individuals, the most recent valid name should be populated. The following rules apply to the Requesting HIC Parameter validation:

- @ZRP.1.2 Last Name is required and must be provided with the currently valid last name for the practitioner, however a historically valid last name will be accepted.
- @ZRP.1.3 First Name is not required; but is recommended to be the currently valid first name or a historically valid first name for the practitioner.
- @ZRP.1.4 Second Name is not required; but is recommended to be the currently valid second name or a historically valid second name for the practitioner.

Example:
HIC Individual
```
|@ZRP.1.1^12345~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Welby~@ZRP.1
.3^Marcus~@ZRP.1.4^Joseph|
```

HIC Organization
```
|@ZRP.1.1^2.16.840.1.113883.3.59.1:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^
Huronia District Hospital~@ZRP.1.3^~@ZRP.1.4^|
```

10.2.4.8.8 Consent to View Blocked Information Parameter (@ZPD.1)

This parameter allows the Requesting HIC to assert the type of consent override both for "express consent" or "emergency override". Express consent is to be used when the practitioner has the patient's or SDM's express consent to view blocked laboratory information. Emergency override is to be used when there a risk of harm to the individual or others.

Express Consent:

Indicate a value of "**Z**" to indicate that the patient or value of "**x**" to indicate that the SDM has expressly consented to allow the Requesting HIC to access the patient's blocked laboratory information in OLIS on a temporary basis.

Emergency Override:

Indicate a value of "**R**" when a decision is made by the Requesting HIC to indicate there is a risk of harm to the individual or a value of "**Q**" when a decision is made by the Requesting HIC to indicate there a risk of harm to others.

Indicate a value of "**X**" to indicate that the patient's substitute decision maker (SDM) has consented to allow the Requesting HIC to access the patient's blocked laboratory information in OLIS on a temporary basis.

When this value is specified in @ZPD.1, it is necessary to submit the @ZSD query parameter to identify the substitute decision maker. As of OLIS Release 5.5, the Relationship of SDM to patient (@ZSD.3) is deprecated and no longer should be sent to OLIS. The two components (@ZSD.1 and @ZSD.2) of this query parameter must be populated:

Parameter	Description
@ZSD.1	SDM Given Name(s) (max 20 characters)
@ZSD.2	SDM Last Name (max 30 characters)
@ZSD.3	*Relationship of SDM to patient (Deprecated)*

The original mandatory parameter (@ZSD.3 – Relationship of SDM to patient), and the following acceptable values for @ZSD.3 are now deprecated:

A0 Guardian for the Person
A1 Attorney for Personal Care
A2 Representative appointed by Consent and Capacity Board
A3 Spouse/Partner
A4 Parent
A5 Child
A6 Sibling
A7 Other Relative

@ZSD Query Parameter Example:

```
@ZSD.1^Susie S.~@ZSD.2^Storm
```

OLIS records the SDM name as part of a consent override audit trail, but OLIS does not validate the SDM identity, nor does OLIS confirm that the person is the patient's substitute decision maker.

The @ZSD parameter must not be submitted unless the @ZPD.1 parameter is submitted with a value of "X".

Indicate a value of “” (empty double quotes, as per HL7 deletion approach) to revoke any existing consent override between the patient and Requesting HIC.

The Consent to View Blocked Information Parameter does not apply to the non-nominal patient identifier.

Example:
```
|@ZPD.1^Z|
```

Please also refer to:

7 Privacy Considerations on page 46

10.2.4.8.9 Performing Laboratory Parameter (@ZBR.6)

This parameter allows the result set to be limited to lab reports performed by a specific laboratory.

10.2.4.8.10 Exclude Performing Laboratory Parameter (@ZBE.6)

This parameter allows lab reports performed by a specific laboratory to be excluded from the result set. This parameter could be used by a hospital to exclude test requests and results performed by its own laboratory. Refer also to the *Exclude Reporting Laboratory* Parameter (@ZBE.4).

Examples are given in the table on the following pages.

Please also refer to:

10.2.4.8.13 Exclude Reporting Laboratory Parameter (@ZBE.4) below

10.2.4.8.11 Reporting Laboratory Parameter (@ZBR.4)

This parameter allows the result set to be limited to lab reports reported by a specific laboratory.

10.2.4.8.12 Ordering Facility Parameter (@ORC.21)

This parameter is used in the Z06 query to monitor updates to orders in OLIS that identify the specified ordering facility in lab-to-lab referral scenarios.

This parameter is also used in the Z04 query to allow the result set to be limited to lab reports that either include the specified facility returns records where the ordering facility was not provided by the submitter of the lab report.

10.2.4.8.13 Exclude Reporting Laboratory Parameter (@ZBE.4)

This parameter allows lab reports reported by a specific laboratory to be excluded from the result set. This parameter could be used by a hospital to exclude test requests and results reported by its own laboratory.

Examples are given in the table on the following pages.

Please also refer to:

10.2.4.8.10 Exclude Performing Laboratory Parameter (@ZBE.6) above

10.2.4.8.14 Practitioner Parameters (@OBR.16, @OBR.28, @PV1.7, and @PV1.17)

These parameters allow the result set to be limited to lab reports that identify a specific practitioner in the field that corresponds to the parameter name. For example, indicating @OBR.28 and a specific practitioner will limit the result set to lab reports where the practitioner appears on the CC list of the report.

The first and second names will no longer be required. However, it is recommended that these parameters be populated with the currently valid last, first, second names for the practitioner.

10.2.4.8.15 Destination Laboratory Parameter (@ZBR.8)

This parameter is used in the Z05 query to allow a reference lab to monitor OLIS for orders placed by referring laboratories in lab-to-lab referral scenarios.

10.2.4.8.16 Test Request Placer Parameter (@ZBR.2)

This parameter allows the result set to be limited to lab reports where the order information was submitted to OLIS by a specific organization or system. This parameter may be useful to organizations with multiple order-placing systems.

10.2.4.8.17 Placer Group Number Parameter (@ORC.4)

This parameter allows the result set to be limited to the report that bears a specific placer group number (Order ID/Report ID).

10.2.4.8.18 Test Request Code Parameter (@OBR.4)

This parameter allows one or more test request codes to be specified that will limit the result set to lab reports containing any of the specified test request codes.

10.2.4.8.19 Test Result Code Parameter (@OBX.3)

This parameter allows one or more test result codes to be specified that will limit the result set to lab reports containing any of the specified test result codes.

10.2.4.8.20 Test Request Status Parameter (@OBR.25)

This parameter allows one or more test request status codes to be specified that will limit the result set to lab reports containing any of the specified test request status codes, for example, to retrieve unfulfilled orders.

Z05 query – All valid values for this parameter are supported for the query. The default behaviour of the query is to retrieve only orders where the values are (O,I or X). This behaviour can be overridden by providing the value(s) required.

Z11 query - The values supported in the Z11 query are (O, I or X). The default behaviour of the query is to return only unfulfilled orders where the value of the parameter is set to “O”.

Z06 query – All valid values for this parameter are supported for the query.

10.2.4.8.21 Exclude Patient Class Parameter (@PVE.2)

This parameter allows one or more patient class values to be specified that will limit the result set to lab reports containing any of the specified values, for example, to exclude inpatient results.

10.2.4.8.22 Order Callback Phone Number (Area Code Parameter (@OBR.17.6), Local Number Parameter (@OBR.17.7))

These two parameters allow one or more phone number(s) to be specified up to a maximum of five (5) phone numbers, which will limit the result set to lab reports containing any of the phone numbers where a number is specified in the result set (including blanks). These two parameters must be used together and both must be populated when used.

10.2.4.8.23 Abnormal Flag Parameter (@OBX.8)

This parameter allows an abnormal flag to be specified that will limit the result set to lab reports containing the specific flag. The two values accepted in this parameter are (‘AB’ for abnormal results or ‘CR’ for critically abnormal results). When ‘AB’ is selected the result set is restricted to any lab report(s) where any lab result contains an abnormal flag indicator for either of the values (L, H, A, LL, HH, AA). When ‘CR’ is selected the result set is restricted to any lab report(s) where any lab report(s) contains an abnormal indicator for either of the values (LL, HH, AA).

10.2.4.9 Query Parameter Table

Table 61 Z Queries Parameter Table

Parameter Name	Parameter ID (and Name for Component Parameters)	Data Type	Max Len	ER7-syntax Example

Parameter Name	Parameter ID (and Name for Component Parameters)	Data Type	Max Len	ER7-syntax Example
@OBR.22 Start Timestamp (and End Timestamp)	@OBR.22	TS	39	`@OBR.22^20040625080000-0500`
				`@OBR.22^20040625080000-0500&20040626075959-0500`
@OBR.7 Earliest and Latest Observation Date/Time	@OBR.7	TS	39	`@OBR.7^20040625080000-0500`
				`@OBR.7^20040625080000-0500&20040626075959-0500`
@ZBX.1 Retrieve All Test Results	@ZBX.1	ST	1	`@ZBX.1^*`
@QRD.7 Quantity Limited Request	@QRD.7.1	NM	15	`@QRD.7.1^500~@QRD.7.2.1^RD~@QRD.7.2.3^HL70126`
	@QRD.7.2.1	ST	10	
	@QRD.7.2.3	ST	20	

@ZRP.1 Requesting HIC
For HIC Individuals, OLIS will accept the currently valid name or a valid historical name for the practitioner in this parameter.
	@ZRP.1.1 ID Number	ST	35	HIC Individual
				`@ZRP.1.1^12345~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Welby~@ZRP.1.3^Marcus~@ZRP.1.4^Joseph`
				
				HIC Organization
				`@ZRP.1.1^2.16.840.1.113883.3.59.1:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Huronia District Hospital~@ZRP.1.3^~@ZRP.1.4^`

	@ZRP.1.13 Identifier Type Code	ID	15	
	@ZRP.1.22.1 Assigning Jurisdiction Identifier	ST	20	
	@ZRP.1.22.3 Assigning Jurisdiction Coding System	ST	20	
	@ZRP.1.2 Last Name / Organization Name	ST	255	
	@ZRP.1.3 First Name	ST	20	
	@ZRP.1.4 Second Name	ST	20	
@ZPD.1 Consent to View Blocked Information	@ZPD.1	ST	1	`@ZPD.1^Z`
@ZBR.3 Specimen Collector	@ZBR.3.6.2 Universal ID	ST	263	`@ZBR.3.6.2^2.16.840.1.113883.3.59.2:3999~@ZBR.3.6.3^ISO`
	@ZBR.3.6.3 Universal ID Type	ST	6	
@ZBR.6 Performing Laboratory	@ZBR.6.6.2 Universal ID	ST	263	`@ZBR.6.6.2^2.16.840.1.113883.3.59.1:5999~@ZBR.6.6.3^ISO`
	@ZBR.6.6.3 Universal ID Type	ST	6	
@ZBE.6 Exclude Performing Laboratory	@ZBE.6.6.2 Universal ID	ST	263	`@ZBE.6.6.2^2.16.840.1.113883.3.59.1:5999~@ZBE.6.6.3^ISO`
	@ZBE.6.6.3 Universal ID Type	ST	6	
@ZBR.4 Reporting Laboratory	@ZBR.4.6.2 Universal ID	ST	263	`@ZBR.4.6.2^2.16.840.1.113883.3.59.1:5999~@ZBR.4.6.3^ISO`
	@ZBR.4.6.3 Universal ID Type	ST	6	

Parameter Name	Parameter ID (and Name for Component Parameters)	Data Type	Max Len	ER7-syntax Example
@ZBE.4 Exclude Reporting Laboratory	@ZBE.4.6.2 Universal ID	ST	263	@ZBE.4.6.2^2.16.840.1.113883.3.59.1:5999~@ZBE.4.6.3^ISO
	@ZBE.4.6.3 Universal ID Type	ST	6	
ORC.21 Ordering Facility ID	@ORC.21.6.2 Universal ID	ST	263	@ORC.21.6.2^2.16.840.1.113883.3.59.3:5999~@ORC.21.6.3^ISO
	@ORC.21.6.3 Universal ID Type	ST	6	
@PID.3 Patient Identifier (includes examples of Ontario Health Number and Medical Record Number) OLIS will accept patient sex and date of birth information that is currently valid or that was formerly valid.	@PID.3.1 ID Number	ST	16	Ontario Health Number @PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^20040213 Medical Record Number @PID.3.1^123456~@PID.3.4.2^2.16.840.1.113883.3.59.3:1234~@PID.3.4.3^ISO~@PID.3.5^MR~@PID.3.9.1~@PID.3.9.3~@PID.8^M~@PID.7^20040213
	@PID.3.4.2 Universal ID	ST	255	
	@PID.3.4.3 Universal ID Type	ST	6	
	@PID.3.5 Identifier Type Code	ID	20	
	@PID.3.9.1 Assigning Jurisdiction Identifier	ST	3	
	@PID.3.9.3 Assigning Jurisdiction Coding System	ST	20	
	@PID.8 Sex	ST	1	
	@PID.7 Date of Birth	TS	19	
@OBR.16 Ordering Practitioner OLIS will accept the currently valid name or a historical practitioner name in this parameter.	@OBR.16.1 ID Number	ST	25	@OBR.16.1^12345~@OBR.16.13^MDL~@OBR.16.22.1^ON~@OBR.16.22.3^HL70347
	@OBR.16.13 Identifier Type Code	ID	15	
	@OBR.16.22.1 Assigning Jurisdiction	ST	20	
	@OBR.16.22.3 Assigning Jurisdiction Coding System	ST	20	
@OBR.28 Copied-to Practitioner OLIS will accept the currently valid or historical name in this parameter.	@OBR.28.1 ID Number	ST	25	@OBR.28.1^12345~@OBR.28.13^MDL~@OBR.28.22.1^ON~@OBR.28.2.3^HL70347
	@OBR.28.13 Identifier Type Code	ID	15	
	@OBR.28.22.1 Assigning Jurisdiction	ST	20	
	@OBR.28.22.3 Assigning Jurisdiction Coding System	ST	20	
@ZBR.8 Destination Laboratory	@ZBR.8.6.2 Universal ID	ST	255	@ZBR.8.6.2^2.16.840.1.113883.3.59.1:5999~@ZBR.8.6.3^ISO
	@ZBR.8.6.3 Universal ID Type	ST	6	
@PV1.7 Attending Practitioner OLIS will accept the currently valid or historical name in this parameter.	@PV1.7.1 ID Number	ST	25	@PV1.7.1^12345~@PV1.7.13^MDL~@PV1.7.22.1^ON~@PV1.7.22.3^HL70347
	@PV1.7.13 Identifier Type Code	ID	15	
	@PV1.7.22.1 Assigning Jurisdiction	ST	20	
	@PV1.7.22.3 Assigning Jurisdiction Coding System	ST	20	
@PV1.17 Admitting	@PV1.17.1 ID Number	ST	25	@PV1.17.1^12345~@PV1.17.13^MDL

Parameter Name	Parameter ID (and Name for Component Parameters)	Data Type	Max Len	ER7-syntax Example
Practitioner OLIS will accept the currently valid or historical name in this parameter.	@PV1.17.13 Identifier Type Code	ID	15	~@PV1.17.22.1^ON~@PV1.17.22.3^HL70347
	@PV1.17.22.1 Assigning Jurisdiction	ST	20	
	@PV1.17.22.3 Assigning Jurisdiction Coding System	ST	20	
@ZBR.2 Test Request Placer	@ZBR.2.6.2 Universal ID	ST	255	@ZBR.2.6.2^2.16.840.1.113883.3.239.14:AZ123^ISO
	@ZBR.2.6.3 Universal ID Type	ST	6	
@OBR.27.6 Priority DEPRECATED	@OBR.27.6	ID	16	@OBR.27.6^S
@OBR.4 Test Request Code	@OBR.4.1 Identifier	ST	20	@OBR.4.1^TR10120-4~@OBR.4.3^HL79901
	@OBR.4.3 Name of Coding System	ST	40	
@ORC.4 Placer Group Number	@ORC.4.1 Entity Identifier	ST	25	@ORC.4.1^ABC13579~@ORC.4.3^2.16.840.1.113883.3.59.3:7999~@ORC.4.4^ISO
	@ORC.4.3 Universal ID	ST	255	
	@ORC.4.4 Universal ID Type	ST	6	
@OBR.25 Test Request Status	@OBR.25	ID	11	@OBR.25°
@OBX.3 Test Result Code	@OBX.3.1 Identifier	ST	30	@OBX.3.1^6301-6~@OBX.3.3^HL79902
	@OBX.3.3 Name of Coding System	ST	40	
@OBX.11 Observation Result Status DEPRECATED	@OBX.11	ID	11	@OBX.11^F
@OBX.8 Abnormal Flags	@OBX.8	IS	15	@OBX.8^AB
@PID.5.2 First Name	@PID.5.2	ST	30	@PID.5.2^John
@PID.5.1 Last Name	@PID.5.1	ST	40	@PID.5.1^Doe
@PID.8 Sex	@PID.8	ST	11	@PID.8^M
@PID.7 Date of Birth	@PID.7	TS	19	@PID.7^19271127
@ZBQ.14 Replaced Flag	@ZBQ.14	ST	1	@ZBQ.14^Y
@PVE.2 Patient Class Flag	@PVE.2	ST	1	@PVE.2^I
@OBR.17.6 Order Callback Number Area Code	@OBR.17.6	NM	5	@OBR.17.6^416
@OBR.17.7 Order Callback Number Local Number	@OBR.17.7	NM	9	@OBR.17.7^5234567

10.2.5 Message Segments

Table 62 Message Segments

#	SEGMENT	ORM^R01	ORR^O02	ORU^R01	ACK	SPQ^Znn	ERP^Znn	TBR^Z98
1	MSH	✓	✓	✓	✓	✓	✓	✓
2	ZSH					✓		✓
3	MSA		✓		✓		✓	
4	PID	✓	✓	✓			✓	
5	ZPD	✓		✓			✓	
6	NTE	✓	✓	✓			✓	
7	ZNT	✓	✓	✓			✓	
8	PV1	✓		✓			✓	
9	DG1	✓		✓			✓	
10	BLG	✓		✓			✓	
11	ORC	✓	✓	✓			✓	
12	OBR	✓	✓	✓			✓	
13	ZBR	✓	✓	✓			✓	
14	OBX	✓		✓			✓	
15	ZBX	✓		✓			✓	
16	ERR		✓		✓		✓	✓
17	SPR					✓		
18	DSC					✓	✓	✓
19	QAK						✓	✓
20	ERQ						✓	
21	RDF						✓	✓

10.2.5.1 MSH – Message Header Segment

The MSH Segment is the first segment of every OLIS message.

Table 63 MSH Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – MSH	ST		3	R	1..1	MSH
1	Field Separator	ST		1	R	1..1	|
2	Encoding Characters	ST		4	R	1..1	^~\&
3	Sending Application	HD		263	R	1..1	
3.1	Namespace ID				X		
3.2	Universal ID	ST		255	R	1..1	
3.3	Universal ID Type	ID	0301	6	R	1..1	X500 or ISO
4	Vendor/Product ID (Sending Facility)	HD		20	R	1..1	
4.1	Namespace ID	ST		20	R	1..1	SampleConformanceID1
4.2	Universal ID				X		

Seq	Name	Type	Table	Len	Opt	Card	Example value
4.3	Universal ID Type				X		
5	Receiving Application	HD		263	R	1..1	
5.1	Namespace ID				X		
5.2	Universal ID	ST		255	R	1..1	OLIS
5.3	Universal ID Type	ID	0301	6	R	1..1	X500 or ISO
6	Receiving Facility				X		
7	Date/Time of Message	TS		19	R	1..1	
7.1	Date/Time of Event	ST		19	R	1..1	20051231235959-0500
7.2	Degree of Precision				X		
8	Security				X		
9	Message Type	MSG		15	R	1..1	
9.1	Message Code	ID	0076	3	R	1..1	ORM
9.2	Trigger Event	ID	0003	3	R	1..1	O01
9.3	Message Structure	ID	0354	7	R	1..1	ORM_O01
10	Message Control ID	ST		40	R	1..1	2453958.1234567
11	Processing ID	PT		1	R	1..1	
11.1	Processing ID	ID	0103	1	R	1..1	P
11.2	Processing Mode				X		
12	Version ID	VID		5	R	1..1	
12.1	Version ID	ID	0104	5	R	1..1	2.3.1
12.2	Internationalization				X		
13	Sequence Number				X		
14	Continuation Pointer				X		
15	Accept Acknowledgment Type				X		
16	Application Acknowledgment Type				X		
17	Country Code				X		
18	Character Set	ID	0211	10	R	1..1	8859/1
19	Principal Language of Message				X		

10.2.5.1.1 MSH Segment – ER7 Syntax Examples

Sent from external system (Inbound to OLIS):

```
MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20051231235959-05
00||ORM^O01^ORM_O01|20061231-000001|P|2.3.1||||||8859/1<CR>
```

Sent from OLIS (Outbound from OLIS):

```
MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20050823101500-0400||ORR^O02^ORR_O02|
8F04049F-5A49-4FF0-BBD0-640F31E6D490|P|2.3.1||||||8859/1<CR>
```

10.2.5.1.2 Field Definitions

10.2.5.1.2.1 MSH.0 Segment ID – MSH

Always populate this field with the static value "`MSH`".

10.2.5.1.2.2 MSH.1 Field Separator

Always populate this field with the static value "`|`" (hexadecimal: `0x07Ch`).

10.2.5.1.2.3 MSH.2 Encoding Characters

Always populate this field with the static values "`^~\&`" (hexadecimal: `0x5Eh 0x7Eh 0x5Ch 0x26h`).

10.2.5.1.2.4 MSH.3 Sending Application

The Namespace ID component of this field is not supported.

OLIS will assign a value in the format of "OID:INSTANCE IDENTIFIER" to a given external system. The Universal ID component of this field should be populated with this value provided by OLIS Support staff.

The Universal ID Type component should be populated with "ISO" e.g., "^2.16.840.1.113883.3.239.14:AZ123^ISO".
The OID "2.16.840.1.113883.3.239.14" identifies an instance type of an electronic medical record (EMR) system. The validation that OLIS performs on the Universal ID Type component is case insensitive.

For computer applications that connect to OLIS through a hub (e.g., connect GTA hub), MSH.3 must contain a value that identifies the organization; MSH.3 must not contain a value that identifies the hub.

For hospital or regional viewers that connect through a common computer application; MSH.3 must contain a value that identifies the organization requesting the query. MSH.3 must not contain a value that identifies the regional viewer.

In outbound messages from OLIS, this field will always contain the value "^OLIS^X500" (ER7-syntax example).

10.2.5.1.2.5 MSH.4 Vendor/Product ID

In inbound messages to OLIS, always populate this field with the Conformance Test ID assigned to the external system exactly as provided by Ontario Health, e.g., "SampleConformanceID1".

This field is not populated in outbound messages from OLIS.

10.2.5.1.2.6 MSH.5 Receiving Application

On inbound messages to OLIS, always populate this field with the static value "^OLIS^X500" (ER7-syntax example).

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

10.2.5.1.2.7 MSH.7 Date/Time of Message

Always populate this field with the date and time that the message was created, including the universal coordinated time (UTC) offset, e.g., "20061231235959-0500" represents one second before midnight in the Eastern Standard Time zone.

Format:

CCYYMMDDHHMMSS-ZZZZ

10.2.5.1.2.8 MSH.9 Message Type

This field identifies the type of the message, and therefore determines the structure of the remainder of the message following the MSH segment. The following table identifies the types of messages supported by OLIS on incoming (initiating) and outgoing (acknowledgment) messages.

Table 64 Message Type Definition Table

Description	Initiating Message Type	Acknowledgment Message Type
Order Message	ORM^O01^ORM_O01	ORR^O02^ORM_O02
Result Message	ORU^R01^ORU_R01	ACK
Query Message for Z01-Z08 queries*	SPQ^Znn^SPQ_Q08	ERP^Znn^SPQ_Q08
Query Message for Z50 query	SPQ^Z50^SPQ_Q08	TBR^Z98^TBR_R08

** The trigger event code appears where Znn is indicated, e.g., the Z01 query would appear as "SPQ^Z01^SPQ_Q08" while the Z02 query would appear as "SPQ^Z02^SPQ_Q08" (ER7-syntax examples).*

10.2.5.1.2.9 MSH.10 Message Control ID

Populate this field with an identifier that uniquely identifies the message among all messages sent to OLIS by the external system. OLIS echoes this value in the MSA segment of the acknowledgment message so that the acknowledgment message clearly identifies which inbound message is being acknowledged.

Any approach to creating a legal, unique identifier may be used. Often the current date and a serial number are combined produce a unique Message Control ID, e.g., "`20061231-000001`". Alternatively, a globally unique identifier (GUID) may be generated for each message, e.g., "`018fd1f1-c544-404f-b228-5dbdfa76a962`".

10.2.5.1.2.10 MSH.11 Processing ID

The processing ID indicates whether the message is intended for the OLIS production, conformance test, self-test, or training environment. In the production environment, provide the value "P" in this field. Refer to HL7 Table 0103.

10.2.5.1.2.11 MSH.12 Version ID

Always populate this field with the static value "`2.3.1`".

10.2.5.1.2.12 MSH.18 Character Set

Always populate this field with the static value "8859/1". OLIS supports the displayable characters from the ISO-8859-1 (Latin1) character set. ISO-8859-1 is an extension to the ASCII character set that includes the necessary characters to display French-language text.

10.2.5.2 PID – Patient Identification Segment

Table 65 PID Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – PID	ST		3	R	1..1	PID
1	Set ID	SI		4	R	1..1	1
2	Patient ID				X		
3	Patient Identifier List	CX		356	R	1..4	
3.1	ID Number	ST		16	R	1..1	1234567890
3.2	Check Digit				X		
3.3	Check Digit Scheme				X		
3.4	Assigning Authority	HD		263	C	0..1	
3.4.1	Namespace ID				X		
3.4.2	Universal ID	ST		255	R	1..1	
3.4.3	Universal ID Type	ID	0301	6	R	1..1	Must be ISO or empty.
3.5	Identifier Type Code	ID	0203	20	R	1..1	JHN
3.6	Assigning Facility				X		
3.7	Effective Date				X		
3.8	Expiration Date				X		
3.9	Assigning Jurisdiction	CE		45	C	0..1	
3.9.1	Identifier	ID	0347	3	R	1..1	ON
3.9.2	Text	ST		20	R	1..1	Ontario
3.9.3	Name of Coding System	ST		20	R	1..1	HL70347
3.10	Assigning Agency or Department				X		
3.11	ID Version Code	ST		2	CE	0..1	VC
4	Alternate Patient ID				X		
5	Patient Name	XPN		97	CE	0..1	
5.1	Last Name	ST		30	RE	0..1	Doe
5.2	First Name	ST		20	RE	0..1	John
5.3	Second Name	ST		20	RE	0..1	Henry
5.4	Suffix (e.g., JR or III)	ST		10	RE	0..1	
5.5	Prefix (e.g., DR)	ST		10	RE	0..1	
5.6	Degree				X		
5.7	Name Type Code	ID	0200	1	R	1..1	U
6	Mother's Maiden Name				X		
7	Date/Time of Birth	TS		19	CE	0..1	
7.1	Date/Time of Event	ST		19	R	1..1	19411207
7.2	Degree of Precision				X		

Seq	Name	Type	Table	Len	Opt	Card	Example value
8	Sex	IS	0001	1	CE	0..1	M
9	Patient Alias				X		
10	Race				X		
11	Patient Address	XAD		118	CE	0..2	
11.1	Street Address	ST		150	R	1..1	880 Bay Street
11.2	Other Designation	ST		150	RE	0..1	3rd Floor
11.3	City	ST		30	R	1..1	Toronto
11.4	State or Province	ID	0347	2	C	0..1	ON
11.5	Zip or Postal Code	ST		10	RE	0..1	M5W 1E6
11.6	Country	ID	0399	3	R	1..1	CAN
11.7	Address Type	ID	0190	3	R	1..1	H
12	County Code				X		
13	Phone Number – Home	XTN		64	CE	0..3	
13.1	Telephone Number				X		
13.2	Telecom Use Code	ID	0201	3	R	1..1	PRN
13.3	Telecom Equipment Type	ID	0202	8	R	1..1	PH
13.4	Email Address	ST		50	C	0..1	
13.5	Country Code	NM		3	CE	0..1	
13.6	Area/City Code	NM		5	C	0..1	416
13.7	Local Number	NM		9	C	0..1	5551212
13.8	Extension	NM		9	CE	0..1	
14	Phone Number – Business	XTN		64	CE	0..3	
14.1	Telephone Number				X		
14.2	Telecom Use Code	ID	0201	3	R	1..1	PRN
14.3	Telecom Equipment Type	ID	0202	8	R	1..1	PH
14.4	Email Address	ST		50	C	0..1	
14.5	Country Code	NM		3	CE	0..1	
14.6	Area/City Code	NM		5	C	0..1	416
14.7	Local Number	NM		9	C	0..1	3331212
14.8	Extension	NM		9	CE	0..1	
	(fields 15-28)				X		
29	Patient Death Date and Time	TS		19	D	0..1	
29.1	Date/Time of Event	ST		19	D	1..1	
29.2	Degree of Precision				X		
30	Patient Death Indicator	ID	0136	1	D	0..1	

10.2.5.2.1 PID Segment – ER7 Syntax Example

```
PID|1||1234567890^^^^JHN^^^^ON&Ontario&HL70347^^VC||Doe^John^Henry^^^^U||19411207|M|||123 Maple
St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR>
```

10.2.5.2.2 Field Definitions

10.2.5.2.2.1 PID.0 Segment ID – PID

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

10.2.5.2.2.2 PID.1 Set ID

Value must be 1 in all messages except for the ERP query response message from OLIS, which may contain information about more than one patient or order. In the ERP message, each instance of the PID segment will contain a sequential number in this field, starting with "1".

10.2.5.2.2.3 PID.3 Patient Identifier List

Up to four Patient Identifiers may be specified.

The *PID.3.1 ID Number* field must:

- Not include embedded hyphens or spaces.

- Be alphanumeric.
- Must not contain any of the following characters: asterisk, percent sign, comma, single quotation mark, and double quotation mark.

The *PID.3.4 Assigning Authority* field must be empty if *PID.3.9 Jurisdiction* is not empty, and vice versa.

The version code for an Ontario Health Number, if one is present on the Health Card, is populated in *PID.3.11*.

10.2.5.2.2.4 PID.5 Patient Name

This field is required for proper patient identification except for non-nominal testing.

Some components of the patient name have an optionality of "RE" to support patient names that do not contain the component (e.g., a patient may not have a second name).

Although it is strongly recommended to provide the PID.5.1 Last Name in all ORU/ORM messages, this field has an optionality of "RE".

Note that the PID.5.2 First Name has an optionality of "RE". The first name must be submitted for those patients who have a first name, but the optionality is "RE" to allow for a small but significant number of patients who do not have a first name.

The *PID.5 Patient Name* field:

- Last name if provided, must be alphanumeric.
- Last name must be provided when an alternative patient identifier (e.g. MRN) is provided in the PID.3 field.
- First name if provided must be alphanumeric.
- Embedded spaces and common punctuation are also supported (i.e., apostrophe, period, hyphen, forward slash, comma, underscore)
- This field is not required for a non-nominal patient identifier (may be blank)
- Second name if provided must be alphanumeric.

10.2.5.2.2.5 PID.7 Date/Time of Birth

This field is required for proper patient identification except for non-nominal testing.

The value submitted in this field must not be later than the value in MSH.7 *Date/Time of Message*.

Format:

CCYYMMDD[HHMMSS-ZZZZ]

The *PID.3.7 Date/Time of Birth* field:

- Must be a valid date.
- Cannot be future-dated or calculate to an age greater than 130 years.
- Date of Birth is not required for a non-nominal patient identifier (may be blank).

10.2.5.2.2.6 PID.8 Sex

This field is required for proper patient identification except for non-nominal testing.
The *PID.3.8 Sex* field:

- Must be one of male, female, or unknown.
- Sex is not required for non-nominal patient identifier (may be blank).

10.2.5.2.2.7 PID.11 Patient Address

This field is required except for non-nominal testing.

Zero, one, or two addresses may be specified (e.g., residence address and emergency contact address).

Note that *Health Protection and Promotion Act* requires the patient address when an operator of a laboratory reports a positive finding in respect of a reportable disease. In the absence of a full address being available, the use of a postal code and phone number (PID.13, PID.14) can be entered to support Public Health with their case and contact management. In order for OLIS to accept a partial address, all other address fields would need to have a value inputted, similar to the following:

- Populate Street as "No Street Provided"
- Populate City as "No City Provided"
- Populate Province as "ON"
- **Populate Postal Code with postal code provided**
- Populate Country as "CAN"
- Populate Address Type as "H"

For Canadian postal codes, include a space between the forward sortation area (FSA) and local delivery unit (LDU) components of the postal code (e.g., "`A9A 9A9`").

For American zip codes, if the zip code includes the four-digit add-on number, separate the zip code from the add-on number with a hyphen (e.g., "`12345-6789`").

The *State or Province* component is required for addresses in Canada and the United States of America. It must be empty for other addresses.

10.2.5.2.2.8 PID.13 Phone Number – Home

Up to three home telephone numbers may be specified, e.g., residence number, emergency contact number, cellular number. This field also supports e-mail addresses.

This field should be left blank for non-nominal testing.

Since this field supports a telephone number or e-mail address, the *Country Code*, *Area/City Code*, *Local Number*, and *Extension* fields are populated only if the e-mail address field is empty, and vice versa.

When submitting a telephone number, the *Area/City Code* and *Local Number* are mandatory, and the *Country Code* and *Extension* may be submitted if appropriate. The *Email Address* must be empty.

When submitting an e-mail address, the Email Address field is mandatory, and the *Area/City Code*, *Local Number, Country Code,* and *Extension* must be empty.

Example (telephone number):
`^PRN^PH^^^416^5551212^123456789`

Example (e-mail address):
^NET^Internet^first.last@mailbox.com

10.2.5.2.2.9 PID.14 Phone Number – Business

Up to three business telephone numbers may be specified, e.g., work number, emergency contact number, cellular number. This field also supports e-mail addresses.

Since this field supports a telephone number or e-mail address, the *Country Code*, *Area/City Code*, *Local Number*, and *Extension* fields are populated only if the e-mail address field is empty, and vice versa.

When submitting a telephone number, the *Area/City Code* and *Local Number* are mandatory, and the *Country Code* and *Extension* may be submitted if appropriate. The *Email Address* must be empty.

When submitting an e-mail address, the Email Address field is mandatory, and the *Area/City Code*, *Local Number, Country Code,* and *Extension* must be empty.

Refer to PID.13 *Phone Number – Home* for examples.

10.2.5.2.2.10 PID.29 Patient Death Date and Time

Deprecated in version 1.08 – there is no requirement to populate this field.
Populate if known when Patient Death Indicator field indicates that patient is deceased.
Format: CCYYMMDD[HHMMSS-ZZZZ]
Examples: 20060815
20060815230500-0400

10.2.5.2.2.11 PID.30 Patient Death Indicator

Deprecated in version 1.08 – there is no requirement to populate this field.
Indicate "Y" if the patient is deceased.

10.2.5.3 ZPD – PID Extension Segment

This segment appears only in the ORM and ORU messages; it does not appear in the ORR message.

Table 66 ZPD Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ZPD	ST		3	R	1..1	ZPD
1	Patient Consent Indicator – no longer supported				X	0..0	
2	Patient Identification Verified Flag	ST		1	C	0..1	Y
3	Patient Consent Block-All Indicator	ST		1	X*	0..1	Y *Refer to field definition for details*

10.2.5.3.1 ZPD Segment – ER7 Syntax Example

```
ZPD||Y<CR>
```

10.2.5.3.2 Field Definitions

10.2.5.3.2.1 ZPD.0 Segment ID – ZPD

Always populate this field with the static value "ZPD".

10.2.5.3.2.2 ZPD.1 Patient Consent Indicator

This field is no longer supported.

10.2.5.3.2.3 ZPD.2 Patient Identification Verified Flag

This field may be populated by external systems in ORM or ORU messages. This field is not populated by OLIS in the ERP message.

When an order or result message identifies a patient with a Pre-assigned Heath Number or an Alternative Patient Identifier (e.g., a medical record number of a hospital or a laboratory) that is known to OLIS from prior orders, OLIS will verify that the patient name, sex, and date of birth match the information provided on the most recently accepted order. If a mismatch is detected, OLIS will reject the order or result message and indicate the patient name, sex, and date of birth associated with the Alternative Patient Identifier in OLIS. If, for example, a patient's last name changes due to marriage, OLIS may identify a last-name mismatch. The external system can indicate in this field that the changed name correctly identifies the same individual.

This field allows the External System to indicate that the patient name, sex, and date of birth associated with an Alternative Patient Identifier has been verified and that the patient is the same individual identified by OLIS in the prior rejected order or test result message.

Value must be "Y" or empty.

10.2.5.3.2.4 ZPD.3 Patient Consent Block-All Indicator

This field is not populated by external systems in ORM and ORU messages. OLIS will populate this field if a consent directive exists to initiating application in the ERP query response message.

The Patient Consent Block-All Indicator does not apply to the non-nominal patient identifier.

10.2.5.3.2.4.1 ERP message:

This field will contain a value of 'Y' to indicate the current existence of a patient-level block for the patient identified on the lab report. OLIS populates this field with the patient's current patient-level block status at the time of the query. The ZPD segment will not appear within the report if a patient-level block does not exist at the time of the query.

> The warning code 920 is returned in the patient (Z01) query response separately from the ZPD.3 indicator so that the external system can be aware of the patient-level block even if no lab reports are returned.

Example of ZPD.3 when present in an ERP message: `ZPD|||Y|`

10.2.5.4 NTE-ZNT Segment Pair

The NTE segment defined in the HL7 Standard version 2.3.1 does not convey enough information to allow multiple organizations / external systems to contribute notes to a single OLIS laboratory order in a manner that allows each external system to amend its own notes, and collisions on Set ID could occur. OLIS has added the ZNT segment to allow the source organization or system that provided a note to be associated with the note. A note at a given level of the message hierarchy is therefore uniquely identifiable and addressable by the combination of the ZNT.1 *Source Organization* and the NTE.1 *Set ID*.

Although the NTE segment provides the means to attach any text-based message to an OLIS laboratory order, the NTE segment must not be used to report the test result itself. Test results must always be reported in the Observation (OBX) segment.

All note text that applies to an order, test request, or test result must be sent in a single note segment; do not send multiple note segments containing portions of the full note text or multiple distinct individual notes. Multiple segments are only supported to allow multiple authors (e.g., the ordering practitioner and the performing lab) to contribute notes the same level of the message.

10.2.5.4.1 NTE-ZNT Segment Pair – Example

```
NTE|1|P|Sample comment text.|RE^Remark^HL70364<CR>
ZNT|^2.16.840.1.113883.3.59.1:5999^ISO<CR>
```

10.2.5.4.2 NTE Segment

Table 67 NTE Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – NTE	ST		3	R	1..1	NTE
1	Set ID	SI		4	R	1..1	1
2	Source of Comment	ID	0105	1	R	1..1	P
3	Comment	FT		65536	R	1..1	Sample comment text.
4	Comment Type	CE		242	R	1..1	
4.1	Identifier	ID	0364	20	R	1..1	RE
4.2	Text	ST		200	R	1..1	Remark
4.3	Name of Coding System	ST		20	R	1..1	HL70364

10.2.5.4.2.1 Field Definitions

10.2.5.4.2.1.1 NTE.0 Segment ID – NTE

Always populate this field with the static value "**NTE**".

10.2.5.4.2.1.2 NTE.1 Set ID

This field must contain a positive integer. Set IDs are conventionally used to identify an individual segment among all segments of the same type at the same position in the message hierarchy. The Set ID of the first such segment typically contains "1", and subsequent segments typically contain "2", "3", etc. but OLIS does not validate that Set ID values are unique or sequential among NTE segments.

Note that an ERP message created by OLIS in response to a query may contain notes from multiple external systems at a single level of the message hierarchy; therefore, the Set ID alone will not be unique. Refer to the introductory text for this segment.

10.2.5.4.2.1.3 NTE.2 Source of Comment

Indicate the source of this comment.

10.2.5.4.2.1.4 NTE.3 Comment

Provide the comment text.

To delete an existing note, omit the entire NTE-ZNT segment pair.

10.2.5.4.2.1.5 NTE.4 Comment Type

Indicate the type of comment.

10.2.5.4.3 ZNT Segment – NTE Extension Segment

Table 68 ZNT Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ZNT	ST		3	R	1..1	ZNT
1	Source Organization	HD		263	R	1..1	
1.1	Namespace ID				X		
1.2	Universal ID	ST		255	R	1..1	
1.3	Universal ID Type	ID	0301	6	R	1..1	ISO

10.2.5.4.3.1 Field Definitions

10.2.5.4.3.1.1 ZNT.0 Segment ID – ZNT

Always populate this field with the static value "**ZNT**".

10.2.5.4.3.1.2 ZNT.1 Source Organization

Indicate the organization (or system in the absence of an organization) that contributed the note to the order. For referrals, this identifies the lab that authored the note, e.g., if the performing lab generated the note, this field must identify the performing lab.

The source of a note created by a laboratory having a laboratory ID of 5999 is represented as follows:

Example:
^2.16.840.1.113883.3.59.1:5999^ISO

The source of a note created by a hospital having a facility ID of 7999 is represented as follows:

Example:
^2.16.840.1.113883.3.59.3:7999^ISO

The source of a note created by a practitioner's EMR is represented as follows:

Example:
```
^2.16.840.1.113883.3.239.14:AZ123^ISO
```

10.2.5.5 PV1 – Patient Visit Segment

This segment is required in the message that initially notifies OLIS of an order, either in an ORM or ORU message. It is not required when amending an existing order, nor when reporting results against an existing order.

Table 69 PV1 Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – PV1	ST		3	R	1..1	PV1
1	Set ID	SI		4	R	1..1	1
2	Patient Class	IS	0004	1	R	1..1	I
3	Assigned Patient Location	PL		30	RE	0..1	
3.1	Point of Care	ST		30	RE	0..1	Cardiac care unit
	(remaining PL components)				X		
	(fields 4-6)				X		
7	Attending Practitioner	XCN		176	RE	0..1	
7.1	ID Number	ST		15	R	1..1	99999
7.2	Last Name	ST		30	R	1..1	Welby
7.3	First Name	ST		20	RE	0..1	Marcus
7.4	Second Name	ST		20	RE	0..1	Arthur
7.5	Suffix (e.g., JR or III)	ST		10	RE	0..1	
7.6	Prefix (e.g., DR)	ST		10	RE	0..1	
	(components 7.7-7.12)				X		
7.13	Identifier Type Code	ID	0203	5	R	1..1	MDL
	(components 7.14-7.21)				X		
7.22	Assigning Jurisdiction	CE		45	R	1..1	
7.22.1	Identifier	ID	0347 or 0399	3	R	1..1	ON
7.22.2	Text	ST		20	R	1..1	Ontario
7.22.3	Name of Coding System	ST		20	R	1..1	HL70347
	(fields 8-16)				X		
17	Admitting Practitioner	XCN		176	RE	0..1	
17.1	ID Number	ST		15	R	1..1	99999
17.2	Last Name	ST		30	R	1..1	Welby
17.3	First Name	ST		20	RE	0..1	Marcus
17.4	Second Name	ST		20	RE	0..1	Arthur
17.5	Suffix (e.g., JR or III)	ST		10	RE	0..1	
17.6	Prefix (e.g., DR)	ST		10	RE	0..1	
	(components 17.7-17.12)				X		
17.13	Identifier Type Code	ID	0203	5	R	1..1	MDL
	(components 17.14-17.21)				X		
17.22	Assigning Jurisdiction	CE		45	R	1..1	
17.22.1	Identifier	ID	0347 or 0399	3	R	1..1	ON
17.22.2	Text	ST		20	R	1..1	Ontario
17.22.3	Name of Coding System	ST		20	R	1..1	HL70347

10.2.5.5.1 PV1 Segment – Example

```
PV1|1|I|Davies Wing Level 5||||12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347||||||
||||12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347<CR>
```

10.2.5.5.2 Field Definitions

10.2.5.5.2.1 PV1.0 Segment ID – PV1

Always populate this field with the static value "**PV1**".

10.2.5.5.2.2 PV1.1 Set ID

Always populate this field with the static value "1".

10.2.5.5.2.3 PV1.2 Patient Class

Indicate the classification of the patient encounter associated with the request for laboratory information, (e.g., in the community (practitioner's office), outpatient of a healthcare facility, inpatient of a healthcare facility, resident of a long-term care facility, in the emergency department).

Implementers may choose an appropriate default value to submit in this field, e.g., "Z" for community, "I" for hospital and "O" for outpatient.

10.2.5.5.2.4 PV1.3 Assigned Patient Location

This field may be used by an ordering healthcare facility or EMR system however it sees fit, perhaps to identify the nursing station or hospital service (e.g., ICU) for inpatient locations, or clinic or department for outpatient locations.

OLIS does not validate information supplied in this field.

10.2.5.5.2.5 PV1.7 Attending Practitioner

Identify the attending practitioner, if applicable to the order.

If necessary, this field may be used to identify an additional copied-to practitioner if the CC list is full.

The currently valid practitioner name must be provided in this field. OLIS will accept a historically valid name of the practitioner should the practitioner's name change in the future. When a historically valid name is provided the sender will receive a warning indicating that the historical name submitted is not the currently valid practitioner name.

The following rules apply to PV1.7 Attending Practitioner Name field validation:

- PV1.7.2 Last Name is required and must be the currently valid last name; however, a historically valid last name will be accepted.
- PV1.7.3 First Name is not required; but is recommended to be the currently valid first name or a historically valid first name for the practitioner.
- PV1.7.4 Second Name is not required; but recommended to be the currently valid second name or a historically valid second name for the practitioner.

This field may be changed if necessary to identify the correct practitioner, or the value may be removed to not identify any practitioner.

Example:

```
12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347
```

10.2.5.5.2.6 PV1.17 Admitting Practitioner

Identify the admitting practitioner, if applicable to the order.

If necessary, this field may be used to identify an additional copied-to practitioner if the CC list is full.

The currently valid practitioner name must be provided in this field. OLIS will accept a historically valid name of the practitioner should the practitioner's name change in the future. When a historically valid name is provided the sender will receive a warning indicating that the historical name submitted is not the currently valid practitioner name.

The following rules apply to PV1.17 Admitting Practitioner Name field validation:

- PV1.17.2 Last Name is required and must be provided with the currently valid last name for the practitioner; however, a historically valid last name will be accepted.

- PV1.17.3 First Name is not required; but is recommended to be the currently valid first name or a historically valid first name for the practitioner.
- PV1.17.4 Second Name is not required; but is recommended to be the currently valid second name or a historically valid second name for the practitioner.

This field may be changed if necessary to identify the correct practitioner, or the value may be removed to not identify any practitioner. Example is provided in the section above for Attending Practitioner.

10.2.5.6 ORC – Common Order Segment

A test request in OLIS consists of an ORC-OBR-ZBR segment sequence.

The ORC segment in the ORR message is echoed from the ORM message with an order control code that indicates whether the addition or update to the test request was successful.

Table 70 ORC Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ORC	ST		3	R	1..1	ORC
1	Order Control	ID	0119	2	R	1..1	NW
2	Placer Order Number				X		
3	Filler Order Number				X		
4	Placer Group Number	EI		279	R	1..1	
4.1	Entity Identifier	ST		25	R	1..1	A20060810.000001
4.2	Namespace ID				X		
4.3	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999 **Hospital without laboratory:** 2.16.840.1.113883.3.59.3:0456 **EMR Instance:** 2.16.840.1.113883.3.239.14:AZ123
4.4	Universal ID Type	ID	0301	6	R	1..1	ISO
	(fields 5-8)				X		
9	Date/Time of Transaction	TS		19	R	1..1	
9.1	Date/Time of Event	ST		19	R	1..1	20060810145200-0400
9.2	Degree of Precision				X		
	(fields 10-20)				X		
21	Ordering Facility	XON		523	RE	0..1	
21.1	Organization Name	ST		255	R	1..1	Anytown General Hospital
	(components 21.2-21.5)				X		
21.6	Assigning Authority	HD		263	R	1..1	
21.6.1	Namespace ID				X		
21.6.2	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999 **Hospital without laboratory:** 2.16.840.1.113883.3.59.3:0456 **EMR Instance:** 2.16.840.1.113883.3.239.14:AZ123
21.6.3	Universal ID Type	ID	0301	6	R	1..1	ISO
22	Ordering Facility Address	XAD		118	RE	0..1	
22.1	Street Address	ST		32	R	1..1	123 Main Street
22.2	Other Designation	ST		32	RE	0..1	
22.3	City	ST		30	R	1..1	Anytown
22.4	State or Province	ID	0347	2	C	0..1	ON
22.5	Zip or Postal Code	ST		10	RE	0..1	M5W 1E6
22.6	Country	ID	0399	3	R	1..1	CAN
22.7	Address Type	ID	0190	3	R	1..1	B
23	Ordering Facility Phone				X		

Seq	Name	Type	Table	Len	Opt	Card	Example value
	Number						
24	Ordering Practitioner Address	XAD		118	RE	0..1	
24.1	Street Address	ST		150	R	1..1	500 Main Street
24.2	Other Designation	ST		150	RE	0..1	3rd floor
24.3	City	ST		30	R	1..1	Anytown
24.4	State or Province	ID	0347	2	C	0..1	ON
24.5	Zip or Postal Code	ST		10	RE	0..1	M5W 5E5
24.6	Country	ID	0399	3	R	1..1	CAN
24.7	Address Type	ID	0190	3	R	1..1	B

10.2.5.6.1 ORC Segment – Example

```
ORC|NW|||20060810.000001^^2.16.840.1.113883.3.59.3:9999^ISO|||||20060810145200-0400||||||||||||Anytown General Hospital^^^^^&2.16.840.1.113883.3.59.3:9999&ISO|123 Main Street^^Anytown^ON^M5W 1E6^CAN^B||500 Main Street^3rd floor^Anytown^ON^M5W 5E5^CAN^B<CR>
```

10.2.5.6.2 Field Definitions

10.2.5.6.2.1 ORC.0 Segment ID – ORC

Always populate this field with the static value "**ORC**".

10.2.5.6.2.2 ORC.1 Order Control Code

This field is populated only in ORM and ORR messages. It is not populated in ORU and ERP messages.

The order control code must be "NW" on all test requests when an order is created in OLIS. The "NW" order control code must not be specified on any test request when amending an existing order. The "RO" order control code must be used to add test requests to an existing order.

The "RO", "XO", and "CA" order control codes may be used in any combination to amend an existing order in OLIS.

OLIS will update this field in each ORC segment that is echoed in the ORR message with order control codes indicating success or error according to the table of order control codes in section

10.2.5.7 Universal Provider Identifier (UPI)

OLIS utilizes the OID "**2.16.840.1.113883.3.239.9**" to identify a health care facility (such as independent healthcare facility, clinics) in Ontario. This OID is concatenated with a unique identifier issued by Provincial Provider Registry (e.g., "**2.16.840.1.113883.3.239.9: 686104052245**"). The identifier for each organization will vary between the CST and Production environments. These identifiers are represented as the "**ISO**" universal ID type in OLIS messages

Orders/Reports on page 75.

10.2.5.7.1.1 ORC.4 Placer Group Number

This field contains an identifier for the entire order. The Placer Group Number is conceptually equivalent to a requisition number assigned to all test requests in an order by an organization.

The organization must ensure that this number is unique within its domain for all time. Some LIS systems recycle order/accession numbers over time, and a variety of approaches may be taken to make the identifier unique.

If the Order Control Code is "NW", the Placer Group Number must not have been previously assigned as the Placer Group Number on any existing order in OLIS.

If the Order Control Code is "RO", "XO" or "CA", the Placer Group Number and Placer Order Number must match the corresponding values on a test request in an existing order in OLIS.

Example:

A placer group number of 13579 assigned by an Ontario hospital lab having a facility ID of 7999 is represented as follows:

```
13579^^2.16.840.1.113883.3.59.1:7999^ISO
```

A practitioner's electronic medical record system having an EMR instance ID of AZ123 is represented as follows:

```
13579^^2.16.840.1.113883.3.239.14:AZ123^ISO
```

The information submitted in this field must be identical in every ORC segment in the order, including test requests added by a laboratory.

10.2.5.7.1.2 ORC.9 Date/Time of Transaction

Populate this field with the date and time of the event that initiated the current transaction as reflected in ORC.1 *Order Control Code*. ORC.9 is a required field for ORU messages (in terms of the OLIS application rules), but has essentially no significance for ORU messages.

This is not the same as MSH.7 *Date/Time of Message*.

Format: `CCYYMMDDHHMMSS-ZZZZ`

Example: `20060929123456-0400`

10.2.5.7.1.3 ORC.21 Ordering Facility

Enter the identifier and name of the laboratory or hospital from which the order originated. If a value is to be established in this field, it must be present in the first order or report message. Once a value has been established in this field, it cannot be changed by subsequent messages.

It is acceptable to leave this field empty for orders and reports that are not referrals.

10.2.5.7.1.4 ORC.22 Ordering Facility Address

Order-placing systems should provide the address of the facility from which the laboratory order originated for the benefit of the order filler. Order-filling systems may populate this field, but are not required to do so.

Please also refer to:

For examples refer to 10.2.5.2.2.7 PID.11 Patient Address on page 165

10.2.5.7.1.5 ORC.24 Ordering Practitioner Address

This field is supported for two purposes:

To allow an electronic medical record system (EMR) to identify the address of the practitioner office where this information is useful to the EMR to determine which orders are to be retrieved and stored.

To assist a reference laboratory in determining how to reach a practitioner to communicate a critical result in the event that the practitioner cannot be reached at the call-back number or a call-back number is not available.

The information submitted in this field must be identical in every ORC segment in the order, including test requests added to the order by a laboratory.

EMR systems placing orders in OLIS must populate this field so that the location from which the order was placed is recorded within the order.

Community labs submitting lab reports to OLIS must populate this field with the address to which a printed report would be delivered. In cases of uncertainty of address, best efforts in choosing an address are acceptable. A community lab that submits a report for an order that already exists in OLIS are not required to submit an address, as the order-placing system is expected to do this.

Please also refer to:

For examples refer to 10.2.5.2.2.7 PID.11 Patient Address on page 165

10.2.5.8 OBR – Observation Request Segment

The OBR segment in the ORR message is echoed from the ORM message. If the addition or update to the test request was successful, OLIS will return the timestamp in *OBR.22 Result Rpt/Status Chng – Date/Time* that it assigned to the test request when recording the test request addition or update.

Table 71 OBR Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – OBR	ST		3	R	1..1	OBR
1	Set ID	SI		4	R	1..1	1
2	Placer Order Number	EI		288	R	1..1	
2.1	Entity Identifier	ST		25	R	1..1	T20060810.000001.01
2.2	Namespace ID				X		
2.3	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999 **Hospital without laboratory:** 2.16.840.1.113883.3.59.3:0456 **EMR Instance:** 2.16.840.1.113883.3.239.14:AZ123
2.4	Universal ID Type	ID	0301	6	R	1..1	ISO
3	Filler Order Number	EI		288	CE	0..1	
3.1	Entity Identifier	ST		25	R	1..1	T2453958.0000001
3.2	Namespace ID				X		
3.3	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999
3.4	Universal ID Type	ID	0301	6	R	1..1	ISO
4	Universal Service Identifier	CE		242	R	1..1	
4.1	Identifier	ID	9901	20	R	1..1	TR10397-8
4.2	Text	ST		200	R	1..1	Sodium
4.3	Name of Coding System	ST		20	R	1..1	HL79901
5	Priority				X		
6	Requested Date/Time				X		
7	Observation Date/Time	TS		19	RE	0..1	
7.1	Date/Time of Event	ST		19	R	1..1	20051231235959-0500
7.2	Degree of Precision				X		
8	Observation End Date/Time	TS		19	CE	0..1	
8.1	Date/Time of Event	ST		19	R	1..1	
8.2	Degree of Precision				X		
9	Collection Volume	CQ		37	CE	0..1	
9.1	Quantity	NM		16	R	1..1	15
9.2	Units	CE		20	RE	0..1	
9.2.1	Identifier	ST		20	R	1..1	mL
9.2.2	Text				X		
9.2.3	Name of Coding System				X		
10	Collector Identifier				X		
11	Specimen Action Code	ID	0065	1	CE	0..1	
12	Danger Code				X		
13	Relevant Clinical				X		

Seq	Name	Type	Table	Len	Opt	Card	Example value
	Information						
14	Specimen Received Date/Time	TS		19	C	0..1	
14.1	Date/Time of Event	ST		19	R	1..1	20051231235959-0500
14.2	Degree of Precision				X		
15	Specimen Source	SPS		147	RE	0..1	
15.1	Specimen Source Name or Code	CE		72	R	1..1	
15.1.1	Identifier	ID	0070	20	R	1..1	SER
15.1.2	Text	ST		50	R	1..1	Serum
15.1.3	Name of Coding System	ST		20	R	1..1	HL70070
15.2	Additives				X		
15.3	Specimen Collection Method				X		
15.4	Body Site				X		
15.5	Site Modifier	CE		51	RE	0..1	
15.5.1	Identifier				X		
15.5.2	Text	ST		50	R	1..1	Left eye
15.5.3	Name of Coding System				X		
15.6	Collection Method Modifier Code				X		
16	Ordering Practitioner	XCN		176	R	1..1	
16.1	ID Number	ST		15	R	1..1	99999
16.2	Last Name	ST		30	R	1..1	Welby
16.3	First Name	ST		20	RE	0..1	Marcus
16.4	Second Name	ST		20	RE	0..1	Arthur
16.5	Suffix (e.g., JR or III)	ST		10	RE	0..1	
16.6	Prefix (e.g., DR)	ST		10	RE	0..1	
	(components 16.7-16.12)				X		
16.13	Identifier Type Code	ID	0203	5	R	1..1	MDL
	(components 16.14-16.21)				X		
16.22	Assigning Jurisdiction	CE		45	R	1..1	
16.22.1	Identifier	ID	0347 or 0399	3	R	1..1	ON
16.22.2	Text	ST		20	R	1..1	Ontario
16.22.3	Name of Coding System	ST		20	R	1..1	HL70347
17	Order Callback Phone Number	XTN		64	RE	0..2	
17.1	Telephone Number				X		
17.2	Telecom Use Code	ID	0201	3	R	1..1	WPN
17.3	Telecom Equipment Type	ID	0202	8	R	1..1	PH
17.4	Email Address	ST		50	C	0..1	
17.5	Country Code	NM		3	CE	0..1	
17.6	Area/City Code	NM		5	C	0..1	647
17.7	Local Number	NM		9	C	0..1	5551212
17.8	Extension	NM		9	CE	0..1	
18	Referring Lab User-readable Specimen Identifier	ST		60	CE	0..1	100806:B00012R
19	Referring Lab Specimen Bar Code Number	ST		60	CE	0..1	015487
20	Performing Lab User-readable Specimen Identifier	ST		60	CE	0..1	20060811.123456
21	Filler Field 2				X		
22	Results Rpt/Status Chng – Date/Time	TS		19	X*		*Refer to field definition for details*
22.1	Date/Time of Event	ST		19	X*	1..1	
22.2	Degree of Precision				X		
23	Charge to Practice				X		
24	Diagnostic Service Sect ID				X		
25	Test Request Status	ID	0123	1	R	1..1	I
26	Parent Result	PRL		271	C	0..1	
26.1	Parent Result Identifier	CE		252	R	1..1	
26.1.1	Identifier	ID		20	R	1..1	
26.1.2	Text	ST		200	R	1..1	

Seq	Name	Type	Table	Len	Opt	Card	Example value
26.1.3	Name of Coding System	ST		20	R	1..1	
26.2	Parent Result Sub-identifier	ST		20	RE	0..1	
26.3	Parent Observation Value Descriptor				X		
27	Quantity/Timing	TQ		31	R	1..1	
27.1	Quantity	CQ		1	R	1..1	
27.1.1	Quantity	NM		1	R	1..1	1
27.1.2	Units				X		
27.2	Interval				X		
27.3	Duration				X		
27.4	Start Date/Time	TS		19	R	1..1	
27.4.1	Date/Time of Event	ST		19	R	1..1	20060810
27.4.2	Degree of Precision				X		
27.5	End Date/Time				X		
27.6	Priority	ID	0027	6	R	1..1	R
28	Result Copies To	XCN		176	RE	0..10	
28.1	ID Number	ST		15	R	1..1	9119
28.2	Last Name	ST		30	R	1..1	Kidwell
28.3	First Name	ST		20	RE	0..1	Lauren
28.4	Second Name	ST		20	RE	0..1	
28.5	Suffix (e.g., JR or III)	ST		10	RE	0..1	
28.6	Prefix (e.g., DR)	ST		10	RE	0..1	
	(components 28.7-28.12)				X		
28.13	Identifier Type Code	ID	0203	5	R	1..1	ML
	(components 28.14-28.21)				X		
28.22	Assigning Jurisdiction	CE		45	R	1..1	
28.22.1	Identifier	ID	0347 or 0399	3	R	1..1	ON
28.22.2	Text	ST		20	R	1..1	Ontario
28.22.3	Name of Coding System	ST		20	R	1..1	HL70347
29	Parent	EIP		573	C	0..1	
29.1	Placer-Assigned Identifier	EI		286	R	1..1	
29.1.1	Entity Identifier	ST		25	R	1..1	
29.1.2	Namespace ID				X		
29.1.3	Universal ID	ST		255	R	1..1	
29.1.4	Universal ID Type	ID	0301	6	R	1..1	
29.2	Filler-Assigned Identifier	EI		286	R	1..1	
29.2.1	Entity Identifier	ST		25	R	1..1	
29.2.2	Namespace ID				X		
29.2.3	Universal ID	ST		255	R	1..1	
29.2.4	Universal ID Type	ID	0301	6	R	1..1	
30	Point-of-care Test Identifier	ID	0124	20	RE	0..1	PORT
	(fields 31-36)				X		
37	Number of Sample Containers	NM		4	CE	0..1	1
38	Transport Logistics of Collected Sample				X		
39	Collector's Comment	CE		201	CE	0..1	
39.1	Identifier				X		
39.2	Text	ST		200	R	1..1	Patient did not fast.
39.3	Name of Coding System				X		

10.2.5.8.1 OBR Segment – Example

```
OBR|1|112233445566^^2.16.840.1.113883.3.59.3:7999^ISO|20060501123456^^2.16.840.1.113883.3.59.1:59
99^ISO|TR10120-4^Cholesterol^HL79901|||20060511143000-0400||10^mL|||||20060511184500-0400|BLDV&Bl
ood Venous&HL70070|12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^PRN^PH^^^416^555
1212^1234|310306:B00012R|015487|310306:B00012R||20060512031529-0400|||I||1^^^20060510^^R|12345^We
lby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347~24680^Kimball^Richard^^^Dr^^^^^^^MDL^^^^^^^^
^ON&Ontario&HL70347|||||||||1||^Patient may not have fasted for test<CR>
```

10.2.5.8.2 Field Definitions

10.2.5.8.2.1 OBR.0 Segment ID – OBR

Always populate this field with the static value "OBR".

10.2.5.8.2.2 OBR.1 Set ID

This field must contain a positive integer that uniquely identifies this OBR segment among all OBR segments at the same position in the message hierarchy. The Set ID of the first such OBR segment should contain "1", and subsequent OBR segments must be identified as "2", "3", etc.

10.2.5.8.2.3 OBR.2 Placer Order Number

Must contain a value assigned by the order-placing organization that uniquely identifies this test request among all test requests in OLIS. Once a value has been established in this field, it cannot be changed by subsequent messages.

If the Order Control Code is "NW" or "RO" the value must not have been previously assigned as the Placer Order Number on an existing test request in OLIS.

If the Order Control Code is "XO" or "CA", then the Placer Order Number in the message is used by OLIS to locate the test request to be amended or cancelled.

Example:
A placer order number of 112233445566 assigned by an Ontario hospital having a facility ID of 5999 is represented as follows:

```
20040501123456^^2.16.840.1.113883.3.59.1:5999^ISO
```

A placer order number created by an electronic medical record system is represented as follows:

```
112233445566^^2.16.840.1.113883.3.239.14:AZ123^ISO
```

10.2.5.8.2.4 OBR.3 Filler Order Number

This field is not populated in an order (ORM) message.

In a result (ORU) message, this field must contain a value assigned by the order-filling organization that uniquely identifies this test request among all test requests in OLIS. Once a value has been established in this field, it cannot be changed by subsequent messages.

In a query result (ERP) message from OLIS, this field will be populated if the test request has any test results.

Example:
A filler order number of 20040501123456 assigned by an Ontario laboratory having a laboratory ID of 5999 is represented as follows:

```
20040501123456^^2.16.840.1.113883.3.59.1:5999^ISO
```

A filler order number created by an electronic medical record system is represented as follows:

```
112233445566^^2.16.840.1.113883.3.239.14:AZ123^ISO
```

10.2.5.8.2.5 OBR.4 Universal Service Identifier

Specify the ordered test request code and test request name from the OLIS Test Request Nomenclature. Once a value has been established in this field, it cannot be changed by subsequent messages.

Both the test request code and description must be communicated so that the test request information is self-documenting, thereby allowing an external system to understand the definition of a test request code that it has not previously encountered. The description of the test request type is the Test Request Name from the OLIS Test Request Nomenclature.

Note: The test request code and test request name specified should be from the most recent published version of the Nomenclature file. OLIS will issue a warning when a deprecated/ inactive code is used in new lab reports. In the future, these warning messages are eventually going to be converted to an error message and the transaction will be rejected.

Table **9901** contains the OLIS Test Request Nomenclature.

Examples:
TR10120-4^Cholesterol^HL79901

TR10540-3^Coagulation Tissue Factor Induced/INR^HL79901

10.2.5.8.2.6 OBR.7 Observation Date/Time

Indicate the observation date, including time when relevant, of specimen collection.

This field is a required field in the ORU^R01 message type. This field cannot be changed once the first test result has been recorded for the test request unless the reporting laboratory amends it. The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

This field must be populated if the test request status is any of "**I**", "**F**", "**A**", "**P**", or "**C**". This field must not be populated if the test request status is "**O**".

The value submitted in this field must not be later than the value in MSH.7 *Date/Time of Message*.

In a query result (ERP) message from OLIS, this field will be populated if a specimen has been collected for the test request.

Format:

CCYYMMDD[HHMMSS-ZZZZ]

10.2.5.8.2.7 OBR.8 Observation End Date/Time

Indicate the end date and time of specimen collection for a timed specimen collection.

The value submitted in this field must not be later than the value in *MSH.7 Date/Time of Message*.

This field must not be populated if *OBR.7 Observation Date/Time* is not populated.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Format:

CCYYMMDDHHMMSS-ZZZZ

10.2.5.8.2.8 OBR.9 Collection Volume

Indicate the volume of specimen collected, if relevant.

This field must not be populated if *OBR.7 Observation Date/Time* is not populated.

Units should be reported in SI or SI-derived units.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example:
500^mL

Please also refer to:

0 13.2 Units of Measure on page 302

10.2.5.8.2.9 OBR.11 Specimen Action Code

This field is no longer deprecated as of version 1.32.
Laboratories and order placing systems are required to populate this field with 'L' when the specimen has not been obtained from the patient, and where the order must not be retrieved by another facility (e.g. when a FIT test kit is destined for a patient and the lab is awaiting the specimen, no other lab should receive this order).

The reporting laboratory should remove the value in this field when the specimen is received.

10.2.5.8.2.10 OBR.14 Specimen Received Date/Time

This field is not typically populated in an ORM message.

This field must be populated when the first test result is recorded on the test request by an ORU message. Once a value has been established in this field, it cannot be changed by subsequent messages unless messages are sent by the reporting laboratory. The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

This field must not be populated if OBR.7 Observation Date/Time is not populated.

This field must be populated with the date and time that the specimen was received at the laboratory that performs the test.

Format:

CCYYMMDDHHMMSS-ZZZZ

10.2.5.8.2.11 OBR.15 Specimen Source

Indicate the relevant specimen source for the ordered test.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example:
BLDV&Blood Venous&HL70070

WND&Wound&HL70070^^^^&Left eye

10.2.5.8.2.12 OBR.16 Ordering Practitioner

This field must identify the practitioner who ordered the test request for the patient.

The currently valid practitioner name must be provided in this field. OLIS will accept a historically valid name of the practitioner, should the practitioner's name change in the future. When a historically valid name is provided the sender will receive a warning indicating that the historical name submitted is not the currently valid practitioner name.

The following rules apply to OBR.16 – Ordering Practitioner Name field validation:

- OBR.16.2 Last Name is required and must be provided with the currently valid last name for the practitioner; however, a historically valid last name will be accepted.

- OBR.16.3 First Name is not required; but is recommended to be the currently valid first name or a historically valid first name for the practitioner.
- OBR.16.4 Second Name is not required; but is recommended to be the currently valid second name or a historically valid second name for the practitioner.

OLIS will accept a correction to the Ordering Practitioner ID (i.e. Practitioner type, licence number, and jurisdiction), only if submitted by the same organization or system that submitted the original message to OLIS for the order. In this event, OLIS will update all test requests within the order with the new ordering practitioner information regardless of whether all or only some of the order's test requests appear in the amendment message.

OLIS will accept a historically valid practitioner name when an amendment message is submitted.

OLIS will ignore changes to the existing practitioner name in order to preserve the name submitted when the order was created, even if it was created with a historically valid name.

If a different organization or system attempts to change the ordering practitioner ID, OLIS will ignore the change and emit warning message 905.

In some emergency and urgent care environments, laboratory information is ordered under organizational protocols without identifying an ordering practitioner. OLIS has assigned specific IDs to organizations that require them that can be submitted in this field. A provider unavailable has been set up with ID 0000 for organizations that do not have a specific id assigned.

Table 72 Sample Organization ID in absence of an Ordering Practitioner

Jurisdiction	Identifier Type Code	ID	Last Name	First Name
ON	MDL	4047	North York General Hospital	Provider Unavailable
ON	MDL	4061	Southlake Regional Health Ctr	Provider Unavailable
ON	MDL	4070	Grey Bruce Health Services	Provider Unavailable
ON	MDL	4083	St. Michael's Hospital	Provider Unavailable
ON	MDL	4095	Lakeridge Health	Provider Unavailable
ON	MDL	4167	Trillium Healthcare	Provider Unavailable
ON	MDL	4194	Mount Sinai Hospital	Provider Unavailable
ON	MDL	4204	University Health Network	Provider Unavailable
ON	MDL	4249	The Ottawa Hospital	Provider Unavailable
ON	MDL	4267	Sunnybrook Health Sciences Ctr	Provider Unavailable
ON	MDL	0000	Test Request Placer	Provider Unavailable

The information submitted in this field must be identical in every OBR segment in the order, including test requests added by a laboratory.

Example:
```
12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347
```

10.2.5.8.2.13 OBR.17 Order Callback Phone Number

Order-placing systems should provide a callback telephone number for the benefit of order fillers to make order-related inquiries and to report an urgent test result or a status. Order filling systems must retain the value in the field when present, and maintain consistency across any newly added test requests in the order.

The value(s) submitted in this field must be identical in every OBR segment in the order, including test requests added by a laboratory.

Since this field supports a telephone number or e-mail address, the *Country Code*, *Area/City Code*, *Local Number*, and *Extension* fields are populated only if the e-mail address field is empty, and vice versa.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Please also refer to:

For examples refer to 10.2.5.2.2.8 PID.13 Phone Number – Home on page 166

10.2.5.8.2.14 OBR.18 Referring Lab User-readable Specimen Identifier

For test requests referred to another laboratory, this field allows the referring laboratory to indicate the user-readable specimen identifier when the laboratory creates a reference order for a reference laboratory through OLIS. The reference laboratory can then retrieve this specimen identifier with the test request and simplify the process of matching reference test requests to specimens.

This field must not be populated if OBR.7 Observation Date/Time is not populated.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example: `310306:B00012R`

10.2.5.8.2.15 OBR.19 Referring Lab Specimen Bar Code Number

For test requests referred to another laboratory, this field allows the referring laboratory to indicate a bar code number that it has assigned to a specimen when this number differs from the user-readable specimen identifier indicated in *OBR.18 Referring Lab User-readable Specimen Identifier*.

This field must not be populated if *OBR.7 Observation Date/Time* is not populated.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example: `015487`

10.2.5.8.2.16 OBR.20 Performing Lab User-readable Specimen Identifier

For test requests referred to another laboratory, this field allows a reference laboratory to indicate the user-readable specimen identifier that the reference laboratory has assigned to the specimen.

Note: The reference laboratory can amend the test request to populate this field when it receives the specimen in order to indicate to the referring laboratory that the reference test request and specimen have been received at the reference laboratory.

This field must not be populated if *OBR.7 Observation Date/Time* is not populated.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example: `310306:B00012R`

10.2.5.8.2.17 OBR.22 Results Rpt/Status Chng – Date/Time

This field is not populated by external systems in ORM and ORU messages. OLIS assigns a timestamp to this field that is returned to initiating application in the ORR general order response message and the ERP query response message.

Example: `20060915031529-0400`

OLIS updates this test request timestamp each time the test request is modified, and whenever test results are recorded on the test request in order to support the Retrieve Laboratory Information Updates queries.

10.2.5.8.2.18 OBR.25 Test Request Status

In the ORM message, the value is usually one of "`O`", "`N`", "`X`", or "`I`", however, the ORM message may be used to change the *ZBR.1 Test Request Blocking Indicator* or to add notes to a resulted test request or its order, in which case, the existing value should be submitted (i.e., one of "`P`", "`A`", "`F`", or "`C`").

In the ORU message, the value must be "`P`", "`A`", "`F`", or "`C`". When one or more results related to the test request are amended, the value must be "`C`". When a result or one of the results related to the test request has a preliminary status, the value must be "`P`". When one or more result(s) related to the test request has a longer turnaround time than what is being resulted (i.e., more result(s) is/are expected), the value should be "`A`".

Please also refer to:

8.2.4.2.1 Test Request States on page 76

10.2.5.8.2.19 OBR.26 Parent Result

Do not populate this field in an order (ORM) message.

In an ORU message, populate this field with a pointer to a result of a different test in the same order as required to support reporting. For example, this field will contain a pointer to the microorganism identified in an earlier test in the same order when adding antimicrobial sensitivity tests to the order.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Please also refer to:

10.3.2.3.6 Laboratory Records Microbiology and Sensitivity Test Results on page 225

10.2.5.8.2.20 OBR.27 Quantity/Timing

This field allows the date and time to be specified at the test-request level. It is recommended that these dates not vary widely across test requests within a single order; separate orders are preferred.

The test request placer may amend the value in this field regardless of whether a result has been recorded for the test request.

Format:

CCYYMMDD[HHMMSS-ZZZZ]

Examples:

```
1^^^20060113^^R

1^^^20060113083000-0500^^TM5
```

The *Quantity* subcomponent must contain the value "`1`".

The *Units* subcomponent must be empty.

For routine orders, populate this field with the current date.

For timing-critical orders, populate this field with the date and time that the specimen is to be obtained.

For future-dated orders, populate this field with the scheduled future date (and time if applicable) when the laboratory test is to occur.

Format:

CCYYMMDD[HHMMSS-ZZZZ]
For order priority, OLIS supports the values in table 0027 as well as:
TS<integer> = timing critical within <integer> seconds
TM<integer> = timing critical within <integer> minutes
TH<integer> = timing critical within <integer> hours
TD<integer> = timing critical within <integer> days
TW<integer> = timing critical within <integer> weeks
TL<integer> = timing critical within <integer> months

Example:
"**TH2**" means timing critical within two hours.

10.2.5.8.2.21 OBR.28 Result Copies To

Identify practitioners who are to be copied on this order/report. It is important to identify all cc'd practitioners so that each practitioner is aware who is copied, and to ensure that the report is available to each practitioner through the practitioner query.

The list of Result Copies To practitioners must be the same on all test requests in an order. For example, when a laboratory adds a test request to an existing order, it must identify the same practitioners in this field as appear on the existing test requests in the order.

In an amendment message, OLIS will replace any existing cc'd practitioners with the practitioner(s) identified in the message. If this field is empty in an amendment message, OLIS will leave the existing cc'd practitioners unchanged on the order. If a pair of double quotes is submitted ("") in an amendment message, OLIS will remove any existing cc'd practitioners from the order.

The currently valid practitioner name must be provided in this field. OLIS will accept a historically valid name of the practitioner, should the practitioner's name change in the future. When a historically valid name is provided the sender will receive a warning indicating that the historical name submitted is not the currently valid practitioner name.

The OBR.28 Result Copies To field validation effective as of OLIS version 3.2.1:

- OBR.28.2 Last Name is required and must be provided with the currently valid last name for the practitioner; however, a historically valid last name will be accepted.
- OBR.28.3 First Name is not required; but is recommended to be the currently valid first name or a historically valid first name for the practitioner.
- OBR.28.4 Second Name is not required; but is recommended to be the currently valid second name or a historically valid second name for the practitioner.

Example:
12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347~24680^Kimball^Richard^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347

10.2.5.8.2.22 OBR.29 Parent

Do not populate this field in an order (ORM) message.

In an ORU message, populate this field with a pointer to a different test in the same order when appropriate in conjunction with OBR.26 Parent Result.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Please also refer to:

10.3.2.3.6 Laboratory Records Microbiology and Sensitivity Test Results on page 225

10.2.5.8.2.23 OBR.30 Point-of-care Test Identifier (Transportation Mode)

To identify a point-of-care test, indicate "**PORT**" in this field, otherwise leave blank.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

10.2.5.8.2.24 OBR.37 Number of Sample Containers

If relevant, provide the number of sample containers used to collect specimens from the patient.

This field must not be populated if OBR.7 *Observation Date/Time* is not populated.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example: "**1**"

10.2.5.8.2.25 OBR.39 Collector's Comment

If applicable, provide any additional comments related to the specimen.

This field must not be populated if *OBR.7 Observation Date/Time* is not populated.

This field does not need to be supported in a report (ORU) message, but it must be supported in order (ORM) messages for order entry, referrals, and walk-ins (a walk-in is a patient who presents at a community laboratory or hospital for specimen collection with a lab requisition from a community practitioner).

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Example:
^Patient may not have fasted for test

10.2.5.9 ZBR – Observation Request Extension Segment

Table 73 ZBR Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ZBR	ST		3	R	1..1	ZBR
1	Test Request Blocking Indicator	ST		1	RE	0..1	
2	Test Request Placer	XON		523	RE	1..1	
2.1	Organization Name	ST		255	R	1..1	Anytown Memorial Hospital
	(components 2.2-2.5)				X		
2.6	Assigning Authority	HD		263	R	1..1	
2.6.1	Namespace ID				X		
2.6.2	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999 **SCC:** 2.16.840.1.113883.3.59.2:8888 **Hospital without laboratory:** 2.16.840.1.113883.3.59.3:0456 **EMR Instance:**

Seq	Name	Type	Table	Len	Opt	Card	Example value
							2.16.840.1.113883.3.239.14:AZ123
2.6.3	Universal ID Type	ID	0301	6	R	1..1	ISO
3	Specimen Collector	XON		523	C	0..1	
3.1	Organization Name	ST		255	R	1..1	Anytown Memorial Hospital
	(components 3.2-3.5)				X		
3.6	Assigning Authority	HD		263	C	1..1	
3.6.1	Namespace ID				X		
3.6.2	Universal ID	ST		255	C	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999 **SCC:** 2.16.840.1.113883.3.59.2:8888 **Hospital without laboratory:** 2.16.840.1.113883.3.59.3:0456
3.6.3	Universal ID Type	ID	0301	6	C	1..1	ISO
4	Reporting Laboratory	XON		523	C	0..1	
4.1	Organization Name	ST		255	R	1..1	Superior Medical Laboratories
	(components 4.2-4.5)				X		
4.6	Assigning Authority	HD		263	C	1..1	
4.6.1	Namespace ID				X		
4.6.2	Universal ID	ST		255	C	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999
4.6.3	Universal ID Type	ID	0301	6	C	1..1	ISO
5	Reporting Laboratory Address	XAD		118	C	0..1	
5.1	Street Address	ST		32	R	1..1	3270 Dundas St. East
5.2	Other Designation	ST		32	RE	0..1	
5.3	City	ST		30	R	1..1	Anytown
5.4	State or Province	ID	0347	2	C	0..1	ON
5.5	Zip or Postal Code	ST		10	RE	0..1	M5W 1E1
5.6	Country	ID	0399	3	R	1..1	CAN
5.7	Address Type	ID	0190	3	R	1..1	B
6	Performing Laboratory	XON		523	C	0..1	
6.1	Organization Name	ST		255	R	1..1	Esoterica Lab Services
	(components 6.2-6.5)				X		
6.6	Assigning Authority	HD		263	C	1..1	
6.6.1	Namespace ID				X		
6.6.2	Universal ID	ST		255	C	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999
6.6.3	Universal ID Type	ID	0301	6	C	1..1	ISO
7	Performing Laboratory Address	XAD		118	C	0..1	
7.1	Street Address	ST		32	R	1..1	6530 Tandem Court
7.2	Other Designation	ST		32	RE	0..1	
7.3	City	ST		30	R	1..1	Someville
7.4	State or Province	ID	0347	2	C	0..1	ON
7.5	Zip or Postal Code	ST		10	RE	0..1	P9R 1S1
7.6	Country	ID	0399	3	R	1..1	CAN
7.7	Address Type	ID	0190	3	R	1..1	B
8	Destination Laboratory	XON		523	RE	0..1	
8.1	Organization Name	ST		255	R	1..1	Esoterica Lab Services
	(components 8.2-8.5)				X		
8.6	Assigning Authority	HD		263	RE	1..1	
8.6.1	Namespace ID				X		
8.6.2	Universal ID	ST		255	R	1..1	**Laboratory:** 2.16.840.1.113883.3.59.1:9999
8.6.3	Universal ID Type	ID	0301	6	R	1..1	ISO
9	Reportable Test Indicator	IS	9906	3	RE	0..5	

Seq	Name	Type	Table	Len	Opt	Card	Example value
10	Business Rule Intervention Code	IS	9903	5	RE	0..5	
11	Test Request Sort Key	ST		15	RE	0..1	AA.CHEM.0001
12	Referred Test Indicator	ST		1	RE	0..1	
13	Full Replace Amendment	ST		1	RE	0..1	Y
14	Test Request Replace Amendment	ST		1	RE	0..1	Y

10.2.5.9.1 ZBR Segment – Example

```
ZBR||Phlebotomy Inc.^^^^^&2.16.840.1.113883.3.59.2:3999&ISO|Phlebotomy Inc.^^^^^&2.16.840.1.11388
3.3.59.2:3999&ISO|Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO|880 Bay ST.^11th Floor^Toron
to^ON^M5W 1E6^CAN^B|Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO|880 Bay St.^11th Floor^Tor
onto^ON^M5W 1E6^CAN^B|||AA.CHEM.0001<CR>
```

10.2.5.9.2 Field Definitions

10.2.5.9.2.1 ZBR.0 Segment ID – ZBR

Always populate this field with the static value "**ZBR**".

10.2.5.9.2.2 ZBR.1 Test Request Blocking Indicator

This field is normally left blank.

Populate this field with the value "**Y**" to indicate that access to Test Request and its Test Results must be restricted to the practitioners named on the order.

It is not presently possible to remove the test request blocking indicator once it has been set.

10.2.5.9.2.3 ZBR.2 Test Request Placer

This field must be populated in every test request of every ORM message, indicating the organization that notified OLIS of the test request or an amendment to the test request.

This field must also be populated in every net-new test request in an ORU message. In this case it must match the MSH.3 value.

Conversely, this field need not be populated when the test request is being amended or a laboratory is only reporting test results against a test request that already exists in OLIS. The test request placer is a write-once field that is recorded in OLIS when the test request is created and all subsequently submitted values are ignored.

Examples:

Hospital	County Hospital^^^^^&2.16.840.1.113883.3.59.3:1234&ISO
SCC	Phlebotomy Inc.^^^^^&2.16.840.1.113883.3.59.2:3999&ISO
Laboratory	Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO
Practitioner's EMR	Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO
Pharmacy	Medics Pharmacy^^^^^&2.16.840.1.113883.3.239.13.76:10005&ISO
Long Term Care Home or Retirement Home	LTCH-Holly Long Term Care Home^^^^^&2.16.840.1.113883.3.239.3.59.10:CB00&ISO

10.2.5.9.2.4 ZBR.3 Specimen Collector

This field must be populated by the external application (specimen informant) when it records or amends specimen information against the test request in OLIS.

This field must be empty if *OBR.7 Observation Date/Time* is empty.

This field indicate the organization (specimen collection centre, laboratory, hospital, pharmacy or long term care home) that collected the specimen.

For examples of how to populate this field for a hospital, SCC, laboratory, pharmacy or long term care/retirement home refer to *ZBR.2 Test Request Placer*.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Note that a practitioner's EMR cannot be identified in this field. If the specimen was collected by the ordering practitioner, populate the *Organization Name* component of this field with the string literal "`The_Ordering_Practitioner`" and leave the remaining components empty. In all other cases, the Assigning Authority Universal ID and Assigning Authority Universal ID Type subcomponents must be populated.

Syntax:
`The_Ordering_Practitioner`

10.2.5.9.2.5 ZBR.4 Reporting Laboratory

This field is not populated in an ORM message.

Refer also to the ZBR.6 Performing Laboratory on page 189 field.

This field must be populated by the external application (test result informant) that records test result information against the test request in OLIS. The populated value must match MSH.3 when recording the test result. Once a value has been established in this field, it cannot be changed by subsequent messages.

Indicate the laboratory that reported the test result to OLIS.

If the test result was reported by the ordering practitioner, populate the name component of this field with the string literal "`The_Ordering_Practitioner`" and leave the remaining components empty. In all other cases, the Assigning Authority Universal ID and Assigning Authority Universal ID Type subcomponents must be populated. When ZBR.4 contains the string literal, ZBR.3 *Specimen Collector* and ZBR.6 *Performing Laboratory* must be populated with the same information.

Example:
`Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO`

Example (physician office testing):
`The_Ordering_Practitioner`

10.2.5.9.2.6 ZBR.5 Reporting Laboratory Address

This field is not populated in an ORM message.

This field must be populated by the external application (test result informant) that records test result information against the test request in OLIS. Once a value has been established in this field, it cannot be changed by subsequent messages.

Indicate the site address of the laboratory that reported the test result to OLIS.

Refer to the PID.11 *Patient Address* field in section 10.2.5.2 *PID – Patient Identification Segment* on page 163 for correct usage of the components of this field.

Examples:
`880 Bay St.^11th Floor^Toronto^ON^M5W 1E6^CAN^B`

10.2.5.9.2.7 ZBR.6 Performing Laboratory

This field is not populated in an ORM message.

Refer also to the ZBR.4 Reporting Laboratory on page 188.

This field must be populated by the external application to identify the laboratory that performed the analysis.

The reporting lab may amend the test request to change the identity of the performing laboratory if necessary (e.g., if cultures with no growth after 24 hours are transported to a different laboratory for further incubation).

Indicate the laboratory that produced the test result.

If the test result was produced by the ordering practitioner, populate the name component of this field with the string literal "`The_Ordering_Practitioner`" and leave the remaining components empty. In all other cases, the Assigning Authority Universal ID and Assigning Authority Universal ID Type subcomponents must be populated. When ZBR.6 contains the string literal, ZBR.3 *Specimen Collector* and ZBR.4 *Reporting Laboratory* must be populated with the same information.

Out-of-province laboratories do not have IDs assigned by the Laboratory Licensing and Inspection Service. If the laboratory that produced the test result is an out-of-province laboratory, indicate the name of the laboratory but omit the ID. The address of the out-of-province laboratory must be indicated in the ZBR.7 *Performing Laboratory Address* field.

Please also refer to:

10.2.5.2.2.7 PID.11 Patient Address on page 165

Examples:
`Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO`

Example (out-of-province laboratory):
`Winnipeg National Microbiology Laboratory`

Example (physician office testing):
`The_Ordering_Practitioner`

10.2.5.9.2.8 ZBR.7 Performing Laboratory Address

This field is not populated in an ORM message.

This field must be populated by the external application (test result informant) that records test result information against the test request in OLIS. Once a value has been established in this field, it cannot be changed by subsequent messages unless it is sent by the reporting laboratory. The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Indicate the site address of the laboratory that produced the test result to OLIS.

Example:
`880 Bay St.^11th Floor^Toronto^ON^M5W 1E6^CAN^B`

10.2.5.9.2.9 ZBR.8 Destination Laboratory

This field is provided to allow a test request to be referred or redirected from a referring laboratory to a reference laboratory. It is acceptable to leave this field empty for reports that are not referrals.

The laboratory that refers out the test request can identify the reference laboratory in this field. A SCC can be specified in this field if the SCC acts as a way point destination for a specimen.

A laboratory that routinely performs reference work can periodically poll OLIS to receive test requests that identify it as the destination laboratory.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

An out-of-province destination laboratory may be specified by providing the laboratory name only, but out-of-province laboratories are not presently able to retrieve referred or redirected order from OLIS.

Examples:

SCC	`Phlebotomy Inc.^^^^^&2.16.840.1.113883.3.59.2:3999&ISO`
Laboratory	`Somelab Inc.^^^^^&2.16.840.1.113883.3.59.1:5999&ISO`

10.2.5.9.2.10 ZBR.9 Reportable Test Indicator

This field allows the laboratory to identify a test that is reportable to:

Public Health according to the Specification of Reportable Diseases, Ontario Regulation 559/91 to the *Health Protection and Promotion Act*.

Laboratories are required to populate this field appropriately to ensure that reportable laboratory findings are available to Public Health and Cancer Care Ontario.

OLIS provides a query interface for Public Health and Cancer Care Ontario to retrieve laboratory information that has been tagged in this field.

Indicate "`PH2`" if the test result is to be reported to Public Health.

Indicate "`CCO`" if the test request and test result is reportable to Cancer Care Ontario.

Once a test request has been flagged as reportable to one or more organizations, the reportable test indicator cannot be removed. This approach ensures that updates or corrections to laboratory information are communicated to the appropriate organization. For example, if a laboratory inadvertently reports a false-positive result that is reportable to Public Health, it can correct the result with the assurance that Public Health will be notified that the correct result is negative.

If different test requests are used to report culture and sensitivity information that is reportable to Public Health, ensure that both test requests are identified as reportable to Public Health in this field.

10.2.5.9.2.11 ZBR.10 Business Rule Intervention Code

This field is not currently in use. There is no current requirement for external systems to support it, but this may change in the future.

If appropriate, provide one or more valid business rule intervention codes in an ORM message when resubmitting a previously rejected order. For example, this field is used by an ordering practitioner to indicate that a test is to be ordered despite the existence of a clinically valid test result in OLIS. Valid intervention codes will be published when business rule or best-practice guidelines (e.g., an unnecessary duplicate test avoidance rule) are published.

10.2.5.9.2.12 ZBR.11 Test Request Sort Key

This field allows laboratories to suggest the sequence of test requests within a single order to organize the display of the patient report by other external systems (e.g., a practitioner's electronic medical record system).

Most LIS systems contain sorting information in their test dictionaries that can be used to populate this field. If sorting information is not available, this must be brought to the attention of Ontario Health before interface development work begins to avoid the risk of failing conformance testing. Sort keys are essential for other systems to render the lab report as the laboratory intended the report to be viewed by the practitioner.

The OLIS lab portlet will also use this information to determine the initial sort order of test requests when it displays a patient report.

External systems that use this information for sorting purposes will sort as a string according to the ISO 8859/1 character set. The example lab report messages in this specification contain sort keys.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

10.2.5.9.2.13 ZBR.12 Referred Test Indicator

Laboratories must populate this field with either a 'Y' or a 'D' when creating a reference order in OLIS depending on the scenario that applies to them.

Referral Scenario – Laboratories must populate the field with a "**Y**" when they refer out the testing to another organization (i.e. reference lab); and they expect the reference laboratory to report the results back to them.

Redirect Scenario -Laboratories must populate this field with a 'D' when they refer out the testing to another organization (i.e. reference lab); where the reference laboratory will not report the result back to the referring laboratory and instead report it directly to the ordering provider.
Laboratories must populate this field with a "**Y**" when creating a reference order in OLIS.

10.2.5.9.2.14 ZBR.13 Full Replace Amendment

Laboratories must populate this field with a "**Y**" when fully replacing a report in OLIS.

10.2.5.9.2.15 ZBR.14 Test Request Replace Amendment

Laboratories must populate this field with a "**Y**" when replacing test request(s) and associated child test request(s) and result(s) in OLIS. The field cannot be used in conjunction with Full Replace Amendment (ZBR.13) and must only be used for Microbiology modality.

10.2.5.10 DG1 – Diagnosis Segment

The diagnosis segment allows ICD-10-CA-encoded diagnosis information to be communicated to the laboratory when required to complete the requested tests (e.g., diabetes mellitus status of the patient for maternal screening). As such, it must be supported in order (ORM) messages, but it need not be supported in report (ORU) messages.

Table 74 DG1 Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value	Conformance Notes
0	Segment ID – DG1	ST		3	R	1..1	DG1	
1	Set ID	SI		4	R	1..1	1	
2	Diagnosis Coding Method				X			
3	Diagnosis Code	CE		242	R	1..1		
3.1	Identifier	ID		20	R	1..1	E109	
3.2	Text	ST		200	R	1..1	Type 1 DM no (mention of) comp	
3.3	Name of Coding System	ST		20	R	1..1	ICD10CA	

10.2.5.10.1 DG1 Segment – Example

```
DG1|1||E109^Type 1 DM no (mention of) comp^ICD10CA<CR>
```

10.2.5.10.2 Field Definitions

10.2.5.10.2.1 DG1.0 Segment ID – DG1

Always populate this field with the static value "**DG1**".

10.2.5.10.2.2 DG1.1 Set ID

This field must contain a positive integer that uniquely identifies this DG1 segment among all DG1 segments at the same position in the message hierarchy. The Set ID of the first such DG1 segment should contain "1", and subsequent DG1 segments must be identified as "2", "3", etc.

10.2.5.10.2.3 DG1.3 Diagnosis Code

Indicate a valid code from the ICD-10-CA Standard. The *ICD-10-CA Diagnosis Code Short Description* must appear in the description component.

Example:
```
E109^Type 1 DM no (mention of) comp^ICD10CA
```

10.2.5.11 BLG – Billing Segment

Table 75 BLG Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – BLG	ST		3	R	1..1	BLG
1	When to Charge				X		
2	Charge Type				X		
3	Account ID	CX		15	R	1..1	
3.1	ID Number	ID	9904	15	R	1..1	SELF

10.2.5.11.1 BLG Segment – Example

```
BLG|||SELF<CR>
BLG|||MOHLTC<CR>
BLG|||3RDPARTY<CR>
BLG|||WSIB<CR>
BLG|||UNKNOWN<CR>
BLG|||ORDFAC<CR>
```

10.2.5.11.2 Field Definitions

10.2.5.11.2.1 BLG.0 Segment ID – BLG

Always populate this field with the static value `BLG`.

10.2.5.11.2.2 BLG.3 Account ID

This field must be populated to indicate the financial system that charges are to be invoiced to for the requested service; the payer for the tests requested.

The reporting laboratory may amend the value in this field regardless of whether a result has been recorded for the test request.

Note: Please use '`SELF`' for all the tests not covered by OHIP and paid privately.
Please use '`3RDPARTY`' for all tests not covered by OHIP and paid by Third Party agencies E.g. Private Insurance Companies.
Please use `'WSIB'` for all tests not covered by OHIP and paid for by WSIB.
Please use `'MOHLTC'` for all tests covered by OHIP.
Please use `'UNKNOWN'` only in exceptional scenarios where the payor is unknown when placing a lab order. This code is not supported when lab result(s) are being reported.
Please use `'ORDFAC'` for tests that will be paid by the Ordering Facility

10.2.5.12 MSA – Message Acknowledgment Segment

Table 76 MSA Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – MSA	ST		3	R	1..1	MSA
1	Acknowledgment Code	ID	0008	2	R	1..1	AA
2	Message Control ID	ST		40	R	1..1	2453958.1234567
3	Text Message				X		
4	Expected Sequence Number				X		
5	Delayed Acknowledgment Type				X		
6	Error Condition				X		

10.2.5.12.1 MSA Segment – Example

```
MSA|AA|2453958.1234567<CR>
```

10.2.5.12.2 Field Definitions

10.2.5.12.2.1 MSA.0 Segment ID – MSA

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

10.2.5.12.2.2 MSA.1 Acknowledgment Code

OLIS will populate this field with **AA**, **AR**, or **AE**.

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

Note that warnings may be returned in the ERR segment regardless of the value returned in MSA.1.

10.2.5.12.2.3 MSA.2 Message Control ID

OLIS will populate this field with the value from MSH.10 *Message Control ID* of the ORM message sent by the initiating system.

10.2.5.13 ERR – Error Segment

Note: Since ERR segments may convey errors, warnings, or information messages, an ERR segment may appear in an ORR or ACK message regardless of the value in the MSA.1 *Acknowledgement Code* field.

Table 77 ERR Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ERR	ST		3	R	1..1	ERR
1	Error Code and Location	ELD		256	R	1..*	
1.1	Segment ID	ST		3	RE	0..1	ORC
1.2	Sequence	NM		4	RE	0..1	1
1.3	Field Position	NM		4	RE	0..1	1
1.4	Code Identifying Error	CE		242	R	1..1	
1.4.1	Identifier	ID	0357	20	R	1..1	101
1.4.2	Text	ST		200	R	1..1	Required field missing
1.4.3	Name of Coding System	ST		20	R	1..1	HL70357

10.2.5.13.1 ERR Segment – Example

```
ERR|ORC^1^1^103&The identifier or code 'ABC' is not a valid value&HL70357<CR>
```

10.2.5.13.2 Field Definitions

10.2.5.13.2.1 ERR.0 Segment ID – ERR

OLIS will populate this field with "ERR".

10.2.5.13.2.2 ERR.1 Error Code and Location

OLIS will indicate nature of the error, warning, or information message, as well as the relevant location in the initiating message where possible. The content of the text component may contain instance-specific elements of information, denoted by C#-style substitution placeholders (e.g., {0}).

Please also refer to:

0

Error Codes on page 314
13.1 Data Definition Tables on page 294

When relevant, the Segment ID, Field Position, and Sequence components will be populated to assist in troubleshooting an error reported by OLIS. The Sequence component is taken from the set ID field of the segment. In cases where segments occur in a fixed series, often only one of the segments will contain a set ID, and it is this set ID that is used for all segments in the series:

ORC, OBR, ZBR, (and sometimes BLG) always occur in sequence at the same level of the hierarchy, so it is the sequence that repeats within an OLIS message, and the set ID for an error occurring within any of these segments is the set ID value from the OBR.1 Set ID field.

The OBX and ZBX segments always occur as a pair, and it is the pair that may repeat within the message. In this case the set ID is taken from the OBX.1 Set ID field of the segment pair.

The NTE and ZNT segments always occur as a pair, and it is the pair that may repeat within the message. In this case the set ID is taken from the *NTE.1 Set ID* field of the segment pair.

The NTE-ZNT segment pair appears at three different levels (Order, Test Request, and Test Result) in the message hierarchy, and the DG1 segment and OBX-ZBX segment pair may occur multiple times under different test requests. The Set ID indicated by OLIS will match the submitted set ID from the initiating message, but if the initiating message contains multiple groups of these segment pairs, the message author will need to use other information such as the error code and values echoed within the error message text to determine the cause of the error.

The Text subcomponent is one example where OLIS may emit escape characters within the text in order to communicate reserved delimiter characters.

10.2.5.14 OBX-ZBX Segment Pair

The OBX segment transports both test results and ancillary order information.

Each OBR segment within an ORU message:

- **Must** be associated with at least one OBX segment containing a test result nomenclature code.
- **May** be associated with one or more OBX segments containing an ancillary order information code.

Each OBR segment within an ORM message:

- **May only** be associated with one or more OBX segments containing an ancillary order information code; test result nomenclature codes are not supported. In an ORM message, this segment is used to communicate patient observations to the laboratory when this is required by the laboratory (e.g., patient height, weight, body surface area).

The OBX transmitted in the ERP message may contain test results and/or ancillary order information. The two types of OBX's can be distinguished by examining the contents of the OBX.11 Observation Result Status; a value of "Z" indicates that the OBX contains ancillary order information submitted by an order-placing system.

The ZBX segment allows the date and time that the test result was released from the laboratory to be communicated through OLIS, and it allows the laboratory to suggest a sort order for test results within a single test request.

In OLIS, a test result or ancillary order information item is uniquely identified within a test request by Observation Identifier (OBX.3), Observation Sub-ID (OBX.4), and Test Result Release Date/Time (ZBX.1). Test results reported to OLIS are immutable; therefore, OLIS will not accept two different test results or ancillary order information items (i.e., different result value, units, abnormal flag, nature of abnormal test, observation result status, or observation method) for the same OBX.3, OBX.4, and ZBX.1 combination.

Accordingly, if a laboratory needs to update any information that is reported within the OBX segment, ZBX segment, or test result notes in the NTE and ZNT segments, then all of these segments must be submitted with a later timestamp in the ZBX.1 Test Result Release Date/Time field, otherwise OLIS will reject the ORU message with error 311 "`Different values or notes cannot be reported for the same test result with the same Test Result Release Date Time`".

To report supplemental results, provide a distinct value in the OBX.4 *Observation Sub-ID* field so that OLIS does not interpret the supplemental result as a replacement for the earlier result.

10.2.5.14.1 OBX-ZBX Segment Pair – Test Result – Example

```
OBX|1|NM|2951-2^SODIUM:SCNC:PT:SER/PLAS:QN^HL79902||150|mmol/L|136-144|H|||F<CR>
ZBX|20051231235959-0500|AA.CHEM.0001.001<CR>
```

10.2.5.14.2 OBX-ZBX Segment Pair – Ancillary Order Information – Example

```
OBX|1|NM|3142-7^BODY WEIGHT:MASS:PT:\S\PATIENT:QN:STATED^LN||70|kg|||||Z|||20060515<CR>
ZBX|20060515235959-0500<CR>
```

Note the use of the `\S\` escape sequence in this example to represent the `^` character within the LOINC fully specified name in order to avoid it being interpreted as a message delimiter.

10.2.5.14.3 OBX – Observation Result Segment

Table 78 OBX Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – OBX	ST		3	R	1..1	OBX
1	Set ID	SI		4	R	1..1	1
2	Value Type	ID	0125	4	C	0..1	NM
3	Observation Identifier	CE		242	R	1..1	
3.1	Identifier	ID	HL9902 or LN	20	R	1..1	2951-2
3.2	Text	ST		200	R	1..1	SODIUM:SCNC:PT:SER/PLAS:QN
3.3	Name of Coding System	ST		20	R	1..1	HL79902
4	Observation Sub-ID	ST		20	RE	0..1	
5	Observation Value	varies		*	C		150 (without any leading, embedded and trailing spaces.)

Seq	Name	Type	Table	Len	Opt	Card	Example value
6	Units	CE		60	RE	0..1	
6.1	Identifier	ST		60	R	1..1	mmol/L
6.2	Text				X		
6.3	Name of Coding System				X		
7	Reference Range	ST		60	RE	0..1	136-144
8	Abnormal Flags	ID	0078	5	RE	0..1	H
9	Probability				X		
10	Nature of Abnormal Test	ID	0080	2	CE	0..3	
11	Observation Result Status	ID	0085	1	R	1..1	F
12	Date Last Obs Normal Values				X		
13	User-defined Access Checks				X		
14	Date/Time of Observation	TS		19	C	0..1	
14.1	Date/Time of Event	ST		19	R	1..1	
14.2	Degree of Precision				X		
15	Producer's ID				X		
16	Responsible Observer				X		
17	Observation Method	CE		61	RE	0..1	
17.1	Identifier				X		
17.2	Text	ST		60	R	1..1	
17.3	Name of Coding System				X		

* *The size of the OBX.5 Observation Value field is limited by the overall maximum business message size of approximately 3.5MB. Note that base64-encoding, signing, and wrapping of a 3.5MB business message will result in 5MB of data which is the maximum SOAP message size at the transport layer.*

10.2.5.14.3.1 Field Definitions

10.2.5.14.3.1.1 OBX.0 Segment ID – OBX

Always populate this field with the static value "**OBX**".

10.2.5.14.3.1.2 OBX.1 Set ID

This field must contain a positive integer that uniquely identifies this OBX segment among all OBX segments at the same position in the message hierarchy. The Set ID of the first such OBX segment should contain "**1**", and subsequent OBX segments must be identified as "**2**", "**3**", etc.

10.2.5.14.3.1.3 OBX.2 Value Type

This field must be empty if OBX.11 *Observation Result Status* contains "**X**" or "**N**".

This field must be populated if OBX.11 *Observation Result Status* does not contain "**X**" or "**N**".

OLIS accepts any value type listed in table 0125 for any test result code identified in OBX.3. No assumption can be made about the expected data type for a given test result code.

10.2.5.14.3.1.4 OBX.3 Observation Identifier

If this segment contains a test result, this field must contain a value that identifies a result type in the OLIS Test Result Nomenclature.

If this segment contains ancillary order information from an order-placing system (e.g., a patient observation such as height or weight), this field must contain a value that identifies the observation as an item in the LOINC nomenclature.

In OLIS, a test result or ancillary order information item is uniquely identified within a test request by *Observation Identifier* (OBX.3), *Observation Sub-ID* (OBX.4), and *Test Result Release Date/Time* (ZBX.1).

Both the test result code and description must be communicated so that the test result information is self-documenting, thereby allowing an external system to understand the definition of a test result code that it has not previously encountered. For test result codes, the description of the test result type is the Fully Specified Name from the OLIS Test Result Nomenclature. For ancillary order information, the description must be assembled from the LOINC database by concatenating the following field values separated by colons: component name, property, time, system, scale, and method

Note: The test result code and description specified should be from the most recent published version of the Nomenclature file. OLIS will issue a warning when a deprecated/ inactive code is used in new lab reports. In the future, these warning messages are eventually going to be converted to an error message and the transaction will be rejected.

Example (test result): `6301-6^COAGULATION TISSUE FACTOR INDUCED.INR:RLTM:PT:PPP:QN:COAG^HL79902`

Example (ancillary order information): `3141-9^BODY WEIGHT:MASS:PT:\S\PATIENT:QN:MEASURED^LN`

OLIS accepts any value type listed in table 0125 for any test result code identified in OBX.3. No assumption can be made about the expected data type for a given test result code.

10.2.5.14.3.1.5 OBX.4 Observation Sub-ID

In OLIS, a test result or observation is uniquely identified within a test request by *Observation Identifier* (OBX.3), *Observation Sub-ID* (OBX.4), and *Test Result Release Date/Time* (ZBX.1).

Use this field to distinguish between multiple OBX segments with the same observation ID associated with one OBR, for example three occult blood test results reported under the same test result code, or an initial result accompanied by a supplemental result that does not replace the initial result.

10.2.5.14.3.1.6 OBX.5 Observation Value

Populate this field with the observation. Units of measure must be recorded in OBX.6, not in this field.

This field must be empty if OBX.11 *Observation Result Status* contains "`X`" or "`N`".

This field must be populated if OBX.11 *Observation Result Status* does not contain "`X`" or "`N`".

OLIS validates the content of this field according to the data type indicated in the OBX.2 *Value Type* field.

When time is expressed in the TM data type, the UTC offset is not mandatory, as the value may represent a measure of elapsed time.

Both the test result code and description must be communicated so that the test result information is self-documenting, thereby allowing an external system to understand the definition of a test result code that it has not previously encountered.

Microorganisms must be codified using the OLIS Microorganism Nomenclature (table 9905) when reporting routine (non-organism-specific) cultures where an appropriate code exists in the OLIS Microorganism Nomenclature.

Viewers that display laboratory results received from OLIS need to consider the data type identified in OBX.2 to properly display the test result value in OBX.5.

Microorganism names must appear as a coded element (CE) data type. When the coded element data type is encountered, the value to be displayed to a clinical user is the second component which contains the description or name.

Note: The test result and/or microorganism code specified should be from the most recent published version of the OLIS Nomenclature file. OLIS will issue a warning when a deprecated/ inactive code is used in new lab reports.

Table 79 CE Data Type Use in OBX.5

Seq	Name	Type	Table	Len	Opt	Card	Example value
5	Observation Value	CE		242	R	1..1	Without any leading, embedded and trailing spaces.
5.1	Identifier	ID	HL79905	20	R	1..1	3092008
5.2	Text	ST		200	R	1..1	Staphylococcus aureus(organism)
5.3	Name of Coding System	ST		20	R	1..1	HL79905

Examples:
For the ST data type, OBX.5 might contain "**SUSCEPTIBLE**".

For the CE data type, OBX.5 might contain "**3092008^Staphylococcus aureus(organism)^HL79905**"

Electronic documents can be encapsulated in this field using ED data type as following:

Table 80 ED – Encapsulated Data in OBX.5 Observation Value

Seq	Name	Type	Table	Len	Opt	Card	Example value
5.1	Source Application				X		
5.2	Type of Data	ID	0191	20	R	1..1	TEXT
5.3	Data Subtype	ID	0291	20	R	1..1	PDF
5.4	Encoding	ID	0299	20	R	1..1	Base64
5.5	Data	ST		*	R	1..1	

10.2.5.14.3.1.6.1 OBX.5.2 Type of Data

Indicate the type of data contained in the OBX.5.5 *Data* component.

10.2.5.14.3.1.6.2 OBX.5.3 Data Subtype

Indicate the subtype of data contained in the OBX.5.5 *Data* component.

10.2.5.14.3.1.6.3 OBX.5.4 Encoding

This field must always contain the string literal "**Base64**".

10.2.5.14.3.1.6.4 OBX.5.5 Data

This field must contain a Base64-encoded representation of the data. The length of this field is limited only by overall message size (note that Base64-encoded data is about 33-40% larger than the equivalent raw data). Base64-encoded data can be easily inserted into a message, as the Base64 alphabet does not contain any ER7 delimiters.

Encapsulated data must not be compressed.

10.2.5.14.3.1.6.5 OBX.5 – Encapsulated Data Example

|TEXT^PDF^Base64^VghpcyBpcyBzYW1wbGUgdGV4dCBpbiBsaWV1IG9mIHRoZSBiaW5hcnkgaW5mb3JtYXRpb24gY29u dGFpbmVkIGluIGFuIGVtYmVkZGVkIGRvY3VtZW50Lg==|

10.2.5.14.3.1.6.6 OBX.6 Units

When the observation in OBX.5 Observation Value is a scalar value, this field describes the units of measure in SI or SI-derived units as per the ISO+ approach given in

Please also refer to:

13.2 Units of Measure *on page 302*

Example: `mmol/L`

10.2.5.14.3.1.7 OBX.7 Reference Range

If applicable, provide the normal range of values associated with the OBX.3 *Observation Identifier*.

To promote consistent representation of clinical data on laboratory reports, reference range information must appear in this field unless reference range information exceeds the length of the field, in which case the reference range information must appear in a test result note.

When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds above which toxic side effects are common.

For numeric values, the numeric range must be formatted as follows, if applicable:

lower limit-upper limit	(when both lower and upper limits are defined, e.g., for potassium 3.5 – 4.5)
> lower limit	(if no upper limit, e.g., > 10)
< upper limit	(if no lower limit, e.g., < 15)

For alphabetical values, the normal value must be stated if applicable.

10.2.5.14.3.1.8 OBX.8 Abnormal Flags

If applicable, classify the normalcy of the observation in OBX.5 *Observation Value*. This field may also be used to indicate the susceptibility of a microorganism described in the parent result to the anti-infective agent listed in OBX.3 *Observation Identifier*.

Examples:	`H`	Above Low Normal (for numeric scalar results)
	`L`	Below Low Normal (for numeric scalar results)
	`A`	Abnormal (for non-numeric results only)

10.2.5.14.3.1.9 OBX.10 Nature of Abnormal Test

If applicable, qualify the classification of the reference range according to age, sex, and/or race.

This field must not be populated if OBX.8 is empty.

10.2.5.14.3.1.10 OBX.11 Observation Result Status

A value of "`Z`" indicates that the OBX segment contains ancillary order information submitted by an order-placing system. All other values indicate that the OBX contains report information submitted by a laboratory.

Note that some laboratories are not fully conformant with this specification in supporting the "`N`", "`W`", and "`X`" codes, and may instead indicate an OBX.11 value of "`C`", "`F`", or "`P`" with an explanation for why a test was not performed in lieu of a test result by submitting text in the OBX.5 *Observation Value* field, e.g., "`specimen container damaged`".

Please also refer to:

8.2.4.3.1 Test Result States on page 78

10.2.5.14.3.1.11 OBX.14 Date/Time of Observation

This field must be empty when a laboratory reports a test result; in this case OBR.7 *Observation Date/Time* must contain the physiologically relevant date and time of the test result.

The value submitted in this field must not be later than the value in MSH.7 *Date/Time of Message*.

For ancillary order information, populate this field with the physiologically relevant date and time of the observation if important.

Format:
CCYYMMDD[HHMMSS-ZZZZ]

10.2.5.14.3.1.12 OBX.17 Observation Method

Note that although this is identified as a CE datatype, OLIS uses only the second component to support transmission of free-form text describing the observation method.

If applicable, indicate the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not indicated by the OBX.3 *Observation Identifier*, such as polymerase chain reaction (PCR) for test result type `21190-4 (CHLAMYDIA TRACHOMATIS DNA:ACNC:PT:CVX:ORD:PROBE.AMP.TAR)` or enzyme immunosorbent assay (EIA) for test result type `16927-6 (HAEMOPHILUS INFLUENZAE B AB.IGG:ACNC:PT:SER:QN)`.

Syntax:

^PCR

^EIA

10.2.5.14.4 ZBX Segment – Observation Result Extension Segment

Table 81 ZBX Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ZBX	ST		3	R	1..1	ZBX
1	Test Result Release Date/Time	TS		19	R	1..1	
1.1	Date/Time of Event	ST		19	R	1..1	20051231235959-0500
1.2	Degree of Precision				X		
2	Test Result Sort Key	ST		15	RE	0..1	AA.CHEM.0001.001

10.2.5.14.4.1 Field Definitions

10.2.5.14.4.1.1 ZBX.0 Segment ID – ZBX

Always populate this field with the static value "**ZBX**".

10.2.5.14.4.1.2 ZBX.1 Test Result Release Date/Time

When this segment follows a test result OBX, indicate the date and time that the Test Result was released by the Reporting Laboratory.

In OLIS, a test result or observation is uniquely identified within a test request by Observation Identifier (OBX.3), Observation Sub-ID (OBX.4), and Test Result Release Date/Time (ZBX.1).

When this segment follows ancillary order information OBX, enter a date and time to make to make the observation unique, ideally the date and time that the observation occurred.

Format: CCYYMMDDHHMMSS-ZZZZ

Example: **20060927033500-0400**

10.2.5.14.4.1.3 ZBX.2 Test Result Sort Key

This field allows laboratories to suggest the sequence of test results within a single test request to simplify the display of the patient report by other external systems (e.g., a practitioner's electronic medical record system).

Most LIS systems contain sorting information in their test dictionaries that can be used to populate this field. If sorting information is not available, this must be brought to the attention of Ontario Health before interface development work begins to avoid the risk of failing conformance testing. Sort keys are essential for other systems to render the lab report as the laboratory intended the report to be viewed by the practitioner.

The OLIS lab portlets will also use this information to determine the initial sort order of test results for an individual test requests when it displays a patient report.

External systems that use this information for sorting purposes will sort as a string according to the ISO 8859-1 character set. The example lab report messages in this specification contain sort keys.

10.2.5.15 ZSH Segment – Message Header Extension Segment

This segment allows the identity of the person who initiated a query to be asserted by the site or application that initiates the query so that Ontario Health can meet its audit trail and patient privacy obligations as per the *Personal Health Information Protection Act, 2004*. In the future, this audit trail data may become available to facilities to support the facilities' audit trail and patient privacy obligations.

This segment must be present in SPQ query messages whenever the query response from OLIS is accessible to the person who initiates the query, as this constitutes disclosure of personal health information to that person.

Accordingly, most implementations of the following query types require the ZSH segment to be present.

Z01 Retrieve Laboratory Information for Patient
Z02 Retrieve Laboratory Information for Order ID
Z04 Retrieve Laboratory Information Updates for Practitioner
Z05 Retrieve Laboratory Information Updates for Destination Laboratory
Z06 Retrieve Laboratory Information Updates for Ordering Facility
Z11 Retrieve Laboratory Order Information for Patient
Z50 Identify Patient by Name, Sex, and Date of Birth

Implementations of the following query types may not require the ZSH segment to be present, depending on how the query response data is managed by Public Health or by Cancer Care, respectively.

Z07 Retrieve Laboratory Information Reportable to Public Health
Z08 Retrieve Laboratory Information to Cancer Care Ontario

To support different approaches to implementing queries, OLIS supports the ZSH for all query types.

> Please consult the appropriate Adoption Coordinator or the OLIS Business Support Desk to review planned query implementations and determine whether the ZSH segment is required. Compliance with this requirement will be verified by Ontario Health when query implementations are conformance tested.

OLIS relies on the local site or application to assert correct identifier and name information to meet PHIPA requirements. OLIS does not attempt to validate the identifier or name; it simply ensures that both fields contain data and that the data is recorded correctly in the audit trail in conjunction with the details of the query and the personal health information disclosed in response to the query.

If a query is initiated by the requesting practitioner (@ZRP.1 Requesting HIC parameter), then the requesting practitioner will be identified both in the @ZRP.1 parameter and in the ZSH.1 and ZSH.2 fields. This also applies to the initiation of the practitioner query by an automated process on behalf of the requesting practitioner, for example in the practitioner's EMR solution. Refer to the example query messages that follow.

If the query is initiated by a person acting on behalf of the requesting practitioner (@ZRP.1 Requesting HIC parameter), then the requesting practitioner will be identified in the @ZRP.1 parameter and the person acting on their behalf will be identified the ZSH.1 and ZSH.2 fields. Refer to the example query messages that follow.

Table 82 ZSH Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ZSH	ST		3	R	1..1	ZSH
1	Initiating Person Local Identifier	ST		255	R	1..1	Jeveryman
2	Initiating Person Full Name	ST		255	R	1..1	John Henry Everyman

10.2.5.15.1 ZSH Segment – Example

```
ZSH|Jeveryman|John Henry Everyman<CR>
```

10.2.5.15.2 Field Definitions

10.2.5.15.2.1 ZSH.0 Segment ID – ZSH

Always populate this field with the static value "**ZSH**".

10.2.5.15.2.2 ZSH.1 Initiating Person Local Identifier

Populate this field with a unique identifier that is associated with the user at the local site. This field is always required, as it serves to uniquely identify an individual who may share the same name as another person at the local site. Identifiers that may be assigned to different individuals over time (e.g., email addresses) are not good candidates for this field, as the identity of the individual in the audit trail may be uncertain.

It is not necessary to identify the local site or application, as this information is recorded in the eHealth audit trail from the MSH.3 *Sending Application* field.

Examples of candidates for this unique identifier are:

The User ID assigned to the person to allow them to access the application that queries OLIS

A user principal name (UPN) or distinguished name (DN) in the local site's directory service

A unique person identifier (UPI) from a user registry or provider registry

A unique identifier selected by the site for the purpose of uniquely identifying its users in the OLIS audit trail, where the site prefers not to publish User IDs or other internal user identifiers for security reasons

Examples:

- Jeveryman
- BSDHealth\John.Everyman
- John.Everyman@BSDHealth.org (as a UPN)
- 123976456 (as a UPI)

10.2.5.15.2.3 ZSH.2 Initiating Person Full Name

Populate this field with the full name of the person who initiates the query. The person's name must be expressed as clearly as possible, with given names preceding the surname. Initials and other abbreviations should be avoided, as these pose the risk of rendering the person's identity uncertain.

10.2.5.16 SPR Segment

Please also refer to:

10.2.4.7 Query Parameters on page 148

Table 83 SPR Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – SPR	ST		3	R	1..1	SPR
1	Query Tag	ST		32		1..1	SampleQueryTag1
2	Query/Response Format Code	ID	0106	1		1..1	R
3	Stored Procedure Name	CE		62		1..1	
3.1	Identifier	ID	0471	40	R	1..1	Z_QryLabInfoForPatientID
3.2	Text				X		
3.3	Name of Coding System	ST		20	R	1..1	HL70471
4	Input Parameter List	QIP		256	R	1..*	

10.2.5.16.1 SPR Segment – Example

```
SPR|SampleQueryTag1|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20060625080000-0500~@ZRP.1.1^1234
5~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Welby~@ZRP.1.3^Marcus~@ZRP.1.4^Joseph
~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M
~@PID.7^20040213<CR>
```

10.2.5.16.2 Field Definitions

10.2.5.16.2.1 SPR.0 Segment ID – SPR

Always populate this field with the static value "**SPR**".

10.2.5.16.2.2 SPR.1 Query Tag

This field is populated by the external system to identify the query, and is used to match response messages to the originating query message. OLIS will return this query tag in the QAK.1 *Query Tag* field of the query response message.

10.2.5.16.2.3 SPR.2 Query/Response Format Code

Populate this field with the value "**R**" for Query IDs Q01-Q08 inclusive.

Populate this field with the value "**T**" for Query ID Q50.

10.2.5.16.2.4 SPR.3 Stored Procedure Name

Populate this field with the stored procedure name to be executed by OLIS.

Example:
Z_QryLabInfoForPatientID^^HL70471

10.2.5.16.2.5 SPR.4 Input Parameter List

Populate this field with the parameters and values for the stored procedure identified in SPR.3 *Stored Procedure Name*.

10.2.5.17 DSC Segment

Note: This segment applies to quantity-limited queries submitted to OLIS by an external system.

In the initial query message from the external system, this field is not present. If OLIS returns this segment in the query response message, it indicates that more data can be obtained by resubmitting the same query message again, including the continuation pointer from OLIS in a DSC segment.

If OLIS does not return this segment in the query response message, then there is no more data to fulfill any future continuation requests for the specified query.

Table 84 DSC Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – DSC	ST		3	R	1..1	DSC
1	Continuation Pointer	ST		180	R	1..1	

10.2.5.17.1 DSC Segment – Example

```
DSC|129fd2f2-c655-515f-b339-6dbdfa87a073<CR>
```

10.2.5.17.2 Field Definitions

10.2.5.17.2.1 DSC.0 Segment ID – DSC

OLIS will populate this field with the value "DSC".

10.2.5.17.2.2 DSC.1 Continuation Pointer

OLIS will populate this field with a continuation pointer that the external system may use to retrieve further results from the query result set.

10.2.5.18 QAK Segment

Table 85 QAK Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – QAK	ST		3	R	1..1	QAK
1	Query Tag	ST		32	R	1..1	
2	Query Response Status	ID	0208	2	R	1..1	

10.2.5.18.1 QAK Segment – Example

```
QAK|SampleQueryTag1|OK<CR>
```

10.2.5.18.2 Field Definitions

10.2.5.18.2.1 QAK.0 Segment ID – QAK

OLIS will populate this field with the value QAK.

10.2.5.18.2.2 QAK.1 Query Tag

OLIS will return the query tag submitted by the external system in SPR.1 *Query Tag* to allow the external system to match response messages to the originating query message.

10.2.5.18.2.3 QAK.2 Query Response Status

This field indicates whether the result set is present (return value "OK"), empty (return value "NF") or whether an error occurred (return value "AE" or "AR").

Note that warnings such as code 320 or 907 may be returned in the ERR segment of this message when the value in this field is "OK" or "NF".

10.2.5.19 ERQ Segment

Table 86 ERQ Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – ERQ	ST		3	R	1..1	ERQ
1	Query Tag				X		
2	Event Identifier	CE		3	R	1..1	
2.1	Identifier	ID	0003	3	R	1..1	

Seq	Name	Type	Table	Len	Opt	Card	Example value
2.2	Text				X		
2.3	Name of Coding System				X		
3	Input Parameter List	QIP		256	R	1..*	

10.2.5.19.1 ERQ Segment – Example

```
ERQ||R09|@OBR.22^20060625080000-0500~@ZRP.1.1^12345~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70
347~@ZRP.1.2^Welby~@ZRP.1.3^Marcus~@ZRP.1.4^Joseph~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID
.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^20040213<CR>
```

10.2.5.19.2 Field Definitions

10.2.5.19.2.1 ERQ.0 Segment ID – ERQ

OLIS will populate this field with the value "ERQ".

10.2.5.19.2.2 ERQ.2 Event Identifier

OLIS will populate this field with the value "R09" for queries Z01-Z11, inclusive.

10.2.5.19.2.3 ERQ.3 Input Parameter List

OLIS will echo the Input Parameter List from the SPR.4 *Input Parameter List* field in the query message.

10.2.5.20 RDF Segment Definition for Query ID Z50

Table 87 ERQ Segment

Seq	Name	Type	Table	Len	Opt	Card	Example value
0	Segment ID – RDF	ST		3	R	1..1	RDF
1	Number of Columns per Row	NM		3	R	1..1	
2	Column Descriptor	RCD		40	R	31..31	

10.2.5.20.1 RDF Segment – Static Content

```
RDF|31|PID.3.1^ST^25~PID.3.5^ST^15~PID.3.9.1^ST^20~PID.3.9.3^ST^20~PID.3.4.2^ST^255~PID.3.4.3^ST^
6~PID.5.1^ST^30~PID.5.2^ST^20~PID.5.3^ST^20~PID.5.4^ST^10~PID.5.5^ST^10~PID.5.7^ID^1~PID.8^ST^1~P
ID.7^DT^8~PID.11.1^ST^32~PID.11.2^ST^32~PID.11.3^ST^30~PID.11.4^ST^2~PID.11.5^ST^10~PID.11.6^ID^3
~PID.11.7^ID^3~OBR.16.1^ST^25~OBR.16.2^ST^30~OBR.16.3^ST^20~OBR.16.4^ST^20~OBR.16.5^ST^10~OBR.16.
6^ST^10~OBR.16.13^ID^15~OBR.16.22.1^ST^3~OBR.16.22.2^ST^20~OBR.16.22.3^ST^20<CR>
```

10.2.5.20.2 Field Definitions

10.2.5.20.2.1 RDF.0 Segment ID – RDF

OLIS will populate this field with the value "RDF".

10.2.5.20.2.2 RDF.1 Number of Columns per Row

OLIS will populate this field with the value "31".

10.2.5.20.2.3 RDF.2 Column Descriptor

OLIS will populate this field with the tabular result set definition given in following table.

Table 88 RDF.2 Column Description Fields and RDT Segment Definition for Query ID Z50

Seq	HL7 Field ID	Column Name	Max Len	Data Type
1	PID.3.1	ID Number	25	ST
2	PID.3.5	Identifier Type Code	15	ST
3	PID.3.9.1	Assigning Jurisdiction	20	ST

Seq	HL7 Field ID	Column Name	Max Len	Data Type
4	PID.3.9.3	Assigning Jurisdiction Coding System	20	ST
5	PID.3.4.2	Assigning Authority Universal ID	255	ST
6	PID.3.4.3	Assigning Authority Universal ID Type	6	ST
7	PID.5.1	Last Name	30	ST
8	PID.5.2	First Name	20	ST
9	PID.5.3	Second Name	20	ST
10	PID.5.4	Suffix (e.g., JR or III)	10	ST
11	PID.5.5	Prefix (e.g., DR)	10	ST
12	PID.5.7	Name Type Code	1	ID
13	PID.8	Sex	1	ST
14	PID.7	Date of Birth	8	DT
15	PID.11.1	Street Address	32	ST
16	PID.11.2	Other Designation	32	ST
17	PID.11.3	City	30	ST
18	PID.11.4	State or Province	2	ST
19	PID.11.5	Zip or Postal Code	10	ST
20	PID.11.6	Country	3	ID
21	PID.11.7	Address Type	3	ID
22	OBR.16.1	Practitioner ID Number	25	ST
23	OBR.16.2	Practitioner Last Name	30	ST
24	OBR.16.3	Practitioner First Name	20	ST
25	OBR.16.4	Practitioner Second Name	20	ST
26	OBR.16.5	Practitioner Suffix	10	ST
27	OBR.16.6	Practitioner Prefix	10	ST
28	OBR.16.13	Practitioner Identifier Type Code	15	ID
29	OBR.16.22.1	Practitioner Assigning Jurisdiction	3	ST
30	OBR.16.22.2	Practitioner Assigning Jurisdiction Description	20	ST
31	OBR.16.22.3	Practitioner Assigning Jurisdiction Coding System	20	ST

10.3 Examples

10.3.1 Entity Usage Examples

10.3.1.1 Patient Identifier Usage Examples

The following examples describe how to populate the *Patient Identifier List* field. Note that embedded spaces and hyphens that may be present in some identifiers must be removed before transmitting the identifier to OLIS.

Table 89 Patient Identifier Usage Examples

Identifier Type	Sample Value	Identifier Type Code	Jurisdiction (Table 0347)	Assigning Authority	Sample Contents of PID.3

	Usage Example (CX.1)	(Table 0203**) (CX.5)	(CX.9)	(CX.4)	(ER7 Encoding Syntax)
Health Card Number – Ontario*	1234 567 890 VC* 1234567890	JHN	ON	(empty)	1234567890^^^^JHN^^^^ON&Ontario&HL70347^^VC
Health Card Number – British Columbia	1234567890 1234567890	JHN	BC	(empty)	1234567890^^^^JHN^^^^BC&British Columbia&HL70347
Medical Record Number	654789 654789	MR	(empty)	Facility ID of facility that assigned the MR Number.	654789^^^&2.16.840.1.113883.3.59.3:0693&ISO^MR 123456^^^&2.16.840.1.113883.3.239.14:AZ123&ISO^MR
SCC- or Lab-assigned Patient Identifier	12345678 12345678 123456789	MR	(empty)	Facility ID of SCC or Laboratory that assigned the MR Number.	12345678^^^&2.16.840.1.113883.3.59.1:5294&ISO^MR
Non-nominal Patient Identifier	123456 123456	ANON	(empty)	Facility ID of system that created the non-nominal identifier.	123456^^^&2.16.840.1.113883.3.239.14:AZ123&ISO^ANON

* *"VC" represents the one- or two-character version code that is present on most Ontario Health Cards.*
** *Only the patient identifier type codes from table 0203 are valid; provider identifier type codes are not valid in this context.*

10.3.1.2 Practitioner Identifier Usage Examples

OLIS uses reference information where available to validate the practitioner first and last name fields, and the second name is validated if submitted. Validation of practitioner names is case-insensitive.

Table 90 Practitioner Identifier Usage Examples

Practitioner Type	Identifier Type Code* (Table 0203)	Jurisdiction (Table 0347)	Sample Registration #	Sample Field Contents (HL7)
Physician (Ontario)	MDL	ON	12345	12345^Last Name^First Name^Second Name^^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347
Physician (Manitoba)	MDL	MB	24680	24680^Last Name^First Name^Second Name^^^^^^^^^^MDL^^^^^^^^^^MB&Manitoba&HL70347
Dentist	DDSL	ON	67890	67890^Last Name^First Name^Second Name^^^^^^^^^^DDSL^^^^^^^^^^ON&Ontario&HL70347
Nurse Practitioner	NPL	ON	1234567	1234567^Last Name^First Name^Second Name^^^^^^^^^^NPL^^^^^^^^^^ON&Ontario&HL70347
Midwife	ML	ON	1234	1234^Last Name^First Name^Second Name^^^^^^^^^^ML^^^^^^^^^^ON&Ontario&HL70347
Naturopath	NAT	ON	01023	01023^Last Name^First Name^Second Name^^^^^^^^^^NAT^^^^^^^^^^ON&Ontario&HL70347
Pharmacist	PHARM	ON		

** Only the provider identifier type codes from table 0203 are valid; patient identifier type codes are not valid in this context.*

10.3.2 Message Examples

Table 91 Message examples and corresponding use case mapping

#	Use Case	Section # (for print)	Scenarios	Section # (For Print)
1	UC-<101> Create Order Examples	10.3.2.1	Practitioner Creates Order Using EMR System	10.3.2.1.1
			Order submitted to OLIS by a Specimen Collection Centre with Specimen Information	10.3.2.1.2
			OLIS Reports Existence of Best Practice Guideline	10.3.2.1.3
			Practitioner Receives Duplicate Test Avoidance Message	10.3.2.1.4
			Order Message with an Invalid Patient Date of Birth and Unknown Test Request Nomenclature Code	10.3.2.1.5
			Order Message with Apparent Patient Name Mismatch	10.3.2.1.7
2	UC-<102> Amend Order Examples	*10.3.2.2*	Practitioner Adds a Hematocrit Test Request to the Existing Order	10.3.2.2.1
			Practitioner Adds Note to Order	10.3.2.2.2
			Practitioner Adds Practitioner to CC List	10.3.2.2.3

			Practitioner Cancels the Ferritin Test Request	10.3.2.2.4
3	UC-<201> Report Test Result Message Example	*10.3.2.3*	Laboratory Records Test Results on Existing Test Requests	*10.3.2.3.1*
			Test Not Performed	*10.3.2.3.2*
			Laboratory Reports Creatinine Clearance Test Results	*10.3.2.3.3*
			Laboratory Reports Glucose Tolerance Test Results	*10.3.2.3.4*
			Laboratory Reports Complete Blood Count Test Results	*10.3.2.3.5*
			Laboratory Records Microbiology and Sensitivity Test Results	*10.3.2.3.6*
			Multiple messages received combined and stored as a single order in OLIS	*10.3.2.3.7*
4	UC-<202> Amend Test Result Examples	*10.3.2.4*	Laboratory Amends a Test Result	*10.3.2.4.1*
			Add Ontario Health Number to Order/Report	*10.3.2.4.2*
5	UC-<203> Full Replace Amendment Examples	*10.3.2.5*	Laboratory fully replace an existing lab report	*10.3.2.5.1*
			Microbiology – Laboratory fully replacing an existing lab report	*10.3.2.5.2*
6	UC-<204> Test Request Replace Amendment Examples	*10.3.2.6*	Microbiology – Laboratory replacing an existing Parent test request with	*10.3.2.6.1*

			associated child test request	
7	UC-<302> Retrieve Laboratory Information for Patient Examples	*10.3.2.7*	Walk-In" Patient Query Example	*10.3.2.7.1*
			Patient Query (Z01) Initiated by Support Staff on Behalf of a Practitioner (HIC Individual)	*10.3.2.7.2*
			Patient Query (Z01) Initiated by Support Staff on Behalf of a Healthcare Facility (HIC Organization)	*10.3.2.7.3*
			Superior Medical Laboratories queries OLIS Bruce H Banner's Orders	*10.3.2.7.4*
			North Regional Viewer queries OLIS for Bruce H Banner's Orders	*10.3.2.7.5*
			Overrides to Access Blocked Laboratory Information	10.3.2.7.6
8	UC-<304> Retrieve Lab Information for Practitioner Examples	*10.3.2.8*	Retrieve Laboratory Information Updates for Practitioner – Z04	*10.3.2.8.1*
			Practitioner Query (Z04) Initiated by the Requesting HIC (Practitioner)	*10.3.2.8.2*
9	UC-<310> Retrieve Lab Order for Patient Example	*10.3.2.9*	Retrieve Lab Order information for patient – Z11	10.3.2.9.1
			Superior Medical	10.3.2.9.2

			Laboratories queries OLIS for unfulfilled orders of Bruce H Banner – Z11	
10	UC-<309> Identify Patient by Name, Sex, and Date of Birth Examples	*10.3.2.10*	Identify Patient by Name, Sex, and Date of Birth – Z50	10.3.2.10.1
10	UC-<401> Create Referred-out Order Examples and UC-<402> Report Test Result against Referred-out Order	*10.3.2.11*	Hospital Creates Order to be fulfilled by an External Laboratory	10.3.2.11.1
			Redirect Order Message Example	10.3.2.11.2
11	Use Case Combination Scenarios	10.3.2.12	Pap smear Order and Result Message Examples – UC-<101>, UC-<202>	10.3.2.12.1
			Surgical Pathology Order and Result Message Examples – UC-<101>, UC-<202>	10.3.2.12.2
			Referred Scenario Workflow Examples – UC-<401>, UC-<402>, UC-<305>, UC-<306>	10.3.2.12.3
			Test Request Blocking Scenarios – UC-<101>, UC-<102>, UC-<301>, UC-<304>	10.3.2.12.4

10.3.2.1 UC-<101> Create Order Examples

10.3.2.1.1 Practitioner Creates Order Using EMR System

Scenario # 1	Practitioner Creates Order Using EMR System
Message Type	**Order Message – ORM^O01**
Message Example	`MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||200`

	90817091505-0400||ORM^O01^ORM_O01|TAG000001|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|NW|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817091500-0400<CR> OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR> ORC|NW|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817091500-0400<CR> OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901|||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	1. The practitioner's EMR system uniquely identifies the message with the value TAG000001 in the MSH.10 *Message Control ID* field. 2. The ORC.1 *Order Control* is "**NW**" (new) for each test request. 3. The ORC.4 *Placer Group Number* assigned by the practitioner's EMR is identical in each ORC-OBR-ZBR segment sequence and unique to this order. 4. The OBR.2 *Placer Order Number* assigned by the practitioner's EMR is unique for each ORC-OBR-ZBR segment sequence. 5. The OBR.3 *Filler Order Number* is left blank because the ordering Practitioner's EMR does not know this value. 6. The EMR sets the status to "**O**" (Ordered) in the OBR.25 Result Status field of each ORC-OBR-ZBR segment sequence.
Scenario # 1	**OLIS Acknowledge Order Creation**
Message Type	**Order Acknowledgement Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090817154156-0400||ORR^O02^ORR_O02|TAG000001|P|2.3.1||||||8859/1<CR> MSA|AA|TAG000001<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^||||||||||||||||<CR> ORC|OK|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817091500-0400||||||||||||<CR> OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090817154156-0400|||O||1&^^^20090817^^R||||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR> ORC|OK|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817091500-0400||||||||||||<CR> OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901|||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090817154156-0400|||O||1&^^^20090817^^R||||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>
Notes	1. OLIS echoes the message control ID of the initiating message in MSA.2 *Message Control ID* field. 2. OLIS echoes each test request with an ORC.1 *Order Control* Code of "**OK**", indicating that no error conditions were identified within the test request.

	3. The order has been accepted by OLIS because the MSA.1 *Acknowledgment Code* is "**AA**". 4. OLIS has time stamped each of the test requests in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates.

10.3.2.1.2 Order submitted to OLIS by a Specimen Collection Centre with Specimen Information

Scenario # 2	Order submitted to OLIS by a Specimen Collection Centre with Specimen Information
Message Type	Order Message – ORM^O01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817092545-0400||ORM^O01^ORM_O01|TAG000006|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|NW|||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO||TR10481-0^Hemoglobin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||I||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||1<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO<CR> BLG|||SELF<CR> ORC|NW|||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400<CR> OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO||TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||I||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||1||^Sample specimen collection comment<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO<CR> BLG|||SELF<CR> ORC|NW|||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400<CR> OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO||TR10480-2^Hematocrit^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||I||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||1<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO<CR> BLG|||SELF<CR>
Notes	1. The SCC indicates the date and time the specimen was collected in the OBR.7 *Observation Date/Time* field of each OBR segment. This field is mandatory when reporting specimen information. 2. The SCC indicates the volume of specimen collected in the OBR.9 *Collection Volume* field of each OBR segment. This field only needs to be populated when relevant to the test. 3. The SCC sets the status to "**I**" (collected) in the OBR.25 *Test Request Status* field of each OBR segment to indicate that specimen has been collected. 4. The SCC identifies blood as the specimen source in OBR.15 *Specimen Source*. This field only needs to be populated when it is not implied by the test request. 5. The SCC identifies the number of specimen containers in OBR.37 *Number of Sample Containers*. This field only needs to be populated when it is not implied by the test request. 6. The SCC includes a comment related to the specimen collection in the OBR.39 *Collector's Comment* field of the second test request. This field only needs to be populated when a specimen collector's comment needs to be communicated to the laboratory and/or the practitioners named on the order.

	7. The SCC identifies itself as both the Test Request Placer and Specimen Collector in each ZBR segment. 8. If the order had been submitted to OLIS by an EMR system and the SCC had retrieved the order from OLIS, the SCC could update the order in OLIS to record specimen information on the test requests using this message. The order control codes in ORC.1 simply change from "**NW**" to "**RO**". This update allows other specimen collectors querying OLIS for the same patient to know that specimens have already been collected for these tests.

10.3.2.1.3 OLIS Reports Existence of Best Practice Guideline

Scenario # 4	**OLIS Reports Existence of Best Practice Guideline.**
Message Type	**Order Acknowledgement Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20050823101500-0400||ORR^O02^ORR_O02|8F04049F-5A49-4FF0-BBD0-640F31E6D490|P|2.3.1||||||8859/1<CR> MSA|AA|TAG123460<CR> ERR|OBR^1^4^9??&A best-practice guideline rule exists for this test request. Refer to the associated document at http://www.example.org/guidelines/unnecessary duplicate test avoidance guideline.pdf&HL70357<CR> PID|... ...
Notes	1. Even though the message was not rejected, an error segment is present in the message to identify the best practice guideline document. 2. Although the error description is a CE data type, the description may vary within the definition of the error code to provide context-specific information, for example, the URL of the best-practice guideline document. Some error messages contain C#-style substitution placeholders (e.g., {0}) to indicate where variable text is inserted. 3. A best practice guideline rule may cause an order message from a practitioner to reject. 4. No best practice guidelines have been identified as of the publication of this version of the specification.

10.3.2.1.4 Practitioner Receives Duplicate Test Avoidance Message

Scenario # 5	**A practitioner orders a Hemoglobin A1c test. OLIS responds that a recent test result exists that may still be clinically valid (note that the error code 9876 given in the message is for example purposes only). The practitioner subsequently decides to resubmit the order with the DTA intervention code in the ZBR.10 *Business Rule Intervention Code* field.**
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20050601091505-0400||ORM^O01^ORM_O01|TAG123456|P|2.3.1||||||8859/1<CR> PID|1||5427888498^^^^JHN^^^^ON&Ontario&HL70347^^VC||Smith^John^Henry^^^^U||19271127|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|NW|||2112911^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400<CR> OBR|1|8012983^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10228-5^Hemoglobin A1C^HL79901|||||||||||12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20050601^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Scenario # 5	**OLIS Acknowledgement Message for Previous Order**
Message Type	**Order Acknowledgement Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20050601091510-0400||ORR^O02^ORR_O02|3A732994-A4F7-40B8-9BBB-0A91E15705CE|P|2.3.1||||||8859/1<CR> MSA|AE|TAG123456<CR>

	ERR|^^^9876&A recent result exists that may be clinically valid. Consider retrieving this result from OLIS, or resubmit the order to OLIS with the DTA intervention code.&HL70357<CR> PID|1||5427888498^^^^JHN^^^^ON&Ontario&HL70347^^VC||Smith^John^Henry^^^^U||19271127|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> ORC|OK|||2112911^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091509-0400<CR> OBR|1|8012983^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10228-5^Hemoglobin A1C^HL79901||||||||||||12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20050601^^R ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR>
Scenario # 5	**Resubmitted Order Message with Intervention Code**
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20050601091600-0400||ORM^O01^ORM_O01|TAG123457|P|2.3.1||||||8859/1<CR> PID|1||5427888498^^^^JHN^^^^ON&Ontario&HL70347^^VC||Smith^John^Henry^^^^U||19271127|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|NW|||2112911^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400<CR> OBR|1|8012983^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10228-5^Hemoglobin A1C^HL79901||||||||||||12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20050601^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||DTA<CR> BLG|||SELF<CR>

10.3.2.1.5 Order Message with an Invalid Patient Date of Birth and Unknown Test Request Nomenclature Code

Scenario # 6	**Order Message with an Invalid Patient Date of Birth and Unknown Test Request Nomenclature Code**
Message Type	**Order Acknowledgement Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090821144844-0400||ORR^O02^ORR_O02|TAG000019|P|2.3.1||||||8859/1<CR> MSA|AE|TAG000019<CR> ERR|PID^^7^109&The specified value is incorrect: '2/19/1987 12:00:00 AM'&HL70357~OBR^1^4^103&The identifier or code 'TR10220-3' is not a valid value.&HL70357~<CR> PID|1||1000323822^^^^JHN^^^^ON&ONTARIO&HL70347^^||STORM^SUSAN^S^^^^U||19870219|F||||||||||||||||||||<CR> ORC|UA|||3222238^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090820111459-0400||||||||||||||<CR> OBR|1|7022428^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10220-3^Glucose^HL79901||||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090821144844-0400|||O||1&^^^20090820^^R|||||||||||<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

10.3.2.1.6 Order Message with Apparent Patient Name Mismatch

Scenario # 7	**Order Message with Apparent Patient Name Mismatch.**
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090820111500-0400||ORM^O01^ORM_O01|TAG000020a|P|2.3.1||||||8859/1<CR>

	PID|1||1234567890^^^&2.16.840.1.113883.3.59.1:4004&ISO^MR||STORM^SUSIE^S^^^^U ||19870218|F<CR> PV1|1|Z<CR> ORC|NW|||3222238^^2.16.840.1.113883.3.239.14:AZ123^ISO |||||20090820111459-0400<CR> OBR|1|7022428^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10220-2^Glucose^HL7990 1|||||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON &Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090820^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Scenario # 7	**OLIS Acknowledgement Message for Previous Order**
Message Type	**Order Acknowledgement Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090821145642-04 00||ORR^O02^ORR_O02|TAG000020a|P|2.3.1||||||8859/1<CR> MSA|AE|TAG000020a<CR> ERR|PID^^5^109&The specified value is incorrect: 'SUSIE'&HL70357~<CR> PID|1||1234567890^^^&2.16.840.1.113883.3.59.1:4004&ISO^MR||STORM^SUSIE^S^^^^U ||19870218|F|||||||||||||||||||||<CR> ORC|OK|||3222238^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090820111459-040 0||||||||||||||<CR> OBR|1|7022428^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10220-2^Glucose^HL7990 1|||||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON &Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090821145642-0400|||O||1&^^^200 90820^^R||||||||||||<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>
Scenario # 7	**Resubmitted Order Message Fragment**
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X50 0||20090820111500-0400||ORM^O01^ORM_O01|TAG000020b|P|2.3.1||||||8859/1<CR> PID|1||1234567890^^^&2.16.840.1.113883.3.59.1:4004&ISO^MR||STORM^SUSIE^S^^^^U ||19870218|F<CR> ZPD||Y<CR> PV1|1|Z<CR> ORC|NW|||3222238^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090820111459-040 0<CR> OBR|1|7022428^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10220-2^Glucose^HL7990 1|||||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON &Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090820^^R<CR> ZBR|| Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	1. An order is submitted for "Susie" but the most recent information associated with the Medical Record Number in OLIS indicates that the first name is "Susan". 2. The operator of the external system verifies the patient's identity, determines that "Susie" is the correct spelling of the first name, and resubmits the order message with the ZPD segment to indicate that the submitted name, sex, and date of birth have been reviewed and are correct for the medical record number.

10.3.2.2 UC-<102> Amend Order Examples

10.3.2.2.1 Practitioner Adds a Hematocrit Test Request to the Existing Order

Scenario # 8	Practitioner Adds a Hematocrit Test Request to the Existing Order
Message Type	Order Message – ORM^O01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817092030-0400||ORM^O01^ORM_O01|TAG000002|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|RO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817092025-0400<CR> OBR|1|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	1. Patient address and telephone information need not be transmitted if it has not changed. 2. The PV1 segment need not be transmitted if the information has not changed. 3. The two existing test requests are not transmitted because they have not changed. 4. The Placer Group Number matches the existing order for haemoglobin and ferritin. 5. A unique Placer Order Number has been assigned to the hematocrit test request. 6. The payer of the added test request is indicated in the BLG segment. 7. The Order Control Code "RO" indicates that a test request is to be added.
Scenario # 8	OLIS acknowledges Order Amendment
Message Type	Order Acknowledgement Message – ORR^O02
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090817154531-0400||ORR^O02^ORR_O02|TAG000002|P|2.3.1||||||8859/1<CR> MSA|AA|TAG000002<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^||||||||||||||||||<CR> ORC|RQ|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817092025-0400||||||||||||||||<CR> OBR|1|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090817154531-0400|||O||1&^^^20090817^^R||||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>
Notes	1. OLIS echoes the test request with an ORC.1 *Order Control* Code of "RQ" indicating that no errors were identified in the new test request. 2. The order amendment has been accepted by OLIS because the MSA.1 *Acknowledgment Code* is "AA". 3. OLIS has time stamped the test request in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates.

10.3.2.2.2 Practitioner Adds Note to Order

Scenario # 9	Practitioner Adds Note to Order
Message Type	Order Message – ORM^O01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817094500-0400||ORM^O01^ORM_O01|TAG000003|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR>

	NTE|1|P|Mr. Banner is hearing impaired.|RE^Remark^HL70364<CR> ZNT|^2.16.840.1.113883.3.239.14:AZ123^ISO <CR> PV1|1|Z<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817094400-0400<CR> OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817094400-0400<CR> OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817094400-0400<CR> OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	1. OLIS has designated the note segment (NTE) associated with the PID segment to be the container for order- or accession-level notes. It is necessary to include at least one ORC segment from the existing order with an Order Control code of "XO", even if no test request information is changing in order to identify the order (i.e., by Placer Group Number) to which the order-level note applies. 2. The ZNT segment identifies the organization (organization instance identifier). 3. The practitioner can also add an order-level note after the laboratory has fulfilled the test requests.

10.3.2.2.3 Practitioner Adds Practitioner to CC List

Scenario # 10	**Practitioner Adds Practitioner to CC List**
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817100000-0400||ORM^O01^ORM_O01|TAG000004|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400<CR> OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR>

	BLG|||SELF<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400<CR> OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR> ORC|XO|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400<CR> OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||O||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	1. The value "XO" in the ORC.2 *Order Control* field indicates that the external system wants to change the test request information. The ORC.2 *Order Control* field in the ORR order response message will contain "XR" if the update succeeds, or "UX" if the update fails. 2. All three test requests of the order appear in the order amendment message. Hallie Takahama's information has been recorded as a change to each of the three test requests in the order in the OBR.28 *Result Copies To* field. The CC list of all test requests in an order must be identical. 3. In the response message (not illustrated), OLIS will update the timestamp of each test request in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates.

10.3.2.2.4 Practitioner Cancels the Ferritin Test Request

Scenario # 11	**Practitioner Cancels the Ferritin Test Request**
Message Type	**Order Amendment Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817110000-0400||ORM^O01^ORM_O01|TAG000005|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC|CA|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817105700-0400<CR> OBR|1|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||X||1^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO<CR> BLG|||SELF<CR>
Notes	
Scenario # 11	**OLIS acknowledges Test Request Cancellation**
Message Type	**Order Acknowledgment Message – ORR^O02**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090818150814-0400||ORR^O02^ORR_O02|TAG000005|P|2.3.1||||||8859/1<CR> MSA|AA|TAG000005<CR>

	PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> ORC|CR|||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817105700-0400|||||||||||||||<CR> OBR|1|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818150814-0400|||X||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||||^<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>
Notes	1. The test requests for the hematocrit and haemoglobin are not transmitted in either the initiating or response message because they are unaffected. 2. The placer group number and placer order number for the ferritin test request are indicated in the ORC and OBR segments, respectively, to identify the test request to be cancelled. 3. The value 'CA' in the ORC.2 *Order Control* field indicates that the external system wants to cancel the test request in the ORC-OBR-ZBR segment sequence. The ORC.2 *Order Control* field in the ORR order response message will contain 'CR' if the cancel succeeds, or 'UC' if the cancel fails. 4. The value 'X' (cancelled) in the OBR.25 *Test Request Status* is set by the external system to match the action of the order control code. 5. OLIS has updated the timestamp in the test request in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates. 6. The BLG segment is not required in this ORM message because the test request already exists in OLIS and is to be cancelled.

10.3.2.3 UC-<201> Report Test Result Message Example

10.3.2.3.1 Laboratory Records Test Results on Existing Test Requests

Scenario # 12	**Superior Medical Laboratories records test results for Bruce H Banner's existing ferritin, haemoglobin, and hematocrit test requests.**
Message Type	**Test Result Message – ORU^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090818090000-0400||ORU^R01^ORU_R01|TAG000008|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818085900-0400<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO|998877661^^2.16.840.1.113883.3.59.1:4004^ISO|TR10481-0^Hemoglobin^HL79901|||20090817092040-0400|||||||20090817192040-0400||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20090817^^R<CR> ZBR|||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B||||AAA<CR> OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||110|g/L|130-180|L|||F<CR> ZBX|20090818041001-0400|ABC001<CR> BLG|||SELF<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818085900-0400<CR> OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO|998877662^^2.16.840.1.113883.3.59.1:4004^ISO|TR10186-5^Ferritin^HL79901|||20090817092040-0400|||||||20090817192040-

	0400||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20090817^^R<CR> ZBR|||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|||BBB <CR> OBX|1|NM|14723-1^FERRITIN:SCNC:PT:SER/PLAS:QN^HL79902||259|ng/mL|12-300|N|||F<CR> ZBX|20090818041001-0400|DJIEJ<CR> BLG|||SELF<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818085900-0400<CR> OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO|998877663^^2.16.840.1.113883.3.59.1:4004^ISO|TR10480-2^Hematocrit^HL79901|||20090817092040-0400|||||||20090817192040-0400||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20090817^^R<CR> ZBR|||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|||CCC <CR> OBX|1|NM|4544-3^HEMATOCRIT:VFR:PT:BLD:QN:AUTOMATED COUNT^HL79902||43||40-52|N|||F<CR> ZBX|20090818041001-0400|DJIEJ<CR> BLG|||SELF<CR>
Notes	1. The laboratory identifies itself as the Reporting and Performing Laboratory in the ZBR.4 *Reporting Laboratory* and ZBR.6 *Performing Laboratory* fields. The laboratory indicates its address in ZBR.5 *Reporting Laboratory Address* and ZBR.7 *Performing Laboratory Address*. 2. The laboratory indicates unique filler order numbers for each test request. 3. Each result OBX segment is followed by a ZBX segment that contains the date and time the test result was released by the laboratory. 4. The date and time the laboratory received the specimen is reported in the OBR.14 *Specimen Received Date/Time* field. 5. The test request status in the OBR.25 *Test Request Status* field is updated to 'F' (final). 6. The test result status is reported as 'F' (final) in the OBX.11 *Observation Result Status* field. 7. The ZBR.2 *Test Request Placer* and ZBR.3 Specimen Collector fields need not be populated if the existing information OLIS is correct. 8. Although not returned in the ACK message, OLIS has updated the timestamp of each test request in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates.
Scenario # 12	**OLIS acknowledges Test Result Report.**
Message Type	**Acknowledgement Message – ACK^R01**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.2:3001^ISO||20090818170532-0400||ACK^R01^ACK_R01|TAG000008|P|2.3.1||||||8859/1<CR> MSA|AA|TAG000008<CR>
Notes	

10.3.2.3.2 Test Not Performed

Scenario #13	**If the laboratory determines that the test will not be performed, it submits a test result with no value and with status 'N' (Not Performed). The ordering practitioner who is connected to OLIS will be notified of the status change when the practitioner executes the *Retrieve Laboratory Information Updates for Practitioner* query.**
Message Type	**Report Message – ORU^O01**
Message	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||200908

Example	21090000-0400||ORU^R01^ORU_R01|TAG000010|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M <CR> PV1|1|Z<CR> ORC||||38830966^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090821085900-0400<CR> OBR|1|38830966C^^2.16.840.1.113883.3.59.2:3001^ISO|998877663^^2.16.840.1.113883.3.59.1:4004^ISO|TR10480-2^Hematocrit^HL79901|||20090820092040-0400|||||||20090820192040-0400||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20090820^^R<CR> ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|CCC<CR> OBX|1||4544-3^HEMATOCRIT:VFR:PT:BLD:QN:AUTOMATED COUNT^HL79902|||||||N<CR> ZBX|20090821041001-0400|DJIEJ<CR> NTE|1|L|Determined in consultation with Dr. Richards that test is not required.|RE^Remark^HL70364<CR> ZNT|^2.16.840.1.113883.3.59.1:4004^ISO<CR> BLG|||SELF<CR>
Notes	1. The ORU message is used to indicate that a test request will not be performed. It is not possible to indicate this using an order (ORM) message. 2. The laboratory identifies the test result type in OBX.3 *Observation Identifier*, but submits nothing in the OBX.2 *Value Type* field, and nothing in the remaining result fields. The test result status is "N". 3. OLIS updates the timestamp of the test request in OBR.22 *Results Report/Status Change Date/Time* to support the various queries for laboratory information updates.

10.3.2.3.3 Laboratory Reports Creatinine Clearance Test Results

Scenario #14	**This example illustrates how creatinine clearance test results can be reported. Note that a specimen source is not essential to indicate in OBR.15, as the specimens for this test are understood to be serum/plasma and urine.**
Message Type	**Report Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090821103100-0400||ORU^R01^ORU_R01|TAG000014|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M <CR> PV1|1|Z<CR> ORC||||20093203003245^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090820112141-0400<CR> OBR|1|093203005237005^^2.16.840.1.113883.3.59.1:4004^ISO|093203005237005^^2.16.840.1.113883.3.59.1:4004^ISO|TR10150-1^Creatinine Clearance^HL79901|||20090819100000-0400|20090820100000-0400|1500^mL|||||20090820101500-0400|24H&Urine 24 Hour&HL70070|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^41633845 65|||||||F||1^^^20090820^^R<CR> ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|OU812<CR> OBX|1|NM|14684-5^CREATININE:SRAT:24H:URINE:QN^HL79902||8.1|mmol/d|7.1-17.7||||F<CR>

	ZBX|20090820112141-0400|ABA010<CR> OBX|2|NM|14682-9^CREATININE:SCNC:PT:SER/PLAS:QN^HL79902||101|umol/L|62-106|||F<CR> ZBX|20090820112141-0400|ABB010<CR> OBX|3|NM|12195-4^CREATININE RENAL CLEARANCE/1.73 SQ M:VRAT:24H:URINE+SER/PLAS:QN^HL79902||0.93|mL/min/s/1.73 m2|1.42-2.08|L||S|F<CR> ZBX|20090820112141-0400|ABC010<CR> BLG|||SELF<CR>

10.3.2.3.4 Laboratory Reports Glucose Tolerance Test Results

Scenario #15	This example illustrates how glucose tolerance test results can be reported.
Message Type	Report Message – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090821103100-0400||ORU^R01^ORU_R01|TAG000015|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M<CR> PV1|1|Z<CR> ORC||||20093203003246^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090820112141-0400<CR> OBR|1|093203005237006^^2.16.840.1.113883.3.59.1:4004^ISO|093203005237006^^2.16.840.1.113883.3.59.1:4004^ISO|TR10213-7^Glucose Tolerance Test 2 Hour^HL79901|||20090820100000-0400|||||||20090820101500-0400|SER&Serum&HL70070|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565||||||||F||1^^^20090820^^R<CR> ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|META_GGG<CR> OBX|1|NM|14996-3^GLUCOSE\S\PRE 75 G GLUCOSE PO:SCNC:PT:SER/PLAS:QN^HL79902||7.1|mmol/L|<6.1|H|||F<CR> ZBX|20090820112141-0400|ABA<CR> OBX|2|NM|14756-1^GLUCOSE\S\1H POST DOSE GLUCOSE:SCNC:PT:SER/PLAS:QN^HL79902||9.5|mmol/L|||||F<CR> ZBX|20090820112141-0400|ABB<CR> OBX|3|NM|14759-5^GLUCOSE\S\2H POST DOSE GLUCOSE:SCNC:PT:SER/PLAS:QN^HL79902||11.1|umol/L|<7.8|H|||F<CR> ZBX|20090820112141-0400|ABC<CR> BLG|||SELF<CR>
Notes	Note the use of the \S\ escape sequence to represent the ^ character in each OBX segment to ensure it is communicated as part of the test result fully specified name instead of as an HL7 message delimiter.

10.3.2.3.5 Laboratory Reports Complete Blood Count Test Results

Scenario # 16	This example illustrates how test results for a complete blood count can be reported.
Message Type	Test Result Message Fragment – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090821090000-0400||ORU^R01^ORU_R01|TAG000016|P|2.3.1||||||8859/1<CR>

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PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M
<CR>

PV1|1|Z<CR>

ORC||||2009-1A1770085^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090821085500-0400<CR
>

OBR|1|071A1770085100^^2.16.840.1.113883.3.59.1:4004^ISO|071B1770085100^^2.16.840.1.
113883.3.59.1:4004^ISO|TR10477-8^Complete Blood Count^HL79901|||20090820090000-0400
|||||||20090820100000-0400|BLD&WHOLE BLOOD&HL70070|921379^Blake^Donald^Thor^^DR.^^^
^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||F||1^^^20090820090000-0400^^R<CR>

ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia Distr
ict Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&
2.16.840.1.113883.3.59.1:4004&ISO|200 International Blvd.^^TORONTO^ON^M9W 6J6^CAN^B
|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|200 International
 Blvd.^^TORONTO^ON^M9W 6J6^CAN^B||||115.100<CR>

OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||135|g/L|120 - 160||||F<CR>

ZBX|20090820140958-0400|1000.1.1000<CR>

OBX|2|NM|4544-3^HEMATOCRIT:VFR:PT:BLD:QN:AUTOMATED COUNT^HL79902||0.42||0.35 -
 0.45||||F<CR>

ZBX|20090820140958-0400|1000.1.2000<CR>

OBX|3|NM|6690-2^LEUKOCYTES:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||7.2|x E9/L|4.0 -
 11.0||||F<CR>

ZBX|20090820140957-0400|1000.1.3000<CR>

OBX|4|NM|789-8^ERYTHROCYTES:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||4.68|x E12/L|4.
00 - 5.10||||F<CR>

ZBX|20090820140958-0400|1000.1.4000<CR>

OBX|5|NM|787-2^MEAN CORPUSCULAR VOLUME:ENTVOL:PT:RBC:QN:AUTOMATED COUNT^HL79902||88
.7|fL|80 - 100||||F<CR>

ZBX|20090820140958-0400|1000.1.5000<CR>

OBX|6|NM|785-6^ERYTHROCYTE MEAN CORPUSCULAR HEMOGLOBIN:ENTMASS:PT:RBC:QN:AUTOMATED
COUNT^HL79902||29|pg|27.5 - 33.0||||F<CR>

ZBX|20090820140959-0400|1000.1.6000<CR>

OBX|7|NM|786-4^ERYTHROCYTE MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION:MCNC:PT:RBC:QN
:AUTOMATED COUNT^HL79902||325|g/L|305 - 360||||F<CR>

ZBX|20090820140959-0400|1000.1.7000<CR>

OBX|8|NM|788-0^ERYTHROCYTE DISTRIBUTION WIDTH:RATIO:PT:RBC:QN:AUTOMATED COUNT^HL799
02||13.0||11.5 - 14.5||||F<CR>

ZBX|20090820140959-0400|1000.1.9000<CR>

OBX|9|NM|777-3^PLATELETS:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||325|x E9/L|150-400
||||F<CR>

ZBX|20090820141000-0400|1000.1.11760000<CR>

OBX|10|NM|751-8^NEUTROPHILS:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||3.7|x E9/L|2.0
- 7.5||||F<CR>

ZBX|20090820141001-0400|1100.1.23000<CR>

OBX|11|NM|731-0^LYMPHOCYTES:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||2.9|x E9/L|1.0
- 3.5||||F<CR>

ZBX|20090820141001-0400|1100.1.24000<CR>

OBX|12|NM|742-7^MONOCYTES:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||0.5|x E9/L|0.0 -
 1.0||||F<CR>

ZBX|20090820141002-0400|1100.1.26000<CR>

OBX|13|NM|711-2^EOSINOPHILS:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||0.1|x E9/L|0.0
```

	- 0.5||||F<CR> ZBX|20090820141002-0400|1100.1.27000<CR> OBX|14|NM|704-7^BASOPHILS:NCNC:PT:BLD:QN:AUTOMATED COUNT^HL79902||0.0|x E9/L|0.0 - 0.2||||F<CR> ZBX|20090820141002-0400|1100.1.28000<CR> BLG|||SELF<CR>

10.3.2.3.6 Laboratory Records Microbiology and Sensitivity Test Results

The following examples illustrate how microbiology, sensitivity, and colony count test results can be reported.

10.3.2.3.6.1 Example Report Message #1 – One Organism and One Colony Count

Scenario # 17	Example Report Message #1 – One Organism and One Colony Count
Message Type	Test Result Message Fragment – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090819103100-0400||ORU^R01^ORU_R01|TAG000013|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141-0400<CR> OBR|1|093203003237003-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237003-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|TR10694-8^Culture^HL79901|||20090818100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565||||||||F||1^^^20090818^^R<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|||AAA<CR> OBX|1|SN|19090-0^COLONY COUNT:NCNC:PT:URINE:QN^HL79902|1|^1^-^10|10*6 CFU/L|||||F<CR> ZBX|20090818112141-0400|ABC000<CR> OBX|2|CE|630-4^BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE^HL79902|2|3092008^Staphylococcus aureus(organism)^HL79905||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> BLG|||SELF<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141-0400<CR> OBR|2|093203003237SE1-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237SE1-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20090818100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565||||||||F|630-4&BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE&HL79902^2|1^^^20090818^^R||093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO^093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|||BBB<CR> OBX|1|ST|18864-9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|2|ST|18900-1^CEPHALOTHIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> OBX|3|ST|18906-8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|ST|18956-3^NORFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR>

	ZBX|20090818112141-0400|ABC040<CR> OBX|5|ST|18955- 5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC050<CR> OBX|6|ST|18996-9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC060<CR> OBX|7|ST|18998-5^TRIMETHOPRIM+SULFAMETHOXAZOLE:SUSC:PT:ISOLATE:ORDQN^HL79902||INTER MEDIATE||||||F<CR> ZBX|20090818112141-0400|ABC070<CR> OBX|8|ST|18928-2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902||RESISTANT||||||F<CR> ZBX|20090818112141-0400|ABC080<CR> BLG|||SELF<CR>

10.3.2.3.6.2 Example Report Message #2 – Two Organisms and One Colony Count

Scenario # 18	Example Report Message #2 – Two Organisms and One Colony Count
Message Type	Test Result Message Fragment – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||200908 19103100-0400||ORU^R01^ORU_R01|TAG000013|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M |||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141- 0400<CR> OBR|1|093203003237003-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237003-MCK^^2 .16.840.1.113883.3.59.1:4004^ISO|TR10694-8^Culture^HL79901|||20090818100000-0400||| ||||20090818101500-0400|UR&Urine&HL70070^^^^^&Catheter Urine|921379^BLAKE^DONALD^THO R^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565||||||||F||1^^^2 0090818^^R<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.11388 3.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||AAA<CR> OBX|1|SN|19090-0^COLONY COUNT:NCNC:PT:URINE:QN^HL79902|1|>^100|10*6 CFU/L|||||F<CR> ZBX|20090818112141-0400|ABC000<CR> OBX|2|CE|630-4^BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE^HL79902|2|3092008^Staphylococcus aureus(organism)^HL79905||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|3|CE|630-4^BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE^HL79902|3|112283007^Escherichia coli (organism)^HL79905||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> BLG|||SELF<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141- 0400<CR> OBR|2|093203003237SE1-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237SE1-MCK^^2 .16.840.1.113883.3.59.1:4004^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||2009081 8100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^^&Catheter Urine|921379^B LAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565| |||||||F|630-4&BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE&HL79902^2|1^^^20090818 ^^R||093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO^093203003237003- MCK&&2.16.840.1.113883.3.59.1:4004&ISO<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.11388 3.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||BBB<CR> OBX|1|ST|18864-9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|2|ST|18900-1^CEPHALOTHIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> OBX|3|ST|18906- 8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|ST|18956-3^NORFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC040<CR> OBX|5|ST|18955-

	5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC050<CR> OBX|6|ST|18996-9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC060<CR> OBX|7|ST|18998-5^TRIMETHOPRIM+SULFAMETHOXAZOLE:SUSC:PT:ISOLATE:ORDQN^HL79902||INTER MEDIATE||||||F<CR> ZBX|20090818112141-0400|ABC070<CR> OBX|8|ST|18928-2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902||RESISTANT||||||F<CR> ZBX|20090818112141-0400|ABC080<CR> BLG|||SELF<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141- 0400<CR> OBR|3|093203003237SE2-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237SE2-MCK^^2 .16.840.1.113883.3.59.1:4004^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||2009081 8100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^B LAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565| |||||||F|630-4&BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE&HL79902^3|1^^^20090818 ^^R||093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO^093203003237003- MCK&&2.16.840.1.113883.3.59.1:4004&ISO<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.11388 3.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||CCC<CR> OBX|1|ST|18864-9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|2|ST|18906- 8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> OBX|3|ST|18956-3^NORFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|ST|18955- 5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC040<CR> BLG|||SELF<CR>

10.3.2.3.6.3 Example Report Message #3 – Two Organisms and Two Colony Counts

Scenario # 19	Example Report Message #3 – Two Organisms and Two Colony Counts
Message Type	Test Result Message Fragment – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||200908 19103100-0400||ORU^R01^ORU_R01|TAG000013|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M |||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141- 0400<CR> OBR|1|093203003237003-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237003-MCK^^2 .16.840.1.113883.3.59.1:4004^ISO|TR10694-8^Culture^HL79901|||20090818100000-0400||| ||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^BLAKE^DONALD^THO R^MD^DR.^^^^^^^MDL^^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565||||||||F||1^^^2 0090818^^R<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.11388 3.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||AAA<CR> OBX|1|ST|XON11861-2^Colony Count:IMP:Pt:XXX:NAR^HL79902|1|>100 X 10*6 CFU/L ESCHERI CHIA COLI||||||F<CR> ZBX|20090818112141-0400|ABC000<CR> OBX|2|CE|630-4^BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE^HL79902|2|112283007^Es cherichia coli(organism)^HL79905||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|3|ST|XON11861-2^Colony Count:IMP:Pt:XXX:NAR^HL79902|3|50-100 X 10*6 CFU/L Enterococcus sp.||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|CE|630-4^BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE^HL79902|4|983805411000087101^Enterococcus species unspecified(finding)^HL79905||||||F<CR>

	ZBX|20090818112141-0400|ABC040<CR> BLG|||SELF<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141-0400<CR> OBR|2|093203003237SE1-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237SE1-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20090818100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565|||||||F|630-4&BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE&HL79902^2|1^^^20090818^^R||093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO^093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||BBB<CR> OBX|1|ST|18864-9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|2|ST|18900-1^CEPHALOTHIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> OBX|3|ST|18906-8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|ST|18956-3^NORFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC040<CR> OBX|5|ST|18955-5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC050<CR> OBX|6|ST|18996-9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC060<CR> OBX|7|ST|18998-5^TRIMETHOPRIM+SULFAMETHOXAZOLE:SUSC:PT:ISOLATE:ORDQN^HL79902||INTERMEDIATE||||||F<CR> ZBX|20090818112141-0400|ABC070<CR> OBX|8|ST|18928-2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902||RESISTANT||||||F<CR> ZBX|20090818112141-0400|ABC080<CR> BLG|||SELF<CR> ORC||||20093203003237-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090818112141-0400<CR> OBR|3|093203003237SE2-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|093203003237SE2-MCK^^2.16.840.1.113883.3.59.1:4004^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20090818100000-0400|||||||20090818101500-0400|UR&Urine&HL70070^^^^&Catheter Urine|921379^BLAKE^DONALD^THOR^MD^DR.^^^^^^^MDL^^^^^^^^^ON&ONTARIO&HL70347|^PRN^PH^^^416^3384565|||||||F|630-4&BACTERIA IDENTIFIED:PRID:PT:URINE:NOM:CULTURE&HL79902^4|1^^^20090818^^R||093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO^093203003237003-MCK&&2.16.840.1.113883.3.59.1:4004&ISO<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|1 HOSPITAL COURT^^OSHAWA^ON^L1G 2B9^CAN^B||||CCC<CR> OBX|1|ST|18864-9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC010<CR> OBX|2|ST|18906-8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC020<CR> OBX|3|ST|18956-3^NORFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC030<CR> OBX|4|ST|18955-5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902||SUSCEPTIBLE||||||F<CR> ZBX|20090818112141-0400|ABC040<CR> BLG|||SELF<CR>

10.3.2.3.7 Multiple messages received combined and stored as a single order in OLIS

Scenario # 21	This example illustrates how multiple test results for the same Order ID received, are combined and stored as a single order in OLIS
Message Type	Report Message – ORU^R01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||20130226141411-0500||ORU^R01^ORU_R01|Q961291919T1433184801|P|2.3.1||||||8859/1

```
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706259^^2.16.840.1.113883.3.59.1:9999^ISO|704706259^^2.16.840.1.1138
83.3.59.1:9999^ISO|999999^need code^HL79901|||20130226141100-
0500|||||||20130226141100-
0500|UR&Urine&HL70070|23330^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1898000
NTE|1|P| DOE Order Comment|RE^Remark^HL70364
ZNT|^2.16.840.1.113883.3.59.1:9999^ISO
OBX|1|NM|13362-9^Collection duration:Time:*:Urine:Qn^HL79902|1|24.0|h|||||F
ZBX|20130226141406-0500|12001052000
OBX|2|NM|28009-9^Specimen volume:Vol:Pt:Urine:Qn^HL79902|2|1000|mL|600-
2800|N|||F
ZBX|20130226141406-0500|12001053000
BLG|||MOHLTC

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141313-
0500||ORU^R01^ORU_R01|Q961291905T1433184762|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||| The ABC Hospital
^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706250^^2.16.840.1.113883.3.59.1:9999^ISO|704706250^^2.16.840.1.1138
83.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500|||||||20130226141100-0500|BLD&Whole
blood&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||
||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||82000
OBX|1|NM|14682-9 (LOINC/Test Request
Code)^Creatinine:SCnc:Pt:Ser/Plas:Qn^HL79902(OBX3.3)|1|72|umol/L|55-100|N|||F
(OBX.11)
ZBX|20130226141305-0500|10301025000
BLG|||MOHLTC

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141410-
0500||ORU^R01^ORU_R01|Q961291915T1433184783|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^2.16.840.1.113883.3.59.1:9999^ISO|||||2013022614110
0-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706262^2.16.840.1.113883.3.59.1:9999^ISO|704706262^2.16.840.1.113883
```

```
.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500|||||||20130226141100-
0500|UR&Urine&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7|||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1928000
OBX|1|NM|14683-7^Creatinine:SCnc:Pt:Urine:Qn^HL79902|1|12.0|mmol/L|||||F
ZBX|20130226141406-0500|12001064000
NTE|1|P|Reference Range for Random First Morning Collection:\.br\Male: 3.5 to
25.0 mmol/L\.br\Female: 2.6 to 20.0 mmol/L|RE^Remark^HL70364
ZNT|2.16.840.1.113883.3.59.1:9999^ISO
OBX|2|NM|14684-5^Creatinine:SRat:24H:Urine:Qn^HL79902|2|12.0|mmol/d|6.3-
13.4|N|||F
ZBX|20130226141406-0500|12001066000
BLG|||MOHLTC
-----------------------------------------------------------------------------

MSH|^~\&|^2.16.840.1.113883.3.59.1:9999^ISO|SampleConformanceID1|^OLIS^X500||
20130226141411-
0500||ORU^R01^ORU_R01|Q961291919T1433184801|P|2.3.1||||||8859/1
PID|1||11843017^^^&2.16.840.1.113883.3.59.1:7777&ISO^MR~2000014775^^^^JHN^^^^
ON&Ontario&HL70347^^CG||Green^Apple^Helena^^^^U||19700310|F|||5678
Grannysmith lane^^London^ON^N2E 4Y8^CAN^H
PV1|1|O|
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706259^^2.16.840.1.113883.3.59.1:9999^ISO|704706259^^2.16.840.1.1138
83.3.59.1:9999^ISO|999999^need code^HL79901|||20130226141100-
0500|||||||20130226141100-
0500|UR&Urine&HL70070|23330^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL7034
7|||||||||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1898000
NTE|1|P| DOE Order Comment|RE^Remark^HL70364
ZNT|^2.16.840.1.113883.3.59.1:9999^ISO
OBX|1|NM|13362-9^Collection duration:Time:*:Urine:Qn^HL79902|1|24.0|h|||||F
ZBX|20130226141406-0500|12001052000
OBX|2|NM|28009-9^Specimen volume:Vol:Pt:Urine:Qn^HL79902|2|1000|mL|600-
2800|N|||F
ZBX|20130226141406-0500|12001053000
BLG|||MOHLTC
ORC||||000002013057000425^^2.16.840.1.113883.3.59.1:9999^ISO|||||201302261411
00-0500||||||||||||| The ABC Hospital
^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere
Road^London^ON^N6A 5A5^CAN^B
OBR|1|704706250^^2.16.840.1.113883.3.59.1:9999^ISO|704706250^^2.16.840.1.1138
83.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-
0500|||||||20130226141100-0500|BLD&Whole
blood&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||
||F||1^^^20130226141100-0500^^R
ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre
-^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||82000
OBX|1|NM|14682-9 (LOINC/Test Request
```

	Code)^Creatinine:SCnc:Pt:Ser/Plas:Qn^HL79902(OBX3.3)|1|72|umol/L|55-100|N|||F (OBX.11) ZBX|20130226141305-0500|10301025000 BLG|||MOHLTC ORC||||000002013057000425^2.16.840.1.113883.3.59.1:9999^ISO|||||20130226141100-0500|||||||||||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|P.O. Box 5339^339 Windermere Road^London^ON^N6A 5A5^CAN^B OBR|1|704706262^2.16.840.1.113883.3.59.1:9999^ISO|704706262^2.16.840.1.113883.3.59.1:9999^ISO|TR10149-3^Creatinine^HL79901|||20130226141100-0500|||||||20130226141100-0500|UR&Urine&HL70070|26550^John^Smith^^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347|||||||||F||1^^^20130226141100-0500^^R ZBR||The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre -^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|Dummy Health Sciences Centre -^Department of Pathology ^Toronto^ON^M6A 5Z5^CAN^B|The ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:9999&ISO|||1928000 OBX|1|NM|14683-7^Creatinine:SCnc:Pt:Urine:Qn^HL79902|1|12.0|mmol/L|||||F ZBX|20130226141406-0500|12001064000 NTE|1|P|Reference Range for Random First Morning Collection:\.br\Male: 3.5 to 25.0 mmol/L\.br\Female: 2.6 to 20.0 mmol/L|RE^Remark^HL70364 ZNT|2.16.840.1.113883.3.59.1:9999^ISO OBX|2|NM|14684-5^Creatinine:SRat:24H:Urine:Qn^HL79902|2|12.0|mmol/d|6.3-13.4|N|||F ZBX|20130226141406-0500|12001066000 BLG|||MOHLTC
Notes	1. Lab sends in the first message (ORC.4 000002013057000425). 2. Lab sends in the second message using the same order number (000002013057000425). 3. Lab sends in the third message using the same order number (000002013057000425). 4. End state in OLIS for Order ID 000002013057000425 is that it is stored with contents from all three messages. 5. The above example shows how each message belongs to the same Order ID. Each message received in different messages, but OLIS will combine the messages and store them as a single order.

10.3.2.4 UC-<202> Amend Test Result Examples

10.3.2.4.1 Laboratory Amends a Test Result

Scenario # 22	Superior Medical Laboratories amends the test result for Bruce H Banner's haemoglobin test request.
Message Type	**Test Result Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090818103100-0400||ORU^R01^ORU_R01|TAG000009|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> PV1|1|Z<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818103044-0400<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO|998877661^^2.16.840.1.113883.3.59.1:4004^ISO|TR10481-0^Hemoglobin^HL79901|||20050824160000-0400|||||||2005082421170 3-0400||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347||||||||C||1^^^20090817^^R<CR> ZBR|||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas S

	t. East^^Anytown^ON^M5W 1E1^CAN^B|AAA<CR> OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||111|g/L|130-180|L|||C<CR> ZBX|20090818103045-0400|ABC001<CR> NTE|1|L|Test result amended. Previously reported value was 110g/L.|RE^Remark^HL7036 4<CR> ZNT|^2.16.840.1.113883.3.59.1:4004^ISO<CR> BLG|||SELF<CR>
Notes	1. The amended test result is provided in the OBX.5 *Observation Value* field, and a note relating to the amendment is attached to the test result. 2. The Test Result is identified as an amendment in the OBX.11 *Observation Result Status* field. 3. The date and time that the amendment was released by the Laboratory is indicated in the ZBX.1 *Test Result Release Date/Time* field. This date and time identifies the result as the latest result value for the combination of OBX.3 *Observation Identifier* and OBX.4 *Observation Sub-ID*. All queries that return the haemoglobin test request from this order will normally only return the latest test result: OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||111|g/L|130-180|L|||C<CR> ZBX|20090818103045-0400<CR> NTE|1|L|Test result amended. Previously reported value was 110g/L.|RE^Remark^HL70364<C R> ZNT|^2.16.840.1.113883.3.59.1:4004^ISO<CR> 4. The *Retrieve Laboratory Information for Order ID* query offers an optional parameter that causes OLIS to return both current and historical results as follows: OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||111|g/L|130-180|L|||C<CR> ZBX|20090818103045-0400|ABC001<CR> NTE|1|L|Test result amended. Previously reported value was 110g/L.|RE^Remark^HL70364<C R> ZNT|^2.16.840.1.113883.3.59.1:4004^ISO<CR> OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||110|g/L|130-180|L|||F<CR> ZBX|20090818041001-0400|ABC001<CR> 5. The OBR.25 *Result Status* field and the OBX.11 *Observation Result Status* fields are updated to "C" to indicate that that an amendment has occurred. 6. Although not returned in the ACK message, OLIS has updated the timestamp of each test request in OBR.22 *Results Report/Status Change Date/Time* in order to support the various queries for laboratory information updates. 7. Although this example focuses on the single result being amended, the preferred approach is for the lab to submit the entire report containing both changed and unchanged information.

10.3.2.4.2 Add Ontario Health Number to Order/Report

Scenario # 23	Add Ontario Health Number to Order/Report
Message Type	**Report Amendment Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||200908 21162500-0400||ORU^R01^ORU_R01|TAG000026b|P|2.3.1||||||8859/1<CR> PID|1||1000323822^^^^JHN^^^^ON&ONTARIO&HL70347^^~21234586990^^^&2.16.840.1.113883.3 .59.1:4004&ISO^MR||STORM^SUSAN^S^^^^U||19870218|F|||124 Main Street^^Toronto^ON^M4K 4P4^CAN^B||^PRN^PH^^^416^7778888<CR> PV1|1|I|.-M-ICU<CR> ORC||||212345869^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090821162000-0500<CR> OBR|1|212345869-01^^2.16.840.1.113883.3.59.1:4004^ISO|212345869-01^^2.16.840.1.1138 83.3.59.1:4004^ISO|TR10220-2^Glucose^HL79901|||20090820111300-0000||||||2009082011 2000-0500|BLDV&Blood Venous&HL70070|926279^Richards^Reed^Fan^^Dr^^^^^^^MDL^^^^^^^^^

	ON&Ontario&HL70347|||||||||C||1&^^^20090820^^R<CR> ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|200 International Blvd.^^TORONTO^ON^M9W 6J6^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|200 International Blvd.^^TORONTO^ON^M9W 6J6^CAN^B||||115.100<CR> OBX|1|NM|39480-9^GLUCOSE:SCNC:PT:BLDV:QN^HL79902|1|5.5|mmol/L|3.6 - 6.0||||C<CR> ZBX|20090821160000-0500|ATA0001<CR> NTE|1|L|***RESULT NORMAL. RESULT CORRECTED. PLEASE DISREGARD PREVIOUS RESULT.***|RE^REMARK^HL70364<CR> ZNT|^2.16.840.1.113883.3.59.1:4004^ISO<CR> BLG|||SELF|<CR>
Notes	1. The patient was initially identified by medical record number 21234586990 from Huronia District Hospital (facility ID 4004). 2. The Ontario Health Number is added by submitting an order amendment message that provides the identifier data as a second instance of the PID.3 *Patient Identifier List* field. 3. This order becomes accessible by either the patient's medical record number or by the patient's Ontario Health Number.

10.3.2.5 UC-<203> Full Replace Amendment Examples

10.3.2.5.1 Laboratory fully replace an existing lab report

Scenario # 24	**Create test result**
Message Type	**Order Create Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4001^ISO|SFTLAB4001|^OLIS^X500||20090126142927-0500||ORU^R01^ORU_R01|02-0023|P|2.3.1||||||8859/1<CR> PID|1||b130239^^^&2.16.840.1.113883.3.59.3:8503&ISO^MR^^^^&&^^||XDWXRDS^ORANGE^DOROTHY^^^^U||19960419000000-0500|F|<CR> PV1|1|O|Location Change 1<CR> ORC||||A01262927^^2.16.840.1.113883.3.59.1:4001^ISO|||||20090126142927-0500||||||||||||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|<CR> OBR|1|A01262927-R1^^2.16.840.1.113883.3.59.1:4001^ISO|A01262927-F1^^2.16.840.1.113883.3.59.1:4001^ISO|TR10397-8^Sodium^HL79901|||20090126142927-0500||10^ml|||||20090126142927-0500|BLD&Whole Blood&HL70070|949397^NXVXSNXF^HOWARD^DAVID^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||P||1^^^20090126142927-0500^^R|<CR> ZBR||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B||||||<CR> OBX|1|NM|2951-2^SODIUM:SCNC:PT:SER/PLAS:QN^HL79902||142|mmol/L|135-148||||F|<CR> ZBX|20090126142927-0500|<CR> BLG|||MOHLTC|<CR> ORC||||A01262927^^2.16.840.1.113883.3.59.1:4001^ISO|||||20090126142927-0500||||||||||||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|<CR> OBR|2|A01262927-R2^^2.16.840.1.113883.3.59.1:4001^ISO|A01262927-F2^^2.16.840.1.113883.3.59.1:4001^ISO|TR10359-

	8^Potassium^HL79901|||20090126142927-0500||10^ml|||||20090126142927-0500|BLD&Whole Blood&HL70070|949397^NXVXSNXF^HOWARD^DAVID^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||C||1^^^20090126142929-0500^^R|<CR> ZBR||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B||||||<CR> OBX|1|NM|2823-3^POTASSIUM:SCNC:PT:SER/PLAS:QN^HL79902||5.0|mmol/L|3.5-5.5||||F|<CR> ZBX|20090126142927-0500|<CR> BLG|||MOHLTC|<CR>
Scenario # 24	**Full Replacement report**
Message Type	**Order Amend Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4001^ISO|SFTLAB4001|^OLIS^X500||20090126142927-0500||ORU^R01^ORU_R01|02-0023|P|2.3.1||||||8859/1<CR> PID|1||b130239^^^&2.16.840.1.113883.3.59.3:8503&ISO^MR^^^^&&^^||XDWXRDS^ORANGE^DOROTHY^^^^U||19960419000000-0500|F|<CR> PV1|1|O|Location Change 1<CR> ORC||||A01262927^^2.16.840.1.113883.3.59.1:4001^ISO|||||20090126142927-0500|||||||||||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|<CR> OBR|2|A01262927-R2^^2.16.840.1.113883.3.59.1:4001^ISO|A01262927-F2^^2.16.840.1.113883.3.59.1:4001^ISO|TR10359-8^Potassium^HL79901|||20090126142927-0500||10^ml|||||20090126142927-0500|BLD&Whole Blood&HL70070|949397^NXVXSNXF^HOWARD^DAVID^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||C||1^^^20090126142929-0500^^R|<CR> ZBR||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B|Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4001&ISO|1400 College Street^^Toronto^ON^M4J 5D4^CAN^B||||||Y<CR> OBX|1|NM|2823-3^POTASSIUM:SCNC:PT:SER/PLAS:QN^HL79902||6.0|mmol/L|3.5-5.5||||F|<CR> ZBX|20090126142927-0500|<CR> BLG|||MOHLTC|<CR> BLG|||MOHLTC|<CR>
Notes	1. It has two test requests (A01262927-R1 and A01262927-R2) and test results for that. 2. Amendment came in with the same Order ID A01262927 for Full Replace Amendment, having its ZBR.13 field value as 'Y'. 3. Order A01262927 has a new replaced test result (A01262927-R2) value as a result of Full Replace Amendment.

10.3.2.5.2 Microbiology – Laboratory fully replacing an existing lab report

Scenario # 25	**Microbiology – Create test result**
Message Type	**Order Create Message ORU^001**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20130426100000-0400||ORU^R01^ORU_R01|TAG000004|P|2.3.1||||||8859/1<CR> PID|1||2000010203^^^^JHN^^^^ON&Ontario&HL70347||IRONWOOD^BIBIANA^VIRGINIANA^^^^U||19700510|F|||2301-30 BOND ST^^TORONTO^ON^M5B 1W8^CAN^H||^PRN^PH^^^416^5555555<CR>

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PV1|1|I|3B||||921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347
<CR>
ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100-
0400||||||||||||St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B<CR>
OBR|1|G15366533^^2.16.840.1.113883.3.59.1:4083^ISO|20^^2.16.840.1.113883.3.59
.1:4083^ISO|TR10694-8^Aerobic Culture^HL79901|||20130423084700-
0400|||||||20120723060000-
0400|UR&Urine&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^O
N&Ontario&HL70347||||||20130426153518+0000|||F||1^^^20120723000000-
0400^^R<CR>
ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St.
Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B||||0001||<CR>
NTE|1|L|specimen was partially spilled\.br\patient temperature
36.8\.br\|RE^Remark^HL70364<CR>
ZNT|^2.16.840.1.113883.3.59.1:4083^ISO<CR>
OBX|1|CE|41852-5^MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM^HL79902|1|112283007^Escherichia
coli(organism)^HL79905||||||F<CR>
ZBX|20120723094134-0400|0001<CR>
OBX|2|ST|XON10312-7^INTERPRETATION.MICRO:IMP:PT:XXX:NAR^HL79902|1|>100 X E6
CFU/L||||||F<CR>
ZBX|20120723094134-0400|0002<CR>
OBX|3|CE|625-4^BACTERIA
IDENTIFIED:PRID:PT:STOOL:NOM:CULTURE^HL79902|1|614417251000087108^Shigella
species unspecified (finding)^HL79905||||||F<CR>
ZBX|20120723094134-0400|0003<CR>
OBX|4|ST|XON10312-7^INTERPRETATION.MICRO:IMP:PT:XXX:NAR^HL79902|2|10-100 X E6
CFU/L||||||F<CR>
ZBX|20120723094134-0400|0004<CR>
BLG|||MOHLTC<CR>
ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100-
0400||||||||||||St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B<CR>
OBR|2|G15366533S1^^2.16.840.1.113883.3.59.1:4083^ISO|20S1^^2.16.840.1.113883.
3.59.1:4083^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20130426084700-
0400|||||||20120723060000-0400|USPEC&Source,
Unspecified&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON&
Ontario&HL70347||||||||F|41852-5&MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM&HL79902^1|1^^^20120723000000-
0400^^R||G15366533&&2.16.840.1.113883.3.59.1:4083&ISO^20&&2.16.840.1.113883.3
.59.1:4083&ISO<CR>
ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St.
Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B||||0002||<CR>
OBX|1|ST|18878-
9^CEFAZOLIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0001<CR>
OBX|2|ST|18906-
8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0002<CR>
OBX|3|ST|18928-
2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0003<CR>
OBX|4|ST|18955-
5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0004<CR>
OBX|5|ST|18864-
9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|RESISTANT||||||F<CR>
ZBX|20120723094134-0400|0005<CR>
OBX|6|ST|18996-
```

	9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0006<CR> OBX|7|ST|18998- 5^TRIMETHOPRIM+SULFAMETHOXAZOLE:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE|| ||||F<CR> ZBX|20120723094134-0400|0007<CR> BLG|||MOHLTC<CR> ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100- 0400||||||||||||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B<CR> OBR|3|G15366533S2^^2.16.840.1.113883.3.59.1:4083^ISO|20S2^^2.16.840.1.113883. 3.59.1:4083^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20130426084700- 0400|||||||20120723060000-0400|USPEC&Source, Unspecified&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON& Ontario&HL70347||||||20130426153454+0000|||F|41852-5&MICROORGANISM OR AGENT IDENTIFIED:PRID:PT:XXX:NOM&HL79902^2|1^^^20120723000000- 0400^^R||G15366533&&2.16.840.1.113883.3.59.1:4083&ISO^20&&2.16.840.1.113883.3 .59.1:4083&ISO<CR> ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B||||0003||<CR> OBX|1|ST|18906- 8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0001<CR> OBX|2|ST|18928- 2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0002<CR> OBX|3|ST|18996- 9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0003<CR> OBX|4|ST|18970- 4^PIPERACILLIN+TAZOBACTAM:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F< CR> ZBX|20120723094134-0400|0004<CR> OBX|5|ST|18932- 4^IMIPENEM:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0005<CR> BLG|||MOHLTC<CR>
Scenario # 25	**Microbiology – Full Replacement**
Message Type	**Order Amend Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X50 0||20130426100000-0400||ORU^R01^ORU_R01|TAG000004|P|2.3.1||||||8859/1<CR> PID|1||2000010203^^^^JHN^^^^ON&Ontario&HL70347||IRONWOOD^BIBIANA^VIRGINIANA^^ ^^U||19700510|F|||2301-30 BOND ST^^TORONTO^ON^M5B 1W8^CAN^H||^PRN^PH^^^416^5555555<CR> PV1|1|I|3B||||921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347 <CR> ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100- 0400||||||||||||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B<CR> OBR|1|G15366533^^2.16.840.1.113883.3.59.1:4083^ISO|20^^2.16.840.1.113883.3.59 .1:4083^ISO|TR10694-8^Aerobic Culture^HL79901|||20130421084700- 0400|||||||20120723060000- 0400|UR&Urine&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^O N&Ontario&HL70347|||||||||C||1^^^20120723000000-0400^^R<CR> ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B||||0001||Y<CR> NTE|1|L|specimen was partially spilled\.br\patient temperature 36.8\.br\\|RE^Remark^HL70364<CR> ZNT|^2.16.840.1.113883.3.59.1:4083^ISO<CR>

```
OBX|1|CE|41852-5^MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM^HL79902|1|112283007^Escherichia coli
(organism)^HL79905||||||F<CR>
ZBX|20120723094134-0400|0001<CR>
OBX|2|ST|XON10312-7^INTERPRETATION.MICRO:IMP:PT:XXX:NAR^HL79902|1|>100 X E6
CFU/L||||||F<CR>
ZBX|20120723094134-0400|0002<CR>
OBX|3|CE|41852-5^MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM^HL79902|2|52499004^Pseudomonas aeruginosa
(organism)^HL79905||||||F<CR>
ZBX|20120723094134-0400|0003<CR>
OBX|4|ST|XON10312-7^INTERPRETATION.MICRO:IMP:PT:XXX:NAR^HL79902|2|10-100 X E6
CFU/L||||||F<CR>
ZBX|20120723094134-0400|0004<CR>
BLG|||MOHLTC<CR>
ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100-
0400||||||||||||St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B<CR>
OBR|2|G15366533S1^^2.16.840.1.113883.3.59.1:4083^ISO|20S1^^2.16.840.1.113883.
3.59.1:4083^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20130421084700-
0400|||||||20120723060000-0400|USPEC&Source,
Unspecified&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON&
Ontario&HL70347|||||||||C|41852-5&MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM&HL79902^1|1^^^20120723000000-
0400^^R||G15366533&&2.16.840.1.113883.3.59.1:4083&ISO^20&&2.16.840.1.113883.3
.59.1:4083&ISO<CR>
ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St.
Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B||||0002||Y<CR>
OBX|1|ST|18878-
9^CEFAZOLIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0001<CR>
OBX|2|ST|18906-
8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0002<CR>
OBX|3|ST|18928-
2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0003<CR>
OBX|4|ST|18955-
5^NITROFURANTOIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0004<CR>
OBX|5|ST|18864-
9^AMPICILLIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|RESISTANT||||||F<CR>
ZBX|20120723094134-0400|0005<CR>
OBX|6|ST|18996-
9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR>
ZBX|20120723094134-0400|0006<CR>
OBX|7|ST|18998-
5^TRIMETHOPRIM+SULFAMETHOXAZOLE:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||
||||F<CR>
ZBX|20120723094134-0400|0007<CR>
BLG|||MOHLTC<CR>
ORC||||GG9230007^^2.16.840.1.113883.3.59.1:4083^ISO|||||20120723084100-
0400||||||||||||St. Michael's
Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond
Street^^Toronto^ON^M5B 1W8^CAN^B<CR>
OBR|3|G15366533S2^^2.16.840.1.113883.3.59.1:4083^ISO|20S2^^2.16.840.1.113883.
3.59.1:4083^ISO|TR10695-5^Antibiotic Sensitivity^HL79901|||20130421084700-
0400|||||||20120723060000-0400|USPEC&Source,
Unspecified&HL70070^^^^&CATH|921379^BLAKE^DONALD^THOR^^^^^^^^^MDL^^^^^^^^^ON&
Ontario&HL70347|||||||||C|41852-5&MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM&HL79902^2|1^^^20120723000000-
0400^^R||G15366533&&2.16.840.1.113883.3.59.1:4083&ISO^20&&2.16.840.1.113883.3
.59.1:4083&ISO<CR>
ZBR||St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St.
Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|St. Michael's
```

	Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B|St. Michael's Hospital^^^^^&2.16.840.1.113883.3.59.1:4083&ISO|30 Bond Street^^Toronto^ON^M5B 1W8^CAN^B||||0003||Y<CR> OBX|1|ST|18906-8^CIPROFLOXACIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0001<CR> OBX|2|ST|18928-2^GENTAMICIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0002<CR> OBX|3|ST|18996-9^TOBRAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0003<CR> OBX|4|ST|18970-4^PIPERACILLIN+TAZOBACTAM:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0004<CR> OBX|5|ST|18893-8^CEFTAZIDIME:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0005<CR> OBX|6|ST|18932-4^IMIPENEM:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE||||||F<CR> ZBX|20120723094134-0400|0006<CR> BLG|||MOHLTC<CR>
Notes	1. Amendment came in with the same Order IDs G15366533, G15366533S1 and G15366533S2 for Full Replace Amendment, having its ZBR.13 field value as 'Y'. 2. Order G15366533 (OBX|3|) demonstrates a report where Shigella species unspecified (finding) was originally reported, but changed to Pseudomonas aeruginosa (organism) in a second message, which uses the Full Replace Amendment (ZBR.13 set to 'Y') for the correction. 3. Order G15366533S2 has a new replaced test result (OBX|5|) value as a result of Full Replace Amendment.

10.3.2.6 UC-<204> Test Request Replace Amendment Examples

10.3.2.6.1 Microbiology – Laboratory replacing an existing Parent test request with associated child test request

Scenario # 26	Microbiology – Test Request Replace amendment
Message Type	Order Amend Message – ORU^R01
Message Example	MSH|^~\&|^CN=LIS.LAB.TEST, OU=Applications, OU=eHealthUsers, OU=Subscribers, DC=subscribers, DC=ssh^X500|ABCcGTA|^OLIS^X500||20131101110729-0400||ORU^R01^ORU_R01|00162302|C|2.3.1||||||8859/1 PID|1||807001342^^^&2.16.840.1.113883.3.59.1:4194&ISO^MR||PATIENT^DR^ABC^JR^^^U||20141110|M|||165 ABC AVE^^MX^^^MEX^H||^PRN^PH^^^^8502065 ZPD||Y PV1|1|O|POP||||69020^ABC^DEF^HIJK^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347 ORC|||P1010006:SPTC^^2.16.840.1.113883.3.59.1:XXXX^ISO|||||20131101110500-0400|||||||||||ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University Avenue^^Toronto^ON^M5Y 1T5^CAN^B OBR|1|P1010006:SPTC^^2.16.840.1.113883.3.59.1:XXXX^ISO|P1010006:SPTC^^2.16.840.1.113883.3.59.1:XXXX^ISO|TR10694-8^Aerobic Culture^HL79901|||20131101110600-0400|||||||20131101110600-0400|SPT&Sputum&HL70070|59267^CMI^ISTINA^CHEL^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||F||1^^^20131101000000-0400^^R ZBR||ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University Avenue^^Toronto^ON^M5Y 1T5^CAN^B|ABC Sinai Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University Avenue^^Toronto^ON^M5Y 1T5^CAN^B OBX|1|TX|664-3^MICROSCOPIC OBSERVATION:PRID:PT:XXX:NOM:GRAM STAIN^HL79902|1|3+ pus cells\.br\2+ gram positive cocci||||||F ZBX|20131101110729-0400|0001 OBX|2|CE|41852-5^MICROORGANISM OR AGENT IDENTIFIED:PRID:PT:XXX:NOM^HL79902|1|3092008^Staphylococcus aureus(organism)^HL79905||||||F

```
ZBX|20131101110729-0400|0003Z
OBX|3|TX|41852-5^MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM^HL79902|2|Light growth||||||F
ZBX|20131101110729-0400|0003
BLG|||MOHLTC
ORC||||P1010006:SPTC^^2.16.840.1.113883.3.59.1:4194^ISO|||||20131101110500-
0400||||||||||||Mount Sinai
Hospital^^^^^&2.16.840.1.113883.3.59.1:4194&ISO|600 University
Avenue^^Toronto^ON^M5Y 1T5^CAN^B
OBR|2|P1010006:SPTCS1^^2.16.840.1.113883.3.59.1:XXXX^ISO|P1010006:SPTCS1^^2.1
6.840.1.113883.3.59.1:XXXX^ISO|TR10695-5^Antibiotic
Sensitivity^HL79901|||20131101110600-0400||||||20131101110600-
0400|USPEC&Source,
Unspecified&HL70070|59267^CMI^ISTINA^CHEL^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70
347|||||||||F|41852-5&MICROORGANISM OR AGENT
IDENTIFIED:PRID:PT:XXX:NOM&HL79902^1|1^^^20131101000000-
0400^^R||P1010006:SPTC&&2.16.840.1.113883.3.59.1:XXXX&ISO^P1010006:SPTC&&2.16
.840.1.113883.3.59.1:XXXX&ISO
ZBR||ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University
Avenue^^Toronto^ON^M5Y 1T5^CAN^B|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University
Avenue^^Toronto^ON^M5Y 1T5^CAN^B
OBX|1|ST|18908-
4^CLINDAMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE|mcg/mL||S|||F
ZBX|20131101110729-0400|0001
OBX|2|ST|18919-
1^ERYTHROMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE|mcg/mL||S|||F
ZBX|20131101110729-0400|0002
OBX|3|ST|19000-
9^VANCOMYCIN:SUSC:PT:ISOLATE:ORDQN^HL79902|1|SUSCEPTIBLE|mcg/mL||S|||F
ZBX|20131101110729-0400|0003
BLG|||MOHLTC

-------------------------------------------------------------------------------

MSH|^~\&|^CN=LIS.LAB.TEST, OU=Applications, OU=eHealthUsers, OU=Subscribers,
DC=subscribers, DC=ssh^X500|ABCcGTA|^OLIS^X500||20131101112237-
0400||ORU^R01^ORU_R01|00162326|C|2.3.1||||||8859/1
PID|1||807001342^^^&2.16.840.1.113883.3.59.1:XXXX&ISO^MR||PATIENT^DR^ABC^JR^^
^U||20141110|M|||165 ABC AVE^^MX^^^MEX^H||^PRN^PH^^^^8502065
ZPD||Y
PV1|1|O|POP||||69020^ABC^DEF^HIJK^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347
ORC||||P1010006:SPTC^^2.16.840.1.113883.3.59.1:XXXX^ISO|||||20131101110500-
0400||||||||||||ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000
University Avenue^^Toronto^ON^M5Y 1T5^CAN^B
OBR|1|P1010006:SPTC^^2.16.840.1.113883.3.59.1:XXXX^ISO|P1010006:SPTC^^2.16.84
0.1.113883.3.59.1:XXXX^ISO|TR10694-8^Aerobic
Culture^HL79901|||20131101110600-0400||||||20131101110600-
0400|SPT&Sputum&HL70070|59267^CMI^ISTINA^CHEL^^^^^^^^^MDL^^^^^^^^^ON&Ontario&
HL70347|||||||||C||1^^^20131101000000-0400^^R
ZBR||ABC Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University
Avenue^^Toronto^ON^M5Y 1T5^CAN^B|ABC
Hospital^^^^^&2.16.840.1.113883.3.59.1:XXXX&ISO|1000 University
Avenue^^Toronto^ON^M5Y 1T5^CAN^B||||||Y
OBX|1|TX|664-3^MICROSCOPIC OBSERVATION:PRID:PT:XXX:NOM:GRAM
STAIN^HL79902|1|3+ pus cells\.br\2+ gram positive cocci||||||F
ZBX|20131101112237-0400|0001
OBX|2|TX|XON10312-7^INTERPRETATION.MICRO:IMP:PT:XXX:NAR^HL79902|1|CORRECTED
REPORT (please disregard previous report)||||||C
ZBX|20131101112237-0400|0002
NTE|1|L|Commensal flora\.br\|RE^Remark^HL70364
ZNT|^2.16.840.1.113883.3.59.1:XXXX^ISO
BLG|||MOHLTC
```

Notes	1. In the original message Staphylococcus aureus was found and the related anti-biotic sensitivity was performed. 2. Amendment message came with the removed Microorganism identified with associated sensitivity. 3. Amended message contains @ZBR.14 field value as 'Y' and test request contains only Microscopic observation and the correction reason "Corrected Report".

10.3.2.7 UC-<302> Retrieve Laboratory Information for Patient Examples

10.3.2.7.1 Walk-In" Patient Query Example

Scenario # 27	**Walk-In" Patient Query Example (2.9.30)**
Message Type	**Query Message – SPQ^Z01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20050601134500-0400||SPQ^Z01^SPQ_Q08|TAG987651|P|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20050601000000-0400~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19271127~@ZRP.1.1^2.16.840.1.113883.3.59.1:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Huronia District Hospital~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	To limit the query response to outstanding orders that do not have specimens and results, add the following to the parameter list: @OBR.25°

10.3.2.7.2 Patient Query (Z01) Initiated by Support Staff on Behalf of a Practitioner (HIC Individual)

Scenario # 28	**Support staff person John Henry Everyman queries OLIS for patient Bruce Banner on behalf of Dr Reed Richards through Dr Richards' EMR system.**
Message Type	**Query Message – SPQ^Z01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z01^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^926279~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Richards~@ZRP.1.3^Reed~@ZRP.1.4^|<CR>
Notes	

10.3.2.7.3 Patient Query (Z01) Initiated by Support Staff on Behalf of a Healthcare Facility (HIC Organization)

Scenario # 29	**Support staff person John Henry Everyman queries OLIS for patient Bruce Banner on behalf of Dr Reed Richards at BSD Health Services.**
Message Type	**Query Message – SPQ^Z01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z01^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^2.16.840.1.113883.3.59.1:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Huronia District Hospital~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	

10.3.2.7.4 Superior Medical Laboratories queries OLIS Bruce H Banner's Orders

Scenario #	**Superior Medical Laboratories queries OLIS for Bruce H Banner's Orders.**

30A	
Message Type	Query Message – SPQ^Z01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z01^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^2.16.840.1.113883.3.59.3:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Superior Medical Laboratories~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	1. The patient ID and earliest point in time to search for test requests are specified in the SPR.4 *Input Parameter List* field. The Ontario Health Card version code is not required in a query message. 2. The SPR.1 *Query Tag* field contains an identifier (QRYTAG123) that will be returned in the query response message. 3. The Query Event (Z01) corresponds to the stored procedure name (Z_QryLabInfoForPatientID) in the SPR.3 *Stored Procedure Name* field. 4. The Requesting HIC is identified as Superior Medical Laboratories in the @ZRP.1 parameter. Refer to the @ZRP.1 parameter definition in section 10.2.4.8 Query Parameters Matrix on page 150. 5. The person who initiates the query is asserted in the ZSH segment.
Scenario # 30A	**OLIS response message for Bruce H Banner's Orders.**
Message Type	Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.2:3001^ISO||20090818161829-0400||ERP^Z99^ERP_R09|TAG000007|T|2.3.1||||||8859/1<CR> MSA|AA|TAG000007<CR> QAK|QRYTAG123|OK|<CR> ERQ||R09|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308^@ZRP.1.1^2.16.840.1.113883.3.59.3:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Superior Medical Laboratories~@ZRP.1.3^~@ZRP.1.4|<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO||TR10481-0^Hemoglobin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO||||||||<CR> BLG|||SELF|<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO||TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||^Sample specimen collection comment<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO||||||||<CR>

```
BLG|||SELF|<CR>

ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400|||||||
||||||||<CR>

OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO||TR10480-2^Hematocrit^HL79901|
||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN
^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135
-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontari
o&HL70347|||||||||1||<CR>

ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16
.840.1.113883.3.59.2:3001&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|2||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308
|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||
|||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817105700-0400|||||
||||||||||<CR>

OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||
||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH
^^^705^2343425^|||||20090818150814-0400|||X||1&^^^20090817^^R|925642^TAKAHAMA^HAL
LIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>
```

Notes

1. The QAK.1 *Query Tag* field echoes the query identifier back to the external system.
2. The QAK.2 *Query Response Status* field indicates that the query message was valid and that data was returned by the query.
3. The ERQ.3 *Input Parameter List* field echoes the input parameters back to the external system.
4. The OBR.22 *Results Rpt/Status Change Date/Time* field communicates a timestamp recorded by OLIS when the test request was last changed. This timestamp falls within the start and end timestamps in the query parameters.
5. The ORC.1 *Order Control* fields are not populated in this message because query messages do not change laboratory information.

10.3.2.7.5 North Regional Viewer queries OLIS for Bruce H Banner's Orders

Scenario # 30B	North Regional Viewer queries OLIS for Bruce H Banner's Orders.
Message Type	Query Message – SPQ^Z01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z01^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^2.16.840.1.113883.3.59.2:3001~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^North Regional Viewer~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	5. The patient ID and earliest point in time to search for test requests are specified in the SPR.4 *Input Parameter List* field. The Ontario Health Card version code is not required in a query message. 6. The SPR.1 *Query Tag* field contains an identifier (QRYTAG123) that will be returned in the query response message. 7. The Query Event (Z01) corresponds to the stored procedure name (Z_QryLabInfoForPatientID) in the SPR.3 *Stored Procedure Name* field. 8. The Requesting HIC is identified as North Regional Viewer in the @ZRP.1 parameter. Refer to the @ZRP.1 parameter definition in section 10.2.4.8 Query Parameters Matrix on page 150. 9. The person who initiates the query is asserted in the ZSH segment.
Scenario # 30B	OLIS response message for Bruce H Banner's Orders.
Message Type	Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.2:3001^ISO||20090818161829-0400||ERP^Z99^ERP_R09|TAG000007|T|2.3.1||||||8859/1<CR> MSA|AA|TAG000007<CR> QAK|QRYTAG123|OK|<CR> ERQ||R09|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308^@ZRP.1.1^2.16.840.1.113883.3.59.2:3001~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^North Regional Viewer~@ZRP.1.3^~@ZRP.1.4|<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO||TR10481-0^Hemoglobin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR> ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO||TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||^Sample specimen collection comment<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16

```
.840.1.113883.3.59.2:3001&ISO|||||||||<CR>

BLG|||SELF|<CR>

ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400|||||||
||||||||<CR>

OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO||TR10480-2^Hematocrit^HL79901|
||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN
^^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135
-0400|||I||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontari
o&HL70347|||||||||1||<CR>

ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16
.840.1.113883.3.59.2:3001&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|2||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308
|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||
|||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817105700-0400|||||
||||||||||<CR>

OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||
||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH
^^^705^2343425^|||||20090818150814-0400|||X||1&^^^20090817^^R|925642^TAKAHAMA^HAL
LIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO||||||||||<CR>

BLG|||SELF|<CR>
```

Notes

5. The QAK.1 *Query Tag* field echoes the query identifier back to the external system.
6. The QAK.2 *Query Response Status* field indicates that the query message was valid and that data was returned by the query.
7. The ERQ.3 *Input Parameter List* field echoes the input parameters back to the external system.
8. The OBR.22 *Results Rpt/Status Change Date/Time* field communicates a timestamp recorded by OLIS when the test request was last changed. This timestamp falls within the start and end timestamps in the query parameters.
9. The ORC.1 *Order Control* fields are not populated in this message because query messages do not change laboratory information.

10.3.2.7.6 Overrides to Access Blocked Laboratory Information

Scenario # 32	Query to access blocked laboratory information
Message Type	Query Message – SPQ^Z01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SFTPrcatitioner|^OLIS^X500||20090805090500-0400||SPQ^Z01^SPQ_Q08|TAG000028a|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090506095626-0400~@PID.3.1^1000323822~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^F~@PID.7^19870218^~@ZRP.1.1^91695~@ZRP.1.13^DDSL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Lu~@ZRP.1.3^Chen~@ZRP.1.4^<CR>
Notes	OLIS acknowledges the query message with warning code 320 to indicate the existence of the patient-level block.
Scenario # 32	**Query Acknowledgment Message Fragment – Patient's Laboratory Information is Blocked**
Message Type	Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090821155202-0400||ERP^Z99^ERP_R09|TAG000028a|T|2.3.1||||||8859/1<CR> MSA|AA|TAG000028a<CR> ERR|^^^320& Some or all of the requested laboratory information was not returned due to a patient consent directive. If appropriate, the query may be resubmitted with an override.&HL70357~<CR> QAK|QRYTAG123|NF|<CR> ERQ||R09|@OBR.22^20090506095626-0400~@PID.3.1^1000323822~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^F~@PID.7^19870218~@ZRP.1.1^91695~@ZRP.1.13^DDSL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Lu~@ZRP.1.3^Chen~@ZRP.1.4^|<CR>
Notes	Note that if the requesting HIC is identified as a report recipient on a lab report, the requesting HIC will receive the report in spite of the patient-level block due to implied consent. In this case, the QAK.2 value will contain "OK" and the lab report content will be present in the response message. If other reports exist that do not identify the Requesting HIC as a report recipient, the warning code 320 will be returned.
Scenario # 32	**After obtaining consent, from the patient, the practitioner resubmits the query with a temporary override:**
Message Type	Query Message – SPQ^Z01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SFTPrcatitioner|^OLIS^X500||20090805090500-0400||SPQ^Z01^SPQ_Q08|TAG000028b|T|2.3.1||||||8859/1<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.22^20090506095626-0400~@PID.3.1^1000323822~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^F~@PID.7^19870218^~@ZRP.1.1^91695~@ZRP.1.13^DDSL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Lu~@ZRP.1.3^Chen~@ZRP.1.4^~@ZPD.1^Z<CR>

10.3.2.8 UC-<304> Retrieve Lab Information for Practitioner Examples

10.3.2.8.1 Retrieve Laboratory Information Updates for Practitioner – Z04

Scenario # 33	Retrieve Laboratory Information Updates for Practitioner
Message Type	Query Message – SPQ^Z04
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090821100000-0400||SPQ^Z04^SPQ_Q08|TAG000022|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG126|R|Z_QryLabInfoUpdatesForPractitionerID^^HL70471|@OBR.22^20090817000000-0500~@ZRP.1.1^926279~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Richards~@ZRP.1.3^Reed~@ZRP.1.4^<CR>
Notes	
Scenario # 33	**OLIS Response for Practitioner Query**
Message Type	Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090821100713-0400||ERP^Z99^ERP_R09|TAG000022|T|2.3.1||||||8859/1<CR>

```
MSA|AA|TAG000022<CR>

QAK|QRYTAG126|OK|<CR>

ERQ||R09|@OBR.22^20090817000000-0500~@ZRP.1.1^926279~@ZRP.1.13^MDL~@ZRP.1.22.1^ON
~@ZRP.1.22.3^HL70347~@ZRP.1.2^Richards~@ZRP.1.3^Reed~@ZRP.1.4^|<CR>

PID|1||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114
|F|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||2112914^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400|||||
||||||||||<CR>

OBR|1|9012986^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||
||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH
^^^705^2343425^|||||20090817130813-0400|||X||1&^^^20050601^^R|925642^TAKAHAMA^HAL
LIE^^JR^DR.^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|2||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114
|F|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||BSD-0817-002^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090814080000-0400
||||||||||||||<CR>

OBR|1|BSD-0817-001-02^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin
^HL79901||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL703
47|^WPN^PH^^^705^2343425^|||||20090817144331-0400|||O||1&^^^20090814090000-0400^^
R||||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|3||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114
|F|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||BSD-0817-001^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400
||||||||||||||<CR>

OBR|1|BSD-0817-001-01^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin
^HL79901|||20090813100000-0400||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^
^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090817145903-0400|||I||1&^^^20
090814090000-0400^^R||||||||||||<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|4||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114
|F|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||BSD-0818-001^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400
||||||||||||||<CR>

OBR|1|BSD-0818-001-01^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin
^HL79901|||20090813100000-0400||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^
^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818102654-0400|||I||1&^^^20
090814090000-0400^^R||||||||||||<CR>
```

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ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|5||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114
|F|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||BSD-0818-002^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050601091500-0400
|||||||||||||||<CR>

OBR|1|BSD-0818-001-02^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin
^HL79901|||20090813100000-0400||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^
^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818132815-0400|||I||1&^^^20
090814090000-0400^^R||||||||||||<CR>

ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|Nor
th Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|6||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308
|M|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|1|8012953^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10481-0^Hemoglobin^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO^X500|||||20090817105700-0400
|||||||||||||||<CR>

OBR|2|8012954^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10186-5^Ferritin^HL79901||
||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH
^^^705^2343425^|||||20090818150814-0400|||X||1&^^^20090817^^R|925642^TAKAHAMA^HAL
LIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

ORC||||2112951^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090817095500-0400|||||
||||||||||<CR>

OBR|3|8012955^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10480-2^Hematocrit^HL79901
||||||||||||926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^
PH^^^705^2343425^|||||20090818104003-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^H
ALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||||^<CR>

ZBR||Springfield Family Health
Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|||||||||<CR>

BLG|||SELF|<CR>

PID|7||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308
|M|||123 MapleSt^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||
||<CR>

PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR>

ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818103044-0400|||||||
||||||||<CR>
```

```
OBR|1|38830944A^^2.16.840.1.113883.3.59.2:3001^ISO|998877661^^2.16.840.1.113883.3
.59.1:4004^ISO|TR10481-0^Hemoglobin^HL79901|||20050824160000-0400||5^mL|||||20050
824211703-0400|BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^
^^^ON&Ontario&HL70347||||||20090819101905-0400|||C||1&^^^20090817^^R||||||||||1||
<CR>

ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16
.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.
59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hos
pital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W
 1E1^CAN^B||||AAA<CR>

OBX|1|NM|718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^HL79902||111|g/L|130-180|L|||C||||||^<CR
>

ZBX|20090818103045-0400||ABC001<CR>

NTE|1|L|Test result amended. Previously reported value was 110g/L.|RE^Remark^HL70
364|<CR>

ZNT|^2.16.840.1.113883.3.59.1:4004^ISO|<CR>

BLG|||SELF|<CR>

ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818085900-0400|||||||
||||||||<CR>

OBR|2|38830944B^^2.16.840.1.113883.3.59.2:3001^ISO|998877662^^2.16.840.1.113883.3
.59.1:4004^ISO|TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL|||||2009081
7192040-0400|BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^
^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818170532-0400|||F||1&^^^2009
0817^^R||||||||||1||^Sample specimen collection comment<CR>

ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16
.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.
59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hos
pital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W
 1E1^CAN^B||||BBB<CR>

OBX|1|NM|14723-1^FERRITIN:SCNC:PT:SER/PLAS:QN^HL79902||259|ng/mL|12-300|N|||F||||
||^<CR>

ZBX|20090818041001-0400||DJIEJ<CR>

BLG|||SELF|<CR>

ORC||||38830944^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090818085900-0400|||||||
||||||||<CR>

OBR|3|38830944C^^2.16.840.1.113883.3.59.2:3001^ISO|998877663^^2.16.840.1.113883.3
.59.1:4004^ISO|TR10480-2^Hematocrit^HL79901|||20090817092040-0400||5^mL|||||20090
817192040-0400|BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^
^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818170532-0400|||F||1&^^^20
090817^^R||||||||||1||<CR>

ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16
.840.1.113883.3.59.2:3001&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.
59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hos
pital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W
 1E1^CAN^B||||CCC<CR>

OBX|1|NM|4544-3^HEMATOCRIT:VFR:PT:BLD:QN:AUTOMATED COUNT^HL79902||43||40-52|N|||F
||||||^<CR>

ZBX|20090818041001-0400||DJIEJ<CR>

BLG|||SELF|<CR>
```

Notes

1. The query requests all laboratory information updates for Dr. Richards since midnight on August 17th, 2009 based on the timestamp in the OBR.22 *Results Rpt/Status Chng – Date/Time field* which is maintained by OLIS.
2. This message can repeat at the PID level onwards to communicate laboratory information updates for multiple patients.
3. This message may return test requests that are in any of the possible test request states. A test request in the ordered, collected, or expired state will not be followed by OBX-ZBX

	segment pairs as there are no results to report. 4. The query response is essentially the same for the Retrieve Laboratory Information for Laboratory and Retrieve Laboratory Information for Ordering Facility queries.

10.3.2.8.2 Practitioner Query (Z04) Initiated by the Requesting HIC (Practitioner)

Scenario # 34	**Dr Reed Richards retrieves lab reports on his own behalf, or his EMR solution retrieves lab reports automatically on his behalf. Note that the Initiating Person Local Identifier (FHT-EMR\Reed.Richards) contains the \E\ escape sequence to represent the HL7 reserved backslash character.**
Message Type	Query Message – SPQ^Z04
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090821100000-0400||SPQ^Z04^SPQ_Q08|TAG000022|T|2.3.1||||||8859/1<CR> ZSH|FHT-EMR\E\Reed.Richards|Reed Richards<CR> SPR|QRYTAG126|R|Z_QryLabInfoUpdatesForPractitionerID^^HL70471|@OBR.22^20090817000000-0500~@ZRP.1.1^926279~@ZRP.1.13^MDL~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Richards~@ZRP.1.3^Reed~@ZRP.1.4^|<CR>

10.3.2.9 UC-<310> Retrieve Lab Order for Patient Example

10.3.2.9.1 Retrieve Lab Order information for patient – Z11

Scenario # 35	**Walk-In" Patient Query Example (2.9.30)**
Message Type	Query Message – SPQ^Z11
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20230201111500-0500||SPQ^Z11^SPQ_Q08|TAG987651|P|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabOrderForPatientID^^HL70471|@OBR.22^20230201090000-0500~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19271127~@ZRP.1.1^2.16.840.1.113883.3.59.1:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Huronia District Hospital~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	The query can return unfulfilled orders in ordered, collected or cancelled status. The default behaviour of the query is to return unfulfilled orders in ordered status. To override the default behaviour, add the @OBR.25 parameter to the list of parameters along with the desired value(s) to be queried. Some examples are listed below: To query ordered and collected orders add `@OBR.25^O&I` To query only cancelled orders add `@OBR.25^X`

10.3.2.9.2 Superior Medical Laboratories queries OLIS for unfulfilled orders of Bruce H Banner – Z11

Scenario # 36A	**Superior Medical Laboratories queries OLIS for unfulfilled orders of Bruce H Banner.**
Message Type	Query Message – SPQ^Z11
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.2:3001^ISO|SampleConformanceID1|^OLIS^X500||20090817134500-0400||SPQ^Z11^SPQ_Q08|TAG000007|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QRYTAG123|R|Z_QryLabOrderForPatientID^^HL70471|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308~@ZRP.1.1^2.16.840.1.113883.3.59.3:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Superior Medical Laboratories~@ZRP.1.3^~@ZRP.1.4^|<CR>
Notes	1. The patient ID and earliest point in time to search for test requests are specified in the SPR.4 *Input Parameter List* field. The Ontario Health Card version code is not required in a query message. 2. The SPR.1 *Query Tag* field contains an identifier (QRYTAG123) that will be returned in the query response message.

	3. The Query Event (Z11) corresponds to the stored procedure name (Z_QryLabOrderForPatientID) in the SPR.3 *Stored Procedure Name* field. 4. The Requesting HIC is identified as Superior Medical Laboratories in the @ZRP.1 parameter. Refer to the @ZRP.1 parameter definition in section 10.2.4.8 Query Parameters Matrix on page 150. 5. The person who initiates the query is asserted in the ZSH segment.
Scenario # 36A	**OLIS response message for Bruce H Banner's Orders.**
Message Type	**Query Response Message – ERP^Z99**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.2:3001^ISO||20090818161829-0400||ERP^Z99^ERP_R09|TAG000007|T|2.3.1||||||8859/1<CR> MSA|AA|TAG000007<CR> QAK|QRYTAG123|OK|<CR> ERQ||R09|@OBR.22^20090817000000-0400~@PID.3.1^1010559308~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19310308^@ZRP.1.1^2.16.840.1.113883.3.59.3:4004~@ZRP.1.13^ISO~@ZRP.1.22.1^~@ZRP.1.22.3^~@ZRP.1.2^Superior Medical Laboratories~@ZRP.1.3^~@ZRP.1.4|<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157^|||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||38830945^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|1|38830945A^^2.16.840.1.113883.3.59.2:3001^ISO||TR10481-0^Hemoglobin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR> ORC||||38830945^^2.16.840.1.113883.3.59.2:3001^ISO|||||20090817092540-0400||||||||||||||||<CR> OBR|2|38830945B^^2.16.840.1.113883.3.59.2:3001^ISO||TR10186-5^Ferritin^HL79901|||20090817092040-0400||5^mL||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425^|||||20090818160135-0400|||O||1&^^^20090817^^R|925642^TAKAHAMA^HALLIE^^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||1||^Sample specimen collection comment<CR> ZBR||North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|North Bay SCC^^^^^&2.16.840.1.113883.3.59.2:3001&ISO|||||||||<CR> BLG|||SELF|<CR>
Notes	1. The QAK.1 *Query Tag* field echoes the query identifier back to the external system. 2. The QAK.2 *Query Response Status* field indicates that the query message was valid and that data was returned by the query. 3. The ERQ.3 *Input Parameter List* field echoes the input parameters back to the external system. 4. The OBR.22 *Results Rpt/Status Change Date/Time* field communicates a timestamp recorded by OLIS when the test request was last changed. This timestamp falls within the start and end timestamps in the query parameters. 5. The ORC.1 *Order Control* fields are not populated in this message because query messages do not change laboratory information.

10.3.2.10 UC-<309> Identify Patient by Name, Sex, and Date of Birth Examples

10.3.2.10.1 Identify Patient by Name, Sex, and Date of Birth – Z50

Will be deprecated in the future

Scenario # 35	Identify Patient by Name, Sex, and Date of Birth
Message Type	Query Message – SPQ^Z50
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500| |20090821100000-0400||SPQ^Z50^SPQ_Q08|TAG000025|T|2.3.1||||||8859/1<CR> SPR|QRYTAG133|T|Z_IDPatientByNameSexDoB^^HL70471|@PID.5.1^Storm~@PID.5.2^Susan~@PID.5.3^S~@PID.7^19870218~@PID.8^F<CR>
Notes	
Scenario # 35	OLIS Response to Patient Identity Query
Message Type	Query Response Message – TBR^Z98
Message Example	MSH|^~\&|^OLIS^L||^2.16.840.1.113883.3.239.14:AZ123^ISO||20090821121637-0400||TBR^Z98^TBR_R08|TAG000025|T|2.3.1||||||8859/1|<CR> MSA|AA|TAG000025<CR> QAK|QRYTAG133|OK|<CR> RDF|31|PID.3.1^ST^25~PID.3.5^ST^15~PID.3.9.1^ST^20~PID.3.9.3^ST^20~PID.3.4.2^ST^255~PID.3.4.3^ST^6~PID.5.1^ST^30~PID.5.2^ST^20~PID.5.3^ST^20~PID.5.4^ST^10~PID.5.5^ST^10~PID.5.7^ID^1~PID.8^ST^1~PID.7^DT^8~PID.11.1^ST^32~PID.11.2^ST^32~PID.11.3^ST^30~PID.11.4^ST^2~PID.11.5^ST^10~PID.11.6^ID^3~PID.11.7^ID^3~OBR.16.1^ST^25~OBR.16.2^ST^30~OBR.16.3^ST^20~OBR.16.4^ST^20~OBR.16.5^ST^10~OBR.16.6^ST^10~OBR.16.13^ID^15~OBR.16.22.1^ST^3~OBR.16.22.2^ST^20~OBR.16.22.3^ST^20|<CR> RDT|1000323822|JHN|ON|HL70347|||STORM|SUSAN|S|||U|F|19870218|124 Main street||Toronto|ON|M4K 4P4||B|926279|RICHARDS|REED|FAN|||MDL|ON|Ontario|HL70347<CR> RDT|1234567890|MR|||2.16.840.1.113883.3.59.1:4004|ISO|STORM|SUSAN|S|||U|F|19870218|444 Cottage Road||STOUFFVILLE|ON|L4A 0L9||B|921379|Blake|Donald||||MDL|ON|Ontario|HL70347<CR>
Notes	1. The query requests patient information for last name "Storm", first name "Susan", birth date of February 18, 1987, and female sex according to matching criteria defined within OLIS. 2. The query response message returns the result set in tabular format containing two candidate patient identifiers.

10.3.2.11 UC-<401> Create Referred-out Order Examples and UC-<402> Report Test Result against Referred-out Order

10.3.2.11.1 Hospital Creates Order to be fulfilled by an External Laboratory

Scenario # 36	Hospital Creates Order to be Fulfilled by an External Laboratory
Message Type	Order Message – ORM^O01
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090821111500-0400||ORM^O01^ORM_O01|TAG000021|P|2.3.1||||||8859/1<CR> PID|1||1010559308^^^^JHN^^^^ON&Ontario&HL70347^^PQ||BANNER^BRUCE^H^^^^U||19310308|M<CR> PV1|1|Z<CR> ORC|NW|||O0080130BB3^^2.16.840.1.113883.3.59.1:4004^ISO||||20090821111400-0400|||||||||||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO<CR> OBR|1|O08809769142503^^2.16.840.1.113883.3.59.1:4004^ISO||TR11561-8^Antibody Screen^HL79901|||20090821103000-0400||||||||BLD&Whole Blood&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347||||||||I||1&^^^20090821^^R<CR> ZBR||Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||||Fictitious Facility Hospital Laboratory Name^^^^^&2.16.840.1.113883.3.59.1:4008&ISO||||D<CR> BLG|||SELF<CR>
Notes	1. A hospital that does not have a laboratory may identify itself within the ORC.21 *Ordering Facility* field when creating an order and identify the destination laboratory in the ZBR segment so that the laboratory can retrieve the order when it executes the *Retrieve*

	Laboratory Information Updates for Laboratory query. The hospital also identifies itself in the ZBR segment as the *Test Request Placer* (ZBR.2) and *Specimen Collector* (ZBR.3). 2. The hospital may specify the patient location and attending and admitting practitioners in the PV1 segment if this is useful to the hospital. 3. The hospital can monitor the status of the order and retrieve test results as they become available by executing the *Retrieve Laboratory Information Updates for Ordering Facility* query. 4. The Referred Test Indicator flag should be set to 'D' in a redirect message.

10.3.2.11.2 Redirect Order Message Example

Scenario # 37	Superior Medical Laboratories updates a test request in OLIS to redirect it to Esoterica Lab Services by identifying it as the destination lab.
Message Type	**Order Amendment Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20051231235959-0500||ORM^O01^ORM_O01|TAG123456|P|2.3.1||||||8859/1<CR> PID|...<CR> ORC|XO...<CR> OBR|...<CR> ZBR||||||||Esoterica Lab Services^^^^^&2.16.840.1.113883.3.59.1:5888&ISO|||| <CR> ...
Notes	1. Esoterica Lab Services is identified as the destination Laboratory in the ZBR.8 *Destination Laboratory* field. Esoterica Lab Services will retrieve this test request when it executes the *Retrieve Laboratory Information Updates for Destination Laboratory* query. 2. The Referred Test Indicator is not required to be set to 'D' in an Order Amendment message once a value was set in the initial order message.

10.3.2.12 Use Case Combination Scenarios

10.3.2.12.1 Pap smear Order and Result Message Examples – UC-<101>, UC-<202>

Scenario # 38	Order Pap Smear Test
Message Type	**Order Message – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20090820111500-0400||ORM^O01^ORM_O01|TAG000023a|P|2.3.1||||||8859/1<CR> PID|1||1000323822^^^^JHN^^^^ON&ONTARIO&HL70347^^||STORM^SUSAN^S^^^^U||19870218|F|||124 Main street^^Toronto^ON^M4K 4P4^CAN^B||^PRN^PH^^^416^7778888<CR> PV1|1|Z<CR> ORC|NW|||3222832^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090820111459-0400<CR> OBR|1|7022824^^2.16.840.1.113883.3.239.14:AZ123^ISO||TR10744-1^Papanicolaou Smear Liquid Based^HL79901|||20090820090000-0400||||||||CVX&Cervix&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||I||1^^^20090820^^R<CR> ZBR||Springfield Family Health Team^^^^^&2.16.840.1.113883.3.239.14:AZ123&ISO|The_Ordering_Practitioner<CR> OBX|1|DT|8665-2^Date last menstrual period:TmStp:Pt:\S\Patient:Qn:Reported^LN||20050415||||||Z|||20090820000000-0400<CR> ZBX|20090820000000-0400<CR> BLG|||SELF<CR>
Notes	1. Specimen and other related information relating to the order (such as LMP) could alternatively be communicated in a NTE segment instead of the OBX at the same

	position, as follows:
	`NTE|1|P|Last menstrual period date is 2005-04-15|RE<CR>`
	`ZNT|^2.16.840.1.113883.3.239.14:AZ123^ISO<CR>`
	2. In any subsequent ORU messages, it is not necessary for the lab to echo the ancillary information (LMP) back to OLIS.

Scenario # 38	**Report Pap Smear Test Result**
Message Type	**Result Message – ORU^R01**
Message Example	`MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500||20090821113000-0400||ORU^R01^ORU_R01|TAG000023b|P|2.3.1||||||8859/1<CR>` `PID|1||1000323822^^^^JHN^^^^ON&ONTARIO&HL70347^^||STORM^SUSAN^S^^^^U||19870218|F|||124 Main street^^Toronto^ON^M4K 4P4^CAN^B||^PRN^PH^^^416^7778888<CR>` `PV1|1|Z<CR>` `ORC||||3222832^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20090821111259-0400<CR>` `OBR|1|7022824^^2.16.840.1.113883.3.239.14:AZ123^ISO|898877116^^2.16.840.1.113883.3.59.1:4004^ISO|TR10744-1^Papanicolaou Smear Liquid Based^HL79901|||20090820090000-0400||||||20090820100000-0400|CVX&Cervix&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20090820^^R<CR>` `ZBR|||The_Ordering_Practitioner|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|Huronia District Hospital^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|3270 Dundas St. East^^Anytown^ON^M5W 1E1^CAN^B|||ABC010<CR>` `OBX|1|FT|19763-2^SPECIMEN SOURCE:PRID:PT:CVX/VAG:NOM:CYTO STAIN^HL79902||Pap smear\.sp\Spatula and brush not provided||||||F<CR>` `ZBX|20090821101500-0400|KKKKK<CR>` `OBX|2|FT|19764-0^STATEMENT OF ADEQUACY:IMP:PT:CVX/VAG:NOM:CYTO STAIN^HL79902||Specimen is satisfactory for evaluation, but limited by no endocervical component in a premenopausal woman who has a cervix.||||||F<CR>` `ZBX|20090821101500-0400<CR>` `OBX|3|FT|XON10013-1^DIAGNOSIS/INTERPRETATION:IMP:PT:XXX:NAR^HL79902||Within Normal limits||||||F<CR>` `ZBX|20090821101500-0400|LLLLL<CR>` `BLG|||SELF<CR>`
Notes	1. The data types of the OBXs in these examples are FT (formatted text) which allows the use of the HL7-specified formatting characters (refer to section 0 *Formatted Text Data* on page 129). The ST and TX data types also support these formatting characters. According to the HL7 Standard, the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

10.3.2.12.2 Surgical Pathology Order and Result Message Examples – UC-<101>, UC-<202>

Scenario # 39	**Surgical Pathology Order**
Message Type	**Order Message – ORM^O01**

Message Example	`MSH|^~\&|^2.16.840.1.113883.3.59.3:2244^ISO|SampleConformanceID1|^OLIS^X500||20050825090000-0400||ORM^O01^ORM_O01|TAG123456|P|2.3.1||||||8859/1<CR>`
	`PID|1||5427888498^^^^JHN^^^^ON&Ontario&HL70347^^VC||Smith^Mary^Jane^^^^U||19651127|F|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR>`
	`PV1|1|Z<CR>`
	`ORC|NW|||28830934^^2.16.840.1.113883.3.59.3:2244^ISO|||||20050823135459-0400<CR>`

	OBR|1|28830934A^^2.16.840.1.113883.3.59.3:2244^ISO||TR10748-2^Surgical Pathology^HL79901|||20050825085800-0400||||||||TISS^Tissue^HL70070|12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||I||1^^^20050823^^R<CR> ZBR||Anytown Memorial Hospital^^^^^&2.16.840.1.113883.3.59.3:2244&ISO|Anytown Memorial Hospital^^^^^&2.16.840.1.113883.3.59.3:2244&ISO<CR> NTE|1|P|Specimen #1: Right needle localization specimen long lateral, short superior\.sp\Specimen #2: Rt new post margin|RE<CR> ZNT|^2.16.840.1.113883.3.59.3:2244^ISO<CR> BLG|||SELF<CR>
Scenario # 39	**Report Surgical Pathology Test Result**
Message Type	**Result Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.3:2244^ISO|SampleConformanceID1|^OLIS^X500||20050825091500-0400||ORU^R01^ORU_R01|TAG456789|P|2.3.1||||||8859/1<CR> PID|1||5427888498^^^^JHN^^^^ON&Ontario&HL70347^^VC||Smith^Mary^Jane^^^^U||19651127|F|||123 Maple St^^Anytown^ON^M5W 1E6^CAN^H||^PRN^PH^^^705^7777157<CR> ORC||||2112911^^2.16.840.1.113883.3.239.14:AZ123^ISO|||||20050823135459-0400<CR> OBR|1|8012983^^2.16.840.1.113883.3.239.14:AZ123^ISO|123123123^^2.16.840.1.113883.3.31.1.1:5999^ISO|TR10748-2^Surgical Pathology^HL79901|||20050825085800-0400|||||||20050825120000-0400|TISS^Tissue^HL70070|12345^Welby^Marcus^^^Dr^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|^WPN^PH^^^705^2343425||||||||F||1^^^20050823^^R<CR> ZBR|||Anytown Memorial Hospital^^^^^&2.16.840.1.113883.3.59.3:2244&ISO|Anytown Memorial Hospital^^^^^&2.16.840.1.113883.3.59.3:2244&ISO|58 Bridge St.^^Anytown^ON^M5W 1E6^CAN^B|Anytown Memorial Hospital^^^^^&2.16.840.1.113883.3.59.3:2244&ISO|58 Bridge St.^^Anytown^ON^M5W 1E6^CAN^B|||P2112SP<CR> OBX|1|FT|XON10012-3^MACROSCOPIC FINDINGS:FIND:PT:XXX:NAR^HL79902||#1 – The specimen container labelled with the patient's name and as "right new posterior margin", contains two...\.sp\#2 – The specimen container 254ubscri with the patient's name and as "right needle localization specimen long lateral, short superior" conatins an orientated piece of fibroadipose tissue received fresh...||||||F<CR> ZBX|20050825091455-0400|P2112SP-A<CR> OBX|2|FT|XON10013-1^DIAGNOSIS/INTERPRETATION:IMP:PT:XXX:NAR^HL79902||In situ duct carcinoma is present in one apparently continuous area from slice...||||||F<CR> ZBX|20050825091455-0400|P2112SP-B<CR> BLG|||SELF<CR>
Notes	1. The test result codes indicate XXX which indicates that the specimen source is located in the OBR.15 *Specimen Source* field. 2. The data types of the OBXs in these examples are FT (formatted text) which allows the use of the HL7-specified formatting characters (refer to section 0 *Formatted Text Data* on page 129), but where these are not required, the data types could be ST (string) or (TX) text. According to the HL7 Standard, the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used. 3. The test result text has been abbreviated with ellipses for brevity.

10.3.2.12.3 Referred Scenario Workflow Examples – UC-<401>, UC-<402>, UC-<305>, UC-<306>

Scenario # 40	**Referred Scenario Workflow**
Message Type	**Reference Order Message – ORM^O01**
Message	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|BSD 4004|^OLIS^X500||20090520090000-040

Example	0||ORM^O01^ORM_O01|RCT01.1|T|2.3.1||||||8859/1<CR> PID|1||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114|F|||^^^^^^||^^^^^^^|||||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^<CR> ORC|NW|||RCT01.1^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090519090000-0400||||||||||||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO<CR> OBR|1|RCT01.1-01^^2.16.840.1.113883.3.59.1:4004^ISO||TR10220-2^Glucose^HL79901|||20090519080000-0400||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347|||||||||I||1^^^20090519000000-0400^^R<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||||Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|||221.5901|Y<CR> BLG|||SELF<CR>
Notes	1. Ordering Facility is supplied in ORC.21 2. Specimen data is supplied in OBR.7 and OBR.15 3. Test Request Status "I" is supplied in OBR.25 4. Destination Lab is supplied in ZBR.8 5. Referred Test Indicator Flag "Y" is indicated in ZBR.12
Scenario # 40	**Z05 Query Message: ("What's New for Destination Lab" to retrieve order from previous step)**
Message Type	Query Message – SPQ^Z05
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|MDS-JCAPS|^OLIS^X500||20090520122224-0400||SPQ^Z05^SPQ_Q08|20090520-000004|T|2.3.1||||||8859/1<CR> ZSH|123976456|John Henry Everyman<CR> SPR|61501-2|R|Z_QryLabInfoUpdatesForLaboratoryID^^HL70471|@ZBR.8.6.2^2.16.840.1.113883.3.59.1:5028~@ZBR.8.6.3^ISO~@OBR.22^20090519230914-0400&20090520122212-0400<CR>
Notes	1. Start and End Timestamp are supplied in @OBR.22 2. Destination Laboratory is supplied in @ZBR.8
Scenario # 40	**Z99 Query Response Message Fragment:**
Message Type	Z99 Query Response Message – ERP^Z99
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.1:4004^ISO||20090520122326-0400||ERP^Z99^ERP_R09|61501.4|T|2.3.1||||||8859/1<CR> MSA|AA|61501.4<CR> QAK|61501-2|OK|<CR> ERQ||R09|@OBR.22^20090519230914-0400&20090520122212-0400~@ZBR.8.6.2^2.16.840.1.113883.3.59.1:5028~@ZBR.8.6.3^ISO|<CR> PID|10||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114|F||||||||||||||||||||<CR> PV1|1|Z|||||^^^^^^^^^^^^^^^^^^^^^|||||||||||^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||RCT01.1^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090519090000-0400||||||||||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||<CR> OBR|1|RCT01.1-01^^2.16.840.1.113883.3.59.1:4004^ISO||TR10220-2^Glucose^HL79901|||20090519080000-0400||||||||SER&Serum&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^^ON&Ontario&HL70347||||||20090520110837-0400|||I||1&^^^20090519000000-0400^^R||||||||||<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||||Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|||221.5901|Y<CR> BLG|||SELF|<CR>
Notes	Results Rpt/Status Chng – Date/Time in OBR.22 matches Start and End Timestamp supplied in @OBR.22 from previous query.

Scenario # 40	**Report Message: (to result the reference order retrieved in the previous step)**
Message Type	**Result Message – ORU^R01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|MDS-JCAPS|^OLIS^X500||20090520131107-0400||ORU^R01^ORU_R01|20090520-000006|T|2.3.1||||||8859/1<CR> PID|1||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114|F|||||<CR> PV1|1|I|||||<CR> ORC||||RCT01.1^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090520130600-0400||||||||||||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||<CR> OBR|1|RCT01.1-01^^2.16.840.1.113883.3.59.1:4004^ISO|09ZZ1400016100^^2.16.840.1.113883.3.59.1:5028^ISO|TR10220-2^Glucose^HL79901|||20090519080000-0400|||||||20090520130635-0400|SER&SERUM&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario&HL70347|||||||||F||1&^^^20090519000000-0400^^R||<CR> ZBR|||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|100 International Blvd.^^TORONTO^ON^M9W 6J6^CAN^B|Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|100 International Blvd.^^Etobicoke^ON^M9W 6J6^CAN^B||||AA12SP-A<CR> OBX|1|NM|14749-6^GLUCOSE:SCNC:PT:SER/PLAS:QN^HL79902||4.2|mmol/L|3.6 – 6.9||||F|||<CR> ZBX|20090520131059-0400|4000-1-42215000<CR> BLG|||SELF<CR>
Notes	1. Placer Group Number is preserved in ORC.4 2. Placer Order Number is preserved in OBR.2 3. Filler Order Number is supplied in OBR.3 4. Specimen Received Date/Time is supplied in OBR.14 5. Test Request Status Flag "F" is supplied in OBR.25 6. Original Test Request Placer and Specimen Collector are preserved in ZBR.2 / ZBR.3 7. Reporting and Performing Lab and addresses are supplied in ZBR.4 / ZBR.5 / ZBR.6 / ZBR.7
Scenario # 40	**Z06 Query Message: ("What's New for Ordering Facility" to retrieve resulted reference order from previous step)**
Message Type	**Query Message – SPQ^Z06**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|BSD 4004|^OLIS^X500||20070317111034+0000||SPQ^Z06^SPQ_Q08|LR_0003a|T|2.3.1||||||8859/1|<CR> ZSH|123976456|John Henry Everyman<CR> SPR|QueryTag:BT_0003a|R|Z_QryLabInfoUpdatesForHCFID^^HL70471|@OBR.22^20090520090000-0400&20090521090000-0400~@ORC.21.6.2^2.16.840.1.113883.3.59.1:4004~@ORC.21.6.3^ISO|<CR>
Notes	1. Start and End Timestamp are supplied in @OBR.22 2. Ordering facility is supplied in @ORC.21
Scenario # 40	**Z99 Query Response Message:**
Message Type	**Query Response Message – ERP^Z99**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.1:4004^ISO||20090626164124-0400||ERP^Z99^ERP_R09|LR_0003a|T|2.3.1||||||8859/1<CR> MSA|AA|LR_0003a<CR> QAK|QueryTag:BT_0003a|OK|<CR> ERQ||R09|@OBR.22^20090520090000-0400&20090521090000-0400~@ORC.21.6.2^2.16.840.1.113883.3.59.1:4004~@ORC.21.6.3^ISO|<CR> PID|1||1000507747^^^^JHN^^^^ON&ONTARIO&HL70347^^XC||Tsukino^Usagi^^^^^U||19511114|F

	||||||||||||||||||||||<CR> PV1|1|I|||||^^^^^^^^^^^^^^^^^^^^^^||||||||||^^^^^^^^^^^^^^^^^^^^^^<CR> ORC||||RCT01.1^^2.16.840.1.113883.3.59.1:4004^ISO|||||20090520130600-0400|||||||||| ||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|||<CR> OBR|1|RCT01.1-01^^2.16.840.1.113883.3.59.1:4004^ISO|09ZZ1400016100^^2.16.840.1.1138 83.3.59.1:5028^ISO|TR10220-2^Glucose^HL79901|||20090519080000-0400|||||||2009052013 0635-0400|SER&SERUM&HL70070|926279^RICHARDS^REED^FAN^^^^^^^^^MDL^^^^^^^^^ON&Ontario &HL70347||||||20090520131205-0400|||F||1&^^^20090519000000-0400^^R|||||||||||<CR> ZBR||BSD Lab4^^^^^&2.16.840.1.113883.3.59.1:4004&ISO|BSD Lab4^^^^^&2.16.840.1.11388 3.3.59.1:4004&ISO|Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|100 International Blvd.^^TORONTO^ON ^M9W 6J6^CAN^B|Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|100 International Blvd.^^Etobicoke^ ON^M9W 6J6^CAN^B|Marvell Laboratories – Toronto^^^^^&2.16.840.1.113883.3.59.1:5028&ISO|||221.5901|Y<CR> OBX|1|NM|14749-6^GLUCOSE:SCNC:PT:SER/PLAS:QN^HL79902||4.2|mmol/L|3.6 – 6.9||||F||||||^<CR> ZBX|20090520131059-0400|P90125<CR> BLG|||SELF|<CR>
Notes	1. Results Rpt/Status Chng – Date/Time in OBR.22 matches Start and End Timestamp supplied in @OBR.22 from previous query 2. Referred Test Indicator Flag "Y" is preserved in ZBR.12

10.3.2.12.4 Test Request Blocking Scenarios – UC-<101>, UC-<102>, UC-<301>, UC-<304>

Scenario # 41	**When creating or amending a test request, the ordering practitioner may indicate that access to the test request and its test result(s) be restricted to the practitioners named on the order and the laboratory that reported the test result. A value of "Y" is specified in the ZBR.1 *Test Request Blocking Indicator* field. The practitioner cannot later amend the test request to remove the blocking indicator.**
Message Type	**Order or Order Amendment Message , Blocking the Test Request – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500|| 20051231235959-0500||ORM^O01^ORM_O01|TAG123456|P|2.3.1||||||8859/1<CR> PID|...<CR> ORC|...<CR> OBR|...<CR> ZBR|Y<CR> ...
Notes	
Scenario # 41	**The following query message attempts to access the laboratory information of a patient who has withdrawn consent (patient-level block):**
Message Type	**Order Amendment Message Fragment, Unblocking the Test Request – ORM^O01**
Message Example	MSH|^~\&|^2.16.840.1.113883.3.59.1:4004^ISO|SampleConformanceID1|^OLIS^X500|| 20051231235959-0500||ORM^O01^ORM_O01|TAG123456|P|2.3.1||||||8859/1<CR> PID|...<CR> ORC|...<CR> OBR|...<CR> ZBR|""<CR> ...
Notes	Practitioners who are not named on an order containing blocked information cannot retrieve the test requests and results that are blocked.
Scenario # 41	**Midwife Lauren Kidwell queries OLIS for the patient and encounters a warning**

	that OLIS has not returned some of the patient's laboratory information because it is blocked and she does not have a record in OLIS of consent to view blocked laboratory information. Query Response Message Does Not Retrieve Blocked Laboratory Information.
Message Type	**Query Response Message – ERP^Z99**
Message Example	MSH|^~\&|^OLIS^X500||^2.16.840.1.113883.3.59.1:4004^ISO||200506134505-0400||ERP^Z99^ERP_R09|19992DA7-B233-477E-B37C-584D0011BAF7|P|2.3.1||||||8859/1<CR> MSA|AA|TAG987654<CR> ERR|^^^320&Warning: Some or all of the requested laboratory information was not returned due to a patient consent directive. If appropriate, the query may be resubmitted with an override.&HL70357<CR> QAK|QRYTAG123|OK<CR> ERQ||R09|@OBR.22^20050601000000-0400~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19271127~@ZRP.1.1^9119~@ZRP.1.13^ML~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Kidwell~@ZRP.1.3^Lauren~@ZRP.1.4<CR> *(laboratory information that is not blocked follows in the usual ERP message format)*
Notes	
Scenario # 41	**Query Message to Establish Temporary Consent to View Blocked Laboratory Information**
Message Type	**Query Message – SPQ^Z01**
	MSH|^~\&|^2.16.840.1.113883.3.239.14:AZ123^ISO|SampleConformanceID1|^OLIS^X500||20050601134500-0400||SPQ^Z01^SPQ_Q08|TAG987654|P|2.3.1||||||8859/1<CR> ZSH|123976456|Lauren V Kidwell<CR> SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.7^20050601000000-0400~@PID.3.1^1234567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@PID.7^19271127~@ZRP.1.1^9119~@ZRP.1.13^ML~@ZRP.1.22.1^ON~@ZRP.1.22.3^HL70347~@ZRP.1.2^Kidwell~@ZRP.1.3^Lauren~@ZRP.1.4^@ZPD.1^Z<CR>

11 Communications Protocol

11.1 Overview

This section describes the details of the OLIS Message Transport Protocol Specification and the OLIS Web Services Interface.

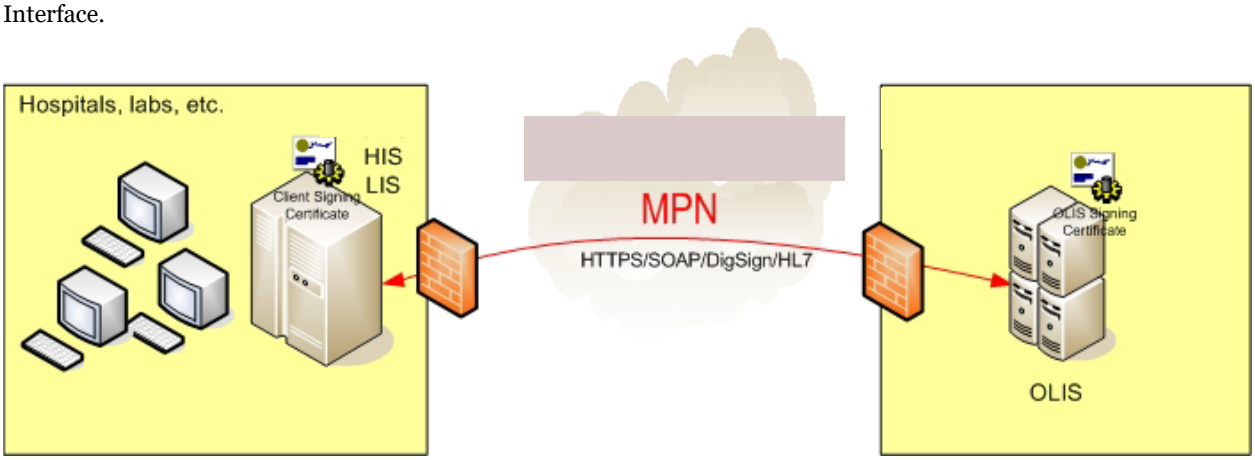


Figure 48 OLIS Web Service

OLIS is implemented as a web service. The web service has a single method, *OLISRequest*, and it synchronously returns a single response, OLISResponse. The request contains the HL7 content for any of the OLIS operations (order, update, query, etc.) and the response contains the corresponding HL7 response to the request.

The OLIS web service call is made over a mutually authenticated HTTPS connection. Digital certificates issued by Ontario Health are used by the TLS protocol on both ends of the web service communication to mutually authenticate and encrypt all communication to and from OLIS.

The data passed to the OLISRequest method and the data returned in the response is digitally signed. It is the responsibility of the client application to digitally sign the OLIS request data and to verify the digital signatures on responses from the OLIS system.

Familiarity with web services, XML and, to some extent, certificates and PKI, is recommended.

11.2 HTTPS

OLIS transactions are sent over the HTTPS protocol – HTTP over a connection secured by TLS. OLIS requires and enforces that HTTPS mutual authentication be used. This means that both ends of the secure connection have authenticated the other party using public key technology.

To enable HTTPS mutual authentication, one needs:

1. An application framework that supports TLS v1.2. Most operating systems and application frameworks support this, including .Net, Java, etc.
2. A certificate (and corresponding private key) issued by the Ontario Health Public Key Infrastructure (PKI). This certificate will be obtained as part of the OLIS registration and enrolment process.
3. To configure the application framework being used to support TLS client authentication. Often this means configuring the toolkit/API, before attempting the HTTPS connection, to use a particular certificate (your Ontario Health issued certificate) if prompted for client authentication by the TLS server.
4. A list of supported cryptographic algorithms for use with TLS (this list is sent to the server when the connection is being initiated). See Algorithms. This list is sometimes explicitly set or is set based on a default set in the framework or operating system.

5. To configure the application framework being used to trust the Ontario Health CA certificate. This will be used during the HTTPS initial handshake to verify the HTTPS server certificate (which is also issued by Ontario Health).
6. Network connectivity to the Ontario Health PKI LDAP directory (available via the Ontario Health MPN) so that the cryptographic toolkit can fetch the appropriate CRL and check that the server's certificate has not been revoked.

The DNS name and URL for the OLIS Web Services Interface will be published when available.

11.2.1 Algorithms

The RC4, 3DES and AES ciphers with key sizes of 128 bits or greater (depending on the algorithm) should be supported (at least RC4 or 3DES and, ideally, all of the algorithms). The SHA-1 message digest must be supported. Support for SHA-256, SHA-384, SHA-512 is recommended for future compatibility.

11.3 Communications

HTTPS communication uses TCP/IP port 443. Client systems must be able to communicate outbound on this port.

Communication with Ontario Health's LDAP directory, which is required to retrieve CRLs used in the validation of a certificate, uses TCP/IP port 389. Client systems must be able to communicate outbound on this port. This communication normally happens automatically as a result of verifying a certificate using a cryptographic toolkit.

11.4 Certificates

Client systems will be issued certificates for the purposes of HTTPS client authentication and digital signing by the Ontario Health Certification Authority. The same certificate can be used for both purposes.

You will also be given a copy of the Ontario Health CA certificate. This certificate will be used to validate signatures on all other Ontario Health-issued certificates. In the case of OLIS, it will be used to verify the TLS server certificate used to establish the HTTPS communication for the OLIS Web Service and to verify the digital signature on all responses returned from the OLIS system.

The Ontario Health CA certificate must be installed on the client machine as a trusted CA (or root) certificate for use with TLS and digital signature verification. The means to do this are system specific.

11.5 Message Exchange Overview

11.5.1 Overview

To submit a request to OLIS (any valid OLIS HL7 message), the *OLISRequest* web method is called on the OLIS web services interface by an EMR/HIS/LIS system (OLIS Client System). After processing the request, OLIS will return a response to the caller over the same communications channel (i.e. it is a synchronous transaction).

The maximum message size that can be sent is five megabytes (MB). Note that this size includes all overhead associated with the message (the outer SOAP layer, digital signing, base64 encoding, etc.) – the largest HL7 message that can be sent is approximately 3.5MB. Larger messages will be rejected.

OLIS request messages consist of two layers – an inner layer (Request) that contains the HL7 message and an outer layer (HIALRequest) that contains the inner layer digitally signed. See Figure 49 OLIS Message Layers.

The HL7 message is created by the EMR/HIS/LIS and is then placed into the Content element of a Request message. The Request is digitally signed using *PKCS#7-format* signing and then the resulting binary signature is *base64* encoded. The *base64* encoded signature is then put in the *SignedData* element of a *SignedRequest* message. The *SignedRequest* and a *unique client transaction ID* are put in a *HIALRequest* message.

The *HIALRequest* message is transmitted using SOAP to the OLIS Web Service *OLISRequest* method over the HTTPS (TLS over HTTP) transport protocol. This is a mutually authenticated session, with each party verifying the identity of the other through the use of digital certificates.

After processing the request message, OLIS will return a response message to the caller.

OLIS response messages are the same digitally signed format as the request messages (with all instances of Request replaced with Response). The only difference is that the innermost layer of the response message may contain an error collection if errors were encountered in the processing of the message.

Note: The outer signature layer obscures the inner layer; therefore, once the signature has been decoded and validated, an additional XML parsing of the signed data (which is XML format) must be performed to access the HL7 payload.

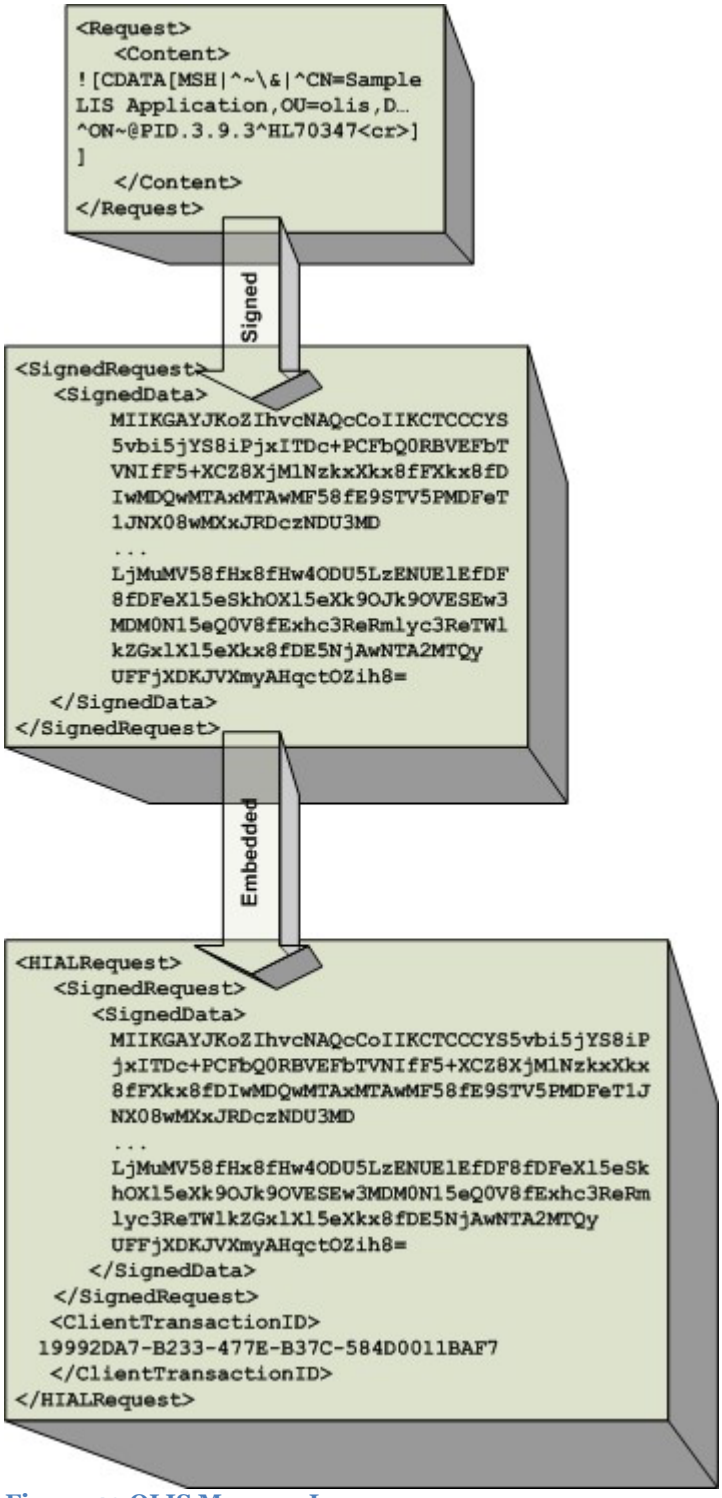


Figure 49 OLIS Message Layers

11.5.2 Client Transaction Identifier

Client Transaction IDs are unique, per-transaction identifiers that are located in the outermost layer of the HIALRequest and HIALResponse XML messages. Client systems set the transaction ID and the same transaction ID is returned in the response message.

Should there be a significant problem processing a particular transaction, this ID can be referred to on both sides of the OLIS system (client and server) to identify the transaction and troubleshoot the problem. Because the ID is in the outermost layer of OLIS messages, it can be seen in logs, network traces, etc.

Client systems must set the Client Transaction ID to the same value as that contained in the MSH.10 Message Control ID field in the embedded HL7 message.

11.5.3 Sending System Procedure

This procedure is followed by the EMR/HIS/LIS to create an OLIS message.

1. Create an OLIS HL7 message. Remember the MSH.10 value; it will be needed in step 6.
2. Place the HL7 message in the Content element of the Request XML message (refer to the Request XML Schema).
3. Digitally sign the Request message using a PKCS#7 format signature using a cryptographic toolkit. The Request XML, which contains the HL7, will be included within the signature.
4. Encode digital signature to Base64 (ASCII).
5. Create a SignedRequest message and embed the encoded signature in the SignedData element.
6. Create a HIALRequest message and set the SignedRequest element to the SignedRequest message. Set the ClientTransactionID element to MSH.10 value from the HL7 (Step 1).
7. Call the OLISRequest web method on the OLIS web service passing the HIALRequest message as the parameter.
8. The SOAP message will travel over a mutually authenticated HTTPS connection to the OLIS system.
9. When the web services method call returns, follow the steps in the Receiving System Procedure to obtain the HL7 response message.

11.5.4 Receiving System Procedure

This procedure is followed by the EMR/HIS/LIS when a SOAP message is returned.

1. Trap any XML SOAP faults (exceptions) that occur. If there are errors, stop.
2. The returned data is a HIALResponse XML message.
3. The ClientTransactionID in the HIALResponse will match that which was set when the message was sent. The SignedResponse element contains the digitally signed response.
4. From the SignedResponse, extract the encoded digital signature from its SignedData element.
5. Decode the digital signature from Base 64(ASCII). If there are errors, stop.
6. Verify the digital signature using a PKCS#7 cryptographic toolkit. If the signature verification fails, stop processing and return an error.
7. Extract the signed data (XML) from the digital signature – this is a Response message.
8. Check for errors as indicated by the Response Errors array element
9. If there are no errors, extract the HL7 from the Content element.
10. Process the HL7 response.

11.6 Errors

There are three different types of errors that can be returned from OLIS, each corresponding to the three layers of message formatting: SOAP, XML and HL7. These errors are indicated in SOAP Faults, XML Error elements, and HL7 error segments, respectively. These errors are exclusive of one another, i.e. if there is a SOAP Fault then there will not be an error included in the XML error field nor an HL7 error, etc.

11.6.1 XML SOAP Faults

XML SOAP faults result when a high level error occurs. Examples of these include: when a transaction is too large, when an unrecoverable web services error occurs, when a SOAP message can't be parsed, etc.

11.6.2 XML Error Codes (Response Errors)

If there are problems processing the XML message (the digital signature is missing/corrupted/invalid, a virus is detected, etc.), then an error will be indicated in the Response errors element in the returned XML.

11.6.3 Errors indicated in HL7 ERR Segments

If there are OLIS application-specific errors (wrong format of HL7, incorrect values in HL7 fields, an invalid OLIS query, etc.), then these will be indicated in the HL7 ERR segments returned by OLIS.

11.7 XML Message Definitions

11.7.1 Web Services Description Language (WSDL)

The following is the WSDL for the OLIS Web Service. This layer of the XML and the inner, signed layer are explained in detail in the following sections.

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions                              xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"      xmlns:tns="http://www.ssha.ca/2005/HIAL/"
xmlns:s1="http://www.ssha.ca/2005/HIAL"                xmlns:s="http://www.w3.org/2001/XMLSchema"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
targetNamespace="http://www.ssha.ca/2005/HIAL/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <s:schema elementFormDefault="qualified" targetNamespace="http://www.ssha.ca/2005/HIAL/">
      <s:import namespace="http://www.ssha.ca/2005/HIAL" />
      <s:element name="OLISRequest">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" ref="s1:HIALRequest" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="OLISRequestResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" ref="s1:HIALResponse" />
          </s:sequence>
        </s:complexType>
      </s:element>
    </s:schema>
    <s:schema elementFormDefault="qualified" targetNamespace="http://www.ssha.ca/2005/HIAL">
      <s:element name="HIALRequest" type="s1:HIALRequest" />
      <s:complexType name="HIALRequest">
        <s:sequence>
          <s:element   minOccurs="0"   maxOccurs="1"   form="unqualified"   name="SignedRequest"
type="s1:HIALRequestSignedRequest" />
          <s:element  minOccurs="0"  maxOccurs="1"  form="unqualified"  name="ClientTransactionID"
type="s:string" />
          <s:element   minOccurs="0"   maxOccurs="1"   form="unqualified"   name="SubmitterID"
type="s:string" />
          <s:element  minOccurs="0"  maxOccurs="1"  form="unqualified"  name="SubmitterFullName"
type="s:string" />
          <s:element   minOccurs="0"   maxOccurs="1"   form="unqualified"   name="SubmitterRole"
type="s:string" />
          <s:element minOccurs="0" maxOccurs="1" form="unqualified" name="SubmitterOrganization"
type="s:string" />
```

```
        </s:sequence>
      </s:complexType>
      <s:complexType name="HIALRequestSignedRequest">
        <s:sequence>
          <s:element    minOccurs="0"    maxOccurs="1"    form="unqualified"    name="SignedData"
type="s:string" />
        </s:sequence>
      </s:complexType>
      <s:element name="HIALResponse" type="s1:HIALResponse" />
      <s:complexType name="HIALResponse">
        <s:sequence>
          <s:element  minOccurs="1"  maxOccurs="1"  form="unqualified"  name="ClientTransactionID"
nillable="true" type="s:string" />
          <s:element   minOccurs="0"   maxOccurs="1"   form="unqualified"   name="SignedResponse"
type="s1:HIALResponseSignedResponse" />
        </s:sequence>
      </s:complexType>
      <s:complexType name="HIALResponseSignedResponse">
        <s:sequence>
          <s:element    minOccurs="0"    maxOccurs="1"    form="unqualified"    name="SignedData"
type="s:string" />
        </s:sequence>
      </s:complexType>
    </s:schema>
  </wsdl:types>
  <wsdl:message name="OLISRequestSoapIn">
    <wsdl:part name="parameters" element="tns:OLISRequest" />
  </wsdl:message>
  <wsdl:message name="OLISRequestSoapOut">
    <wsdl:part name="parameters" element="tns:OLISRequestResponse" />
  </wsdl:message>
  <wsdl:portType name="OLISSoap">
    <wsdl:operation name="OLISRequest">
      <wsdl:input message="tns:OLISRequestSoapIn" />
      <wsdl:output message="tns:OLISRequestSoapOut" />
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="OLISSoap" type="tns:OLISSoap">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="OLISRequest">
      <soap:operation soapAction="http://www.ssha.ca/2005/HIAL/OLIS/OLISRequest" style="document"
/>
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:service name="OLIS">
    <wsdl:port name="OLISSoap" binding="tns:OLISSoap">
      <soap:address location="https://olis.ssha.ca/SSHA.OLIS.WebServices.ER7/Olis.asmx" />
    </wsdl:port>
  </wsdl:service>
</wsdl:definitions>
```

The SubmitterID, SubmitterFullName, SubmitterRole, and SubmitterOrganization will be deprecated in the future and users are required to use ZSH.

There are a number of OLIS environments: Production, Client self-test, etc. Each environment has a different DNS name, but the Web Services interfaces are identical.

The following illustrates the structures required to send an OLIS request and parse a response in the order that the structures are created.

11.7.2 Request

A Request message is contained within a SignedRequest message. A Request contains the HL7 data to be sent to OLIS.

11.7.2.1 Request Elements

Table 92 Request Element

<Content>					
Required:	Y	**Type:**	String	**Format:**	HL7 (ASCII)
Description:	The message content – an HL7 message that is to be sent to OLIS.				
Notes:	The HL7 must be enclosed in a CDATA tag to stop data in the HL7 from being interpreted as XML.				

11.7.2.2 Request Schema

```
<?xml version="1.0" encoding="utf-16"?>
<xs:schema xmlns:tns="http://www.ssha.ca/2005/HIAL"  elementFormDefault="qualified"
xmlns:b="http://schemas.microsoft.com/BizTalk/2003" attributeFormDefault="unqualified"
targetNamespace="http://www.ssha.ca/2005/HIAL"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Request">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="1" name="Content" type="xs:string" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

11.7.2.3 Request XML Sample

The CDATA tag around the HL7 (in bold) is very important as it stops XML parsers from getting confused by the HL7 content – everything within the CDATA tag will be ignored by the parser. Always wrap the HL7 in the CDATA tag.

```
<Request xmlns="http://www.ssha.ca/2005/HIAL">
   <Content>
<![CDATA[MSH|^~\&|^CN=Sample Common Name of LIS System, OU=Applications, OU=SampleOU, OU=Subscr
ibers, DC=subscribers, DC=ssh^X500|SampleConformanceID1|^OLIS^X500||20050601134500-0400||SPQ^Z0
1^SPQ_Q08|TAG987654|P|2.3.1||||||8859/1<CR>ZSH|123976456|John Henry Everyman<CR>SPR|QRYTAG123|R|Z
_QryLabInfoForPatientID^^HL70471|@OBR.7^20050601000000-0400~@PID.3.1^12345678
90~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~
@PID.8^M~@PID.7^19271127<CR>]]>
   </Content>
```

```
</Request>
```

11.7.3 SignedRequest

A SignedRequest message contains a digitally signed Request message.

11.7.3.1 SignedRequest Elements

Table 93 SignedRequest Elements

<SignedData>					
Required:	Y	**Type:**	String	**Format:**	Base64-encoded PKCS#7 (ASCII)
Description:	This is the digitally signed Request message.				

11.7.3.2 SignedRequest Schema

See Web Services Description Language.

11.7.3.3 SignedRequest XML Sample


```
<SignedRequest xmlns="http://www.ssha.ca/2005/HIAL">
   <SignedData>
       MIIKGAYJKoZIhvcNAQcCoIIKCTCCCgUCAQExCzAJBgUrDgMCGgUAMIICLgYJKoZI
       hvcNAQcBoIICHwSCAhs8T0xJU1JlcXVlc3QgeG1sbnM9Imh0dHA6Ly93d3cuc3No
       YS5vbi5jYS8iPjxITDc+PCFbQ0RBVEFbTVNIfF5+XCZ8XjM1NzkxXkx8fF5PTElT
       Xkx8fDIwMDQwMTAxMTAwMF58fE9STV5PMDFeT1JNX08wMXxJRDczNDU3MDB8Uhwy
       LjMuMV58fHx8fHw4ODU5LzENUElEfDF8fDFeXl5eSkhOXl5eXk9Ojk9OVEFSSU8m
       Sew3MDM0N15eQ0V8fExhc3ReRmlyc3ReTWlkZGxlXl5eXkx8fDE5NjAwNTA2MTQy
       M158TQ1aUER8WQ1QVjF8MXxJDU9SQ3xOV3wxMDBeXjEyM15MfHwxMDFeXjEyM15M
       …data removed…
       MQwwCgYDVQQLEwNQS0kxOjA4BgNVBAMTMVNtYXJ0IFN5c3RlbXMgZm9yIEhlYWx0
       aCBBZ2VuY3kgUm9vdCBDQSAtIFRlc3RpbmcCBEAPYKMwCQYFKw4DAhoFAKBdMBgG
       CSqGSIb3DQEJAzELBgkqhkiG9w0BBwEwHAYJKoZIhvcNAQkFMQ8XDTA1MTAzMDEw
       NTgyMVowIwYJKoZIhvcNAQkEMRYEFL7MjE93nYi0U6zrO0mtFJL/NnVKMA0GCSqG
       Sib3DQEBAQUABIGADtYn0BJZc2LzzwY6Tfpn4tgQ/j9PjnKNZNXoPkj7Q1mPUE0O
       +qVvAgH+WL6YfZnMxQsJtjCqcKkHgJSlV3ZWzC7fi1sSuxPtJtROaAq7jimGiZ/2
       EC3ybadpru6a4JD5Z/r5aAzt5gErbCdRctUH/UFFjXDKJVXmyAHqctOZih8=
   </SignedData>
</SignedRequest>
```


11.7.4 HIALRequest

A HIALRequest message contains a SignedRequest message and a Client Transaction ID.

11.7.4.1 HIALRequest Elements

Table 94 HIALRequest Elements

<SignedRequest>					
Required:	Y	**Type:**	XML message	**Format:**	XML
Description:	This is the SignedRequest message.				

<ClientTransactionID>					
Required:	Y	**Type:**	String	**Format:**	Same as MSH.10
Description:	The value from the MSH.10 field in the HL7 message.				
<SubmitterID>					
Required:	Optional*	**Type:**	String		
Description:	Refer to the note that follows this table.				
<SubmitterFullName>					
Required:	Optional*	**Type**	String		
Description:	Refer to the note that follows this table.				
<SubmitterRole>					
Required:	Optional*	**Type:**	String		
Description:	Refer to the note that follows this table.				
<SubmitterOrganization>					
Required:	Optional*	**Type:**	String		
Description:	Refer to the note that follows this table.				

* *The SubmitterID, SubmitterFullName, SubmitterRole, and SubmitterOrganization will be deprecated in the future and users are required to use ZSH. HIALRequest Schema*

See Web Services Description Language.

11.7.4.2 HIALRequest XML Sample

```
<HIALRequest xmlns="http://www.ssha.ca/2005/HIAL">
   <SignedRequest xmlns="">
     <SignedData>
        hvcNAQcBoIICHwSCAhs8T0xJU1JlcXVlc3QgeG1sbnM9Imh0dHA6Ly93d3cuc3No
        YS5vbi5jYS8iPjxITDc+PCFbQ0RBVEFbTVNIfF5+XCZ8XjM1NzkxXkx8fF5PTElT
        …data removed…
        EC3ybadpru6a4JD5Z/r5aAzt5gErbCdRctUH/UFFjXDKJVXmyAHqctOZih8=
      </SignedData>
    </SignedRequest>
    <ClientTransactionID xmlns="">
       19992DA7-B233-477E-B37C-584D0011BAF7
    </ClientTransactionID>
    <SubmitterID>eHOID12345678</SubmitterID>
    <SubmitterFullName>Doe, John Henry Adam</SubmitterFullName>
    <SubmitterRole>Physician</SubmitterRole>
    < SubmitterOrganization>County Hospital</SubmitterOrganization>
</HIALRequest>
```

11.7.5 HIALResponse

A HIALResponse message contains a SignedResponse message and a Client Transaction ID.

11.7.5.1 HIALResponse Elements

Table 95 HIALResponse Elements

<SignedResponse>					
Required:	Y	**Type:**	XML message	**Format:**	XML
Description:	The SignedResponse message.				
<ClientTransactionID>					
Required:	Y	**Type:**	String	**Format:**	Same as MSH.10.
Description:	The value from the MSH.10 field in the HL7 message.				

11.7.5.2 HIALResponse Schema

See Section 11.7.1 – Web Services Description Language.

11.7.5.3 HIALResponse XML Sample


```
<HIALResponse xmlns="http://www.ssha.ca/2005/HIAL">
   <SignedResponse xmlns="">
     <SignedData>
        hvcNAQcBoIICHwSCAhs8T0xJU1JlcXVlc3QgeG1sbnM9Imh0dHA6Ly93d3cuc3No
        YS5vbi5jYS8iPjxITDc+PCFbQ0RBVEFbTVNIfF5+XCZ8XjM1NzkxXkx8fF5PTElT
        …data removed…
        EC3ybadpru6a4JD5Z/r5aAzt5gErbCdRctUH/UFFjXDKJVXmyAHqctOZih8=
      </SignedData>
    </SignedResponse>
    <ClientTransactionID xmlns="">
       19992DA7-B233-477E-B37C-584D0011BAF7
    </ClientTransactionID>
</HIALResponse>
```


11.7.6 SignedResponse

A SignedResponse message contains a digitally signed Response message.

11.7.6.1 SignedResponse Elements

Table 96 SignedResponse Elements

<SignedData>					
Required:	Y	**Type:**	String	**Format:**	Base64-encoded PKCS#7 (ASCII)
Description:	This is the digitally signed Response message.				

11.7.6.2 SignedResponse Schema

See Section 11.7.1 – Web Services Description Language below.

11.7.6.3 SignedResponse XML Sample


```
<SignedResponse xmlns="http://www.ssha.ca/2005/HIAL">
   <SignedData>
       MIIKGAYJKoZIhvcNAQcCoIIKCTCCCgUCAQExCzAJBgUrDgMCGgUAMIICLgYJKoZI
```

```
        hvcNAQcBoIICHwSCAhs8T0xJU1JlcXVlc3QgeG1sbnM9Imh0dHA6Ly93d3cuc3No
        YS5vbi5jYS8iPjxITDc+PCFbQ0RBVEFbTVNIfF5+XCZ8XjM1NzkxXkx8fF5PTElT
        Xkx8fDIwMDQwMTAxMTAwMF58fE9STV5PMDFeT1JNX08wMXxJRDczNDU3MDB8Uhwy
        LjMuMV58fHx8fHw4ODU5LzENUElEfDF8fDFeXl5eSkhOXl5eXk9Ojk9OVEFSSU8m
        Sew3MDM0N15eQ0V8fExhc3ReRmlyc3ReTWlkZGxlXl5eXkx8fDE5NjAwNTA2MTQy
        M158TQ1aUER8WQ1QVjF8MXxJDU9SQ3xOV3wxMDBeXjEyM15MfHwxMDFeXjEyM15M
        …data removed…
        MQwwCgYDVQQLEwNQS0kxOjA4BgNVBAMTMVNtYXJ0IFN5c3RlbXMgZm9yIEhlYWx0
        aCBBZ2VuY3kgUm9vdCBDQSAtIFRlc3RpbmcCBEAPYKMwCQYFKw4DAhoFAKBdMBgG
        CSqGSIb3DQEJAzELBgkqhkiG9w0BBwEwHAYJKoZIhvcNAQkFMQ8XDTA1MTAzMDEw
        NTgyMVowIwYJKoZIhvcNAQkEMRYEFL7MjE93nYi0U6zrO0mtFJL/NnVKMA0GCSqG
        Sib3DQEBAQUABIGADtYn0BJZc2LzzwY6Tfpn4tgQ/j9PjnKNZNXoPkj7Q1mPUE0O
        +qVvAgH+WL6YfZnMxQsJtjCqcKkHgJSlV3ZWzC7fi1sSuxPtJtROaAq7jimGiZ/2
        EC3ybadpru6a4JD5Z/r5aAzt5gErbCdRctUH/UFFjXDKJVXmyAHqctOZih8=
   </SignedData>
</SignedResponse>
```


11.7.7 Response

A Response message is contained within a SignedResponse message.
This message is a response from the OLIS system. It contains the HL7 result in the Content field. If processing errors occur (invalid signature, unauthorized access, etc. – see the Errors section), there may not be an HL7 response (the Content field will be empty, or contain the original request message) and the error(s) that occurred will be indicated in the Errors array.

11.7.7.1 Response Elements

Table 97 Response Elements

<Content>					
Required:	N	**Type:**	String	**Format:**	HL7
Description:	The message content – an HL7response.				
Notes:	The HL7 will be enclosed in a CDATA tag so that the HL7 data won't be interpreted as XML.				
<Errors>					
Required:	Y	**Type:**	Array of Error	**Format:**	Array
Description:	An array of errors (if any).				
<Error>					
Required:	Y	**Type:**	Sequence	**Format:**	Sequence
Description:	An error.				
Notes:	See error elements below.				
<Number>					
Required:	Y	**Type:**	Nested Element	**Format:**	Integer
Description:	A unique number for the error.				
<Severity>					
Required:	N	**Type:**	Nested Element	**Format:**	Alphanumeric
Description:	The severity of the error.				

Notes:	Values: Error, Warning				
<Message>					
Required:	N	**Type:**	Nested Element	**Format:**	Alphanumeric
Description:	The error message.				
<Details>					
Required:	N	**Type:**	Array of String	**Format:**	ArrayOfString
Description:	An array of details specific to the error.				
<string>					
Required:	N	**Type:**	String	**Format:**	Alphanumeric
Description:	A detail specific to the error.				

11.7.7.2 Response Schema

```
<?xml version="1.0" encoding="utf-16"?>
<xs:schema xmlns="http://www.ssha.ca/2005/HIAL" elementFormDefault="qualified"
xmlns:b="http://schemas.microsoft.com/BizTalk/2003"
targetNamespace="http://www.ssha.ca/2005/HIAL"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Response" type="Response" />
  <xs:complexType name="Response">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" name="Content" type="xs:string" />
      <xs:element minOccurs="0" maxOccurs="1" name="Errors" type="ArrayOfError" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ArrayOfError">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="unbounded" name="Error" nillable="true"
type="Error" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="Error">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="Number" type="xs:int" />
      <xs:element minOccurs="1" maxOccurs="1" name="Severity" type="xs:string" />
      <xs:element minOccurs="1" maxOccurs="1" name="Message" type="xs:string" />
      <xs:element minOccurs="0" maxOccurs="1" name="Details" type="ArrayOfString" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ArrayOfString">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="unbounded" name="string" nillable="true"
type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

11.7.7.3 Response Example XML – No error

```
<Response xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://www.ssha.ca/2005/HIAL">
<Content><![CDATA[MSH|^~\&|^CN=Sample Common Name of LIS System, OU=Applications, OU=
SampleOU, OU=Subscribers, DC=subscribers, DC=ssh^X500|SampleConformanceID1|^OLIS^X500||2
0050601134500-0400||SPQ^Z01^SPQ_Q08|TAG987654|P|2.3.1||||||8859/1<CR>
```

```
SPR|QRYTAG123|R|Z_QryLabInfoForPatientID^^HL70471|@OBR.7^20050601000000-0400~@PID.3.1^12
34567890~@PID.3.4.2~@PID.3.4.3~@PID.3.5^JHN~@PID.3.9.1^ON~@PID.3.9.3^HL70347~@PID.8^M~@P
ID.7^19271127<CR>]]>
</Content>
</Response>
```


11.7.7.4 Response Example XML – Error


```
<?xml version="1.0" encoding="utf-16"?>
<Response xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://www.ssha.ca/2005/HIAL">
<Errors xmlns="">
<Error><Number>10009</Number>
<Severity>Error</Severity>
<Message>Virus detected.</Message>
<Details>
<string>Virus detected in the message content; request terminated.</string>
<string>Virus Name = HTML_TEST_VIRUS</string>
<string>Offset = 0</string>
<string>DN = CN=HIS1, OU=Applications, OU=OLSTST, OU=Hospitals, OU=Subscribers,
DC=subscribers, DC=ssh</string>
</Details>
</Error>
</Errors>
</Response>
```


11.7.8 Errors

11.7.8.1 XML-encoded errors

Note: The following errors are subject to change.

Table 98 XML-encoded errors

Number	Severity	Message	Description
200	Error	Unsupported message type (HL7 Error #200)	The message type indicated in the MSH.9 field is not supported by OLIS.
10001	Error	Unable to process message	Unable to process the request within the timeout limit.
10004	Error	Unable to extract content	Signature validation failed; request terminated.
10006	Error	Unable to retrieve Registration Information; request terminated	OLIS cannot access internal registration resources.
10009	Error	Scanner Initialized, but unable to scan for virus.	OLIS is unable to virus-check the message.
10010	Error	Virus detected in the HL7 payload, request terminated.	Virus detected in an encoded field; request terminated.

11.7.8.2 SOAP Exceptions

Note: The following errors are subject to change.

Table 99 SOAP Exceptions

Description	Message in SOAP Exception
Request over size limit	Maximum request length exceeded.
Request timeout	OLIS is unable to provide the result within the timeout limit.
Exception on Outbound OLIS Response	Exception occurred.
Missing or oversized Client Transaction ID	The Client Transaction ID is required and must be no more than 40 characters.
System Error	System Error.

12 Glossary

Table 100 OLIS Interface Specification Glossary

Term or Acronym	Definition
Agent	Defined in section 2 of the Ontario *Personal Health Information Protection Act, 2004* (PHIPA) (see definition of "PHIPA" below) as a person who, with the authorization of a health information custodian, acts for, or on behalf of, a health information custodian in respect of personal health information for the purposes of the custodian, and not the agent's own purposes, whether or not the agent has the authority to bind the custodian or is employed by or receives remuneration from the custodian. This includes employees, contract staff and volunteers. See also *Health Information Custodian*
Alternate Identifier	A unique identifier for an individual submitted by an OLIS Adopter. Acceptable Alternate Identifiers include: Medical Record Number (MRN) Health Number (Ontario or other province)
Amendment	An Amendment is any change to an Order other than the first recorded Test. For example: Add, update, or cancel Test Request information (including lab-initiated Test Requests); Add, update, or remove patient information, insurance information, or notes; Note: cancelling all Test Requests in an order is not considered an amendment
Application Programming Interface (API)	An application programming interface is a set of routines, protocols and tools that collectively provides a given software application with a common interface, simplifying inter-application communications. An effective API implementation presents external communication partners with a consistent appearance
Assigning Authority	An Assigning Authority is an HL7 term that uniquely identifies the system that created an entity identifier such as a Patient Identifier, an Order ID (HL7 Placer Group Number), a Test Request ID (HL7 Placer Order Number), or a Test Result ID (HL7 Filler Order Number). In OLIS, the Assigning Authority helps make entity identifiers unique. The HL7 Standard indicates "The assigning authority is a unique identifier of a system that creates the data. Assigning authorities are unique across a given HL7 implementation. A given institution or group of intercommunicating institutions should establish a list of assigning authorities that may be potential assigners of patient identification (and other important identification) numbers"

Term or Acronym	Definition
Assumed Implied Consent Rule	Under section 20(2) of PHIPA, certain health information custodians (HICs) are permitted to *assume* that an individual consents to the collection, use or disclosure of his/her personal health information (PHI) to another HIC for the purposes of providing healthcare or assisting in providing healthcare to the individual, unless the custodian is aware that the individual has expressly withheld or withdrawn consent. For the condition to apply the HIC that is collecting, using or disclosing the PHI based on assumed implied consent, must have received PHI about the individual from the individual themselves, the individual's substitute decision-maker or another HIC for the purpose of providing healthcare or assisting in the provision of healthcare to the individual, This "assumed implied consent rule" means that specific custodians listed in paragraphs 1 to 4 of section 3(1) of PHIPA may assume that the individual knows the purpose for the collection, use and disclosure and that the individual may provide or withdraw his/her consent See the definition of the related term "implied consent" below
Authentication	Authentication is the process of validating a User Identification, typically through a password or certificate process
Authorization	The process by which a computer system grants or denies access to system services or resources according to the identity of the requesting user, organization or computer system established via the authentication process
Authorized OLIS Recipient	An organization or entity other than an OLIS Adopter that is authorized to collect personal health information from health information custodians via OLIS and use it for permitted secondary purposes, including: planning, management and evaluation of the health system; compiling and maintaining a registry of personal health information to improve or facilitate the provision of patient care; and, monitoring and reporting on public health Authorized OLIS Recipients include "prescribed registries" and "prescribed entities" under the PHIPA Regulation as well as the *Chief Medical Officer of Health,* and *Medical Officers of Health*
Base64 Encoding	A method of encoding binary data into ASCII using 64 ASCII characters such that three bytes are encoded into four ASCII characters (thus resulting in an expansion of 33%). See: RFC 2045.
Business Requirements Document (BRD)	Specifications for the OLIS system design. The most current version is version – 1.01 which was adopted on November 3, 2005
CA	Certification Authority An authority trusted by one or more users to issue and manage certificates. Ontario Health acts as a CA for its PKI.
CMLTO	College of Medical Laboratory Technologists of Ontario
CN	Common Name The value of the common name (cn) attribute in a distinguished name. Ex. If the DN is cn=Central Laboratory, ou=Eastern Hospital, ou=Hospitals, ou=Subscribers, dc=subscribers, dc=ssh, then the common name in this DN is Central Laboratory.

Term or Acronym	Definition
CRL	Certificate Revocation List A list of certificates that have been revoked by a Certification Authority. The list is digitally signed by the CA and contains the serial numbers of the revoked certificates. A CRL is only valid for a given period of time, after which a new CRL is issued. The validity period of the CRL is encoded in the CRL using a set of 'not valid before' and 'not valid after' dates. The validity period can be from a few hours to many days, depending on the CA. At the time of this writing the eHealth Ontario CA issues CRLs every 24 hours. Most cryptographic toolkits will take care of the retrieval of CRLs automatically if configured to do so. Typically, the only configuration required is the IP address (or DNS name) of the LDAP directory containing the CRLs.
CSR	Certificate Signing Request A CSR is generated by a person or application that wishes to be issued a certificate by a CA. It is a self-signed piece of data used to request a certificate. See PKCS#10
Canada Health Infoway (CHI)	A federally-funded, independent, not-for-profit organization whose Members are Canada's 14 federal, provincial and territorial Deputy Ministers of Health. Infoway is Canada's catalyst for collaborative change to accelerate the use of electronic health information systems and electronic health records (EHRs) across the country
Carbon Copy (CC) List	The ordering Practitioner may specify additional practitioners who are to receive the results of a Test Request on the CC List of the Test Request
Cancer Care Ontario (CCO)	CCO coordinates Ontario's cancer care system and provides leadership for all cancer care services in the province
Certificate Authority (CA)	CA means an individual or group of individuals designated by Ontario Health who are responsible for the registration, service enrolment, and authentication services provided by Ontario Health to clients
Chief Medical Officer of Health	The Chief Medical Officer of Health is a public health physician who is appointed by the Ontario legislature to act as the province's authority in matters of public health. See the *Health Protection and Promotion Act* (section 81) and its Regulation 566 (section 1) for more legal information about this. Health information custodians are permitted to disclose personal health information to the Chief Medical Officer of Health without patient consent as per section 39(2)(a) of PHIPA.[2] For the purposes of this policy, the Chief Medical Officer of Health is categorized as an "Authorized OLIS Recipient." See *Authorized OLIS Recipient*

2 At this time, OLIS does not facilitate such disclosures however in the future, when these disclosures are facilitated, the policy will be updated with details on these disclosures.

Term or Acronym	Definition
Circle of care	The phrase "circle of care" is not defined in PHIPA. It is used colloquially to refer to a specific set of health information custodians listed in paragraphs 1, 2, 3 and 4 of section 3(1) of the Act who are permitted to *assume* that they have an individual's implied consent to share his/her personal health information with other HICs for the purpose of providing healthcare or assisting in the provision of healthcare, unless the custodian is aware that the individual has expressly withdrawn or withheld his/her consent. The types of custodians listed in paragraphs 1, 2, 3, and 4 of section 3(1) of PHIPA include healthcare practitioners, community care access centres, public hospitals or mental health institutions, charitable homes for the aged, nursing or care homes, pharmacies, laboratories, homes for special care, and community health or mental health centres, programs or services whose primary purpose is the provision of healthcare For the purposes of OLIS, PHIPA permits the following types of health information custodians to assume an individual's implied consent to share his/her information for healthcare purposes: public hospitals, medical laboratories (including Ontario Public Health Laboratories), sole practitioners (i.e. healthcare providers in independent practice) and community care access centres
Clinical Trial	A carefully designed and executed investigation of the effects of a therapeutic intervention, such as a drug administered to human subjects. The goal is to define and discover the clinical efficacy, untoward effects, risks, and outcomes associated with the intervention pharmacological effects (toxicity, side effects, incompatibilities, or interactions)
Clinical Management System (CMS)	For the purposes of this project, practitioners will use a CMS to electronically send orders to OLIS and retrieve results from OLIS. An interface between OLIS and the CMS is required
Collect	Defined in section 2 of PHIPA as "to gather, acquire, receive or obtain information by any means from any source"
Community Laboratory	See Laboratory
Computer Application	A computer application means an identifiable computer software process that generates or receives communications or transactions on behalf of an individual or organization which it represents as an agent
Confidentiality	Information is not made available or disclosed to unauthorized individuals, entities or processes. Confidentiality is used to indicate the obligations, both legal and ethical on the healthcare provider to safeguard the personal health information disclosed to them
Consent	Consent is an agreement, approval or permission as to some act or purpose given voluntarily by a competent person.[3] PHIPA requires consent for the collection, use or disclosure of personal health information, unless the collection, use or disclosure is required or permitted by this Act. Such consent may be express or implied so long as the consent obtained complies with the four elements established under PHIPA See also *Consent Directive, Express Consent*, and *Implied Consent*
Consent Directive	A Consent Directive is an instruction from an individual, or an individual's substitute decision maker, regarding the collection, use, or disclosure of the individual's personal health information
CSR	Certificate Signing Request
Corporate Provider Database (CPDB)	Contains information concerning registered healthcare providers that are known to MOHLTC. In OLIS, this includes physicians, dentists, midwives and nurses

3 Garner, Bryan A. and Black, Henry Campbell (eds.). Black's Law Dictionary 7th edition. New York: West Group, 1999.

Term or Acronym	Definition
Client Self Testing (CST)	Test environment that allows Adopters to test their set up without affecting the live environment or other user sites
Conformance Testing (CT)	
DN	Distinguished Name A name that uniquely identifies an entity in an X.500 directory hierarchy. Examples are the full name of a user or CA in a certificate. Ex. Cn=Central Laboratory, ou=Eastern Hospital, ou=Hospitals, ou=Subscribers, dc=subscribers, dc=ssh
Data Element	An atomic unit of data that has a name, a clear definition, one or more representative terms and optional enumerated value code (metadata) and a list of synonyms to data elements in other metadata registries. Examples of data elements include patient first name and surname, date of birth
Data Integrity	The characteristics of information being accurate and complete and the preservation of accuracy and completeness by protecting the information from unauthorized, unanticipated, or unintentional modification
Data Type	A category of data that will be available in the Provider Portal. Examples of these include lab results, diagnostic imaging results
Data Recovery Plan	The Data Recovery Plan describes plans and procedures for operational data recovery from contingency backups
De-identify	To remove from records any information which identifies an individual or for which it is reasonably foreseeable in the circumstances that it could be utilized, either alone or with other information, to identify an individual. De-identified data may be anonymized (no identifiers of any kind remain) or pseudonymized (identifiers are hashed[4] such that they cannot be used to uniquely identify an individual, but can be used to link records relating to the same individual longitudinally)
Delta File	A log of transactions that failed to transfer across the OLIS computer interface
Demographics	Information about name, address, age, gender, and role used to link patient records from multiple sources in absence of a unique patient identifier
Diabetes Registry	A comprehensive tool for diabetes management and self-care supporting Ontario's Chronic Disease Prevention and Management (CDPM) Strategy
Disclose	Defined in section 2 of PHIPA as making personal health information "available" or "to release it to another health information custodian or to another person." For the purposes of OLIS, entering personal health information into OLIS is considered to be a disclosure
Duplicate Test Avoidance (DTA)	Rules that are applied to identify potential situations where a laboratory test is deemed to be a duplicate of a previous or an alternate laboratory test
e-Health Agency	An agency formed in 2008 to oversee the implementation and adoption of the Ontario eHealth strategy. The Agency integrated activities of the former Smart Systems for Health Agency (SSHA) and the MoHLTC's eHealth Program. The eHealth Agency provide secure, integrated, province-wide information infrastructure and related services to allow electronic communication among Ontario's health service providers and oversees a number of eHealth projects that will collectively support the provincial eHealth strategy

4 "Hash codes are strong, one-way functions that uniquely map a message with their generated code. A strong hash code should not generate the same hash code for two different messages. Moreover, it would be highly difficult to correlate the hash codes with the message itself. Hackers would not be able to find a pattern in the messages by monitoring patterns in different hash codes. Thus, the creation of the strong hash codes has to be highly independent of the message correlations and mutually unique and exclusive." (Cole. Dr. Eric, et al. Network Security Bible. Illinois: Wiley Publishing, Inc., 2005.

Term or Acronym	Definition
Electronic Health Record (©)	A composition or aggregation of the services related to the registries, domain repositories and client records that support a longitudinal view of personal health information
Electronic Medical Record (EMR)	A computerized version of a patient's chart used by primary care providers
Electronic Service Provider	Defined in section 10(4) of PHIPA as a "person who provides goods or services for the purpose of enabling a health information custodian to use electronic means to collect, use, modify, disclose, retain or dispose of personal health information." Electronic service providers are not considered "agents" of a "health information custodian" and must comply with the privacy provisions set out in section 6(1) of the PHIPA Regulation See also *Agent* and *Health Information Custodian for more information*
Encryption / Encrypted	A process of manipulating data as it is being transferred between computer systems so it is scrambled to be un-recognizable. This is done by applying an encryption algorithm and an encryption key that will be used in scrambling and unscrambling the data
Express Consent	Express consent means asking an individual to expressly provide his/her permission (which may be provided either orally or in writing) to collect, use or disclose his/her personal health information before such information is used or shared via OLIS PHIPA permits health information custodians to rely on express consent for the collection, use or disclosure of personal health information (section 18(2)) provided that the consent: (1) is of the individual; (2) is knowledgeable; (3) relates to the information; and (4) is not obtained through deception or coercion. Knowledgeable consent means that the individual must: (1) know the purpose for the collection, use or disclosure; and (2) that he or she may provide or withhold consent as per section 18(4). It is reasonable to believe that an individual knows the purpose for the collection, use or disclosure of his/her personal health information if the custodian posts or makes readily available a notice describing the purposes as required under section 18(6) of PHIPA Subject to certain exceptions, express consent is required under PHIPA for any disclosures of personal health information made by a health information custodian to another custodian for a purpose unrelated to the provision of healthcare. Express consent is also required where a HIC makes the disclosure of PHI to a person that is not a HIC, regardless of the purpose of disclosure. Express consent does not have to be written, although it is considered best practice to document that the express consent was provided, whether by means of signature of the patient or SDM (if applicable), or by documenting that the express consent was provided, including relevant details related to the collection, use or disclosure. See *Consent* and *Implied Consent*
External Quality Assessment (EQA)	The MOHLTC funds a third party (Ontario Medical Association) to operate an external quality assessment program called the Quality Management Program Laboratory Services

Term or Acronym	Definition
Foundation Adopters (FA)	A group of seven laboratories which were the beta sites for the OLIS implementation. These sites include: Lakeridge Health Centre Trillium Health Centre University Health Network Grey-Bruce Health Services Gamma-Dynacare LifeLabs Canadian Medical Laboratories
Fee-for-Service (FFS)	Private/community laboratories receive the major portion of their revenues from the process of claiming fees for the lab tests they perform from the laboratory component of the OHIP budget
Gadget (a.k.a. Portlet) [PORT]	A Portal object that provides a collection of related Services to deliver meaningful functionality to a Portal user - Gadgets may appear in multiple Tabs (and other Portals) so that the same function can serve many different business scenarios
Gap Analysis	Gap Analysis phase involves: defining the scope of the functionality needed in the LIS to OLIS interface; gathering information on changes with respect to programming and operational processes in order to determine the requirements needed to support an LIS to OLIS interface; and analyzing gaps to identify the changes needed regarding software functionality and work processes to support an LIS to OLIS interface.
HIAL	Health Information Access Layer A Canada Health Infoway term for an abstraction layer that provides a common view to systems. The HIAL takes care of issues such as encryption, authorization, authentication, auditing, etc..
Healthcare Organization	An organization known to the MOHLTC that has a requirement to obtain clinical information from OLIS. An example of such an organization is Cancer Care Ontario
Health Information Access Layer (HIAL)	The Health Information Access Layer (HIAL) presents a façade with entry points for Provincial eServices, abstracting the native technologies, interfaces, security mechanisms and topology (locations / partitioning) of the discrete systems and repositories that form the e-Health Resources partition The Access Layer is a single logical interface designed for interoperability and intended to simplify the task of integration for VARs / OEMs and System Integrators by employing standardized: Access methods and protocols (e.g. Web Services, MLLP); Privacy and security measures (e.g. Digital Signature / Encryption); Transacting models (synchronous / asynchronous); Messaging, nomenclature and taxonomies (e.g. HL7, ebXML);

Term or Acronym	Definition
Health Information Custodian	Defined in section 3(1) of PHIPA as a person or organization who is described in that section and who has custody or control of personal health information as a result of, or in connection with, the person's or organization's powers or duties. Health information custodians listed under section 3(1) of PHIPA who are participating in OLIS include, among others, public hospitals, medical laboratories, independent healthcare practitioners and community care access centres. Ontario Health is not a HIC. Under ss.3(3)1 of PHIPA, a person described in paragraph 1, 2 or 5 of s.3(1) (for e.g. a healthcare practitioner) who is an Agent of a HIC, is not a HIC themselves in respect of personal health information that the person collects, uses or discloses while performing the person's powers or duties. For clarity, this means that where a healthcare practitioner (who would otherwise be a defined HIC under PHIPA) is acting as an Agent of another HIC (e.g. a hospital), the healthcare practitioner is not, in this circumstance, considered a HIC. In this case, the hospital would be the HIC, and the healthcare practitioner would be the hospital's Agent. See also *Agent*
Health Information Network Provider	Defined in section 6(2) of the PHIPA Regulation as a "person who provides services to two or more health information custodians where the services are provided primarily to enable the custodians to use electronic means to disclose personal health information to one another, whether or not the person is an agent of any of the custodians"
Health Protection and Promotion Act	The purpose of this Act is to provide for the organization and delivery of public health programs and services, the prevention of the spread of disease, and the promotion and protection of the health of the people of Ontario. This Act identifies diseases that are reportable to the Medical Officer of Health
Health Information Management System (HIMS)	Any computer system used by an organization to store and organize patient information. For the purposes of the OLIS project documentation a HIMS is either a CMS, HIS or LIS
Health Level Seven Standard (HL7)	HL7 is a standard for the electronic data exchange of healthcare information. HL7 endeavours to standardize the format and protocol of the exchange of certain key sets of data among healthcare computer application systems, such as patient administration/registration, discharge, and requisitions for laboratory testing, results and clinical observations
Hospital Information System (HIS)	A comprehensive, integrated information system designed to manage the administrative, financial and clinical aspects of a hospital
Hospital Laboratory	See Laboratory
Hyper Text Markup Language (HTML)	The authoring language used to publish documents on the World Wide Web
Hyper Text Transfer Protocol (HTTP)	HTTP is the set of rules for transferring files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web. As soon as a Web user opens their Web browser, the user is indirectly making use of HTTP. HTTP is an application protocol that runs on top of the TCP/IP suite of protocols (the foundation protocols for the Internet)

Term or Acronym	Definition
Hyper Text Transfer Protocol over Secure Socket Layer (HTTPS)	HTTPS is used to indicate a secure HTTP connection. It is syntactically identical to the http:// scheme normally used for accessing resources using HTTP. This system was designed by Netscape Communications Corporation to provide authentication and encrypted communication and is widely used on the World Wide Web for security-sensitive communication such as payment transactions and corporate logons
ICD-10	International Classification of Diseases and Related Health Problems, 10th Revision. According to the World Health Organization, the "ICD has become the international standard diagnostic classification for all general epidemiological and many health management purposes"
IPC	Information and Privacy Commissioner/Ontario
Identity Assurance Level	The degree of rigor for which an individual provides proof of his/her real-world identity, based on the amount and nature of information provided
Implied Consent	Implied consent is consent that can be reasonably determined through the actions or inactions of the individual, for example, an individual presenting himself/herself to a pharmacist, a laboratory, an emergency department, or a physician in private practice for healthcare and treatment[5] PHIPA permits health information custodians to rely on implied consent for the collection, use or disclosure of personal health information subject to certain conditions. In all cases where a HIC relies on implied consent for disclosure of PHI, the disclosure must be to another HIC and the purpose of the disclosure must be for the purposes of providing healthcare or assisting in the provision of healthcare. Additionally, subsection 18(2) of PHIPA provides that such consent must: (1) be of the individual; (2) be knowledgeable; (3) relate to the information; and (4) not be obtained through deception or coercion. Knowledgeable consent means that the individual must: (1) know the purpose for the collection, use or disclosure; and (2) that he or she may provide or withhold consent as per section 18(4). It is reasonable to believe that an individual knows the purpose for the collection, use or disclosure of his/her personal health information if the custodian posts or makes readily available a notice describing the purposes as required under section 18(6) of PHIPA See also *Assumed Implied Consent Rule, Consent*, and *Express Consent*
Individual	Person or applicant who applies for registration and service enrolment. Once the individual is registered, he/she is referred to as the registrant. E.g. Staff members of the organization
L-Code	(L)isted in the Schedule of Benefits for laboratory services. An L-Code defines a laboratory service listed in the OHIP Schedule of Benefits
LILI codes	LILI codes consist of "L" codes for insurable tests as defined in the OHIP Schedule of Benefits for Laboratory services and U codes for tests that are uninsured

5 Canadian Standards Association. Making the CSA Privacy Code Work for You: A Workbook on applying the CSA Model Code for the Protection of Personal Information (CAN/CSA-Q830) to your organisation. Etobicoke, Ontario: December, 1996. Page 11.

Term or Acronym	Definition
Laboratories	Community Laboratories are incorporated enterprises. Community laboratories can only bill OHIP for tests that are listed in the Schedule of Benefits. New tests are added to the Schedule of benefits for Laboratory Services through negotiations involving the Ministry of Health and Long-term Care, the Ontario Association of Medical Laboratories, and the Ontario Medical Association. Although community laboratories can only bill OHIP for tests listed in the Schedule of Benefits for Laboratory Services, they can perform unlisted tests provided they are licensed to do them by MOHLTC. Payment for these tests can come from patients, insurers, or other interested parties Hospital laboratories are an integral part of clinical services of the hospital and must support the testing needs of inpatients, outpatients, and outreach programs operated by hospitals. Under current legislation, hospital laboratories can perform any test that physicians consider necessary for treatment of patients. They must, however, list all the tests they perform on their annual license applications. The test menus for hospital laboratories are somewhat different in mix and breadth from those of community laboratories. Hospital test menus may include the tests on the Schedule of Benefits for Laboratory Services (SOB L-coded tests) and additional tests for which community laboratories are not currently licensed. The Laboratory Licensing and Inspection Unit assigns U-codes (unclassified codes which identify services not part of the schedule of benefits) to this latter group of tests Public Health Laboratory are operated by the Ministry of Health and Long-Term Care. There are currently 12 laboratories. Their activities are directed to public safety, infectious disease identification and reporting, disease surveillance and control
Laboratory Information System (LIS)	A class of software which handles receiving, processing and storing information generated by laboratory testing processes. These systems often must interface with instruments and other information systems such as hospital information systems (HIS)
Laboratory Provider	For purposes of OLIS, a laboratory provider is a Hospital, Community, or Public Health Laboratory
Laboratory Report	The Laboratory Report, also referred to as the Patient Report, is the official and permanent record of laboratory examinations that appears on the individual patient's medical record (either electronic or paper)
Local Health Integration Network (LHIN)	Local Health Integration Network – not-for-profit organizations responsible for planning, integrating and funding local health services in 14 different geographic areas of the province
Laboratory Inspection and Licensing Information (LILI)	LILI is a corporate database operated by Laboratory Licensing and Inspection Service. The LILI database stores data on all laboratories in Ontario, the tests each laboratory is licensed to perform, laboratory staffing, and the license status of each laboratory
Laboratory Test Result	The result from testing that involves human blood or other body fluid, tissue or cell which includes, but is not limited to, medical microbiology, anatomical pathology, transfusion medicine, clinical biochemistry and haematology
Logic Observation Identifier Names and Codes (LOINC)	LOINC is a set of standard codes and universal nomenclature for identifying and encoding laboratory terms and clinical observations

Term or Acronym	Definition
Laboratory and Specimen Collection Centre Licensing Act (LSCCLA)	LSCCLA is the primary legislation under which laboratory services operate
Local Registration Authority (LRA)	Person who conducts the face-to-face registration of applicants. The LRA reviews the forms and sends them to Ontario Health for processing. The role of the LRA is not service specific
MOHLTC	This was originally reflective of the "Ministry of Health and Long Term Care". Since 2021, this refers to the "Ministry of Health" following the separation of Ministry of Health and Long Term Care into two separate ministries.
MOU	Memorandum of Understanding
MSA	Master Services Agreement
Mapping	Mapping means the process of creating one-to-one associations between items in a given laboratory's external system's test menu and items in the OLIS Order Nomenclature Mapping also refers to the process of creating one-to-one associations between items in a given external system laboratory's list of distinct test results and items in the OLIS Result Nomenclature
Medical Officers of Health	Medical Officers of Health are designated individuals responsible for a public health unit. Medical Officers of Health are designated as health information custodians under PHIPA and are permitted to collect, use and disclose personal health information without individual consent for the purposes of the *Health Protection and Promotion Act*, PHIPA[6] For the purposes of this policy, the Medical Officers of Health are categorized as "Authorized OLIS Recipients"

6 At this time, OLIS does not facilitate such disclosures however in the future, when these disclosures are facilitated, the policy will be updated with details on these disclosures. It is expected that OLIS will, at a minimum, facilitate the disclosures contemplated in Regulation 569 (Reports) under the Health Protection and Promotion Act.

Term or Acronym	Definition
Middleware	Middleware is a computer software that connects software components or applications. The software consists of a set of enabling services that allow multiple processes running on one or more machines to interact across a network. This technology evolved to provide for interoperability in support of the move to coherent distributed architectures, which are used most often to support and simplify complex, distributed applications. It includes web servers, application servers, and similar tools that support application development and delivery. Middleware is especially integral to modern information technology based on XML, SOAP, Web services, and service-oriented architecture It sits "in the middle" between application software working on different operating systems. It is similar to the middle layer of a three-tier single system architecture, except that it is stretched across multiple systems or applications. Examples include database systems, telecommunications software, transaction monitors, and messaging-and-queuing software The distinction between operating system and middleware functionality is, to some extent, arbitrary. While core kernel functionality can only be provided by the operating system itself, some functionality previously provided by separately sold middleware is now integrated in operating systems. A typical example is the TCP/IP stack for telecommunications, nowadays included in virtually every operating system
NOA	ONE Network Order Agreement
Nomenclature	Nomenclature provides an unambiguous consistent system of names by which laboratory information is defined and exchanged with OLIS or between other systems
OAIT	OLIS Adoption Implementation Team
OLB	Ontario Laboratories Branch
OLIS	Ontario Laboratories Information System
OLIS Data	Any data going out of OLIS or coming into OLIS
OAML	Ontario Association of Medical Laboratories
Occupational Testing	In the context of OLIS, occupational testing is a clinical test (see Clinical Testing) requested for employment purposes and/or to safeguard worker health for chemicals they may have been exposed to in the performance of their job. (NOTE: not to be confused by research testing, clinical trials, or clinical testing)
Ontario Health Insurance Plan (OHIP) -	The Ontario Health Insurance Plan provides for insurance against the costs of medically necessary insured services on a non-profit basis on uniform terms and conditions available to eligible residents of Ontario, in accordance with the Health Insurance Act Revised Statutes of Ontario, 1990, and provides other related health benefits. Laboratory services that can be claimed by private laboratories include specimen collection and laboratory testing
Ontario Health Number (HN)	The Ontario Health Number (HN) is a unique identifier assigned to an individual upon registration with the Ontario Ministry of Health and Long-Term Care. Other jurisdictions in Canada also issue jurisdictional Health Numbers
OLIS Adopter	A healthcare practitioner or healthcare organization (i.e. a hospital, clinic or laboratory) that is authorized by the MOHLTC to use OLIS to collect, use or disclose personal health information for the purpose of providing care or assisting in the provision of care. All OLIS Adopters are health information custodians under PHIPA and as such, their information practices are governed by PHIPA See *Health Information Custodian*

Term or Acronym	Definition
OLIS End User	An individual authorized by an OLIS Adopter to enter in and/or access personal health information via OLIS. Individuals include clinicians, employees, consultants, vendors, and third parties. OLIS end users are "agents" of OLIS Adopters (see definition of "agent" above). OLIS end-users accessing or contributing data to OLIS may be HICs (where the HIC is an individual) or may be Agents of HICs (where the HIC is an organization).
OLIS Primary Purposes	OLIS primary purposes include providing or assisting in the provision of patient care
OLIS Secondary Purposes	OLIS secondary purposes include collecting, using or disclosing PHI for any purposes unrelated to the provision of healthcare that is permitted under PHIPA. There are a number of authorized uses and disclosures of personal health information permitted under PHIPA for legitimate purposes, for non-healthcare purposes (and which may or may not require individual consent). For example, PHIPA permits disclosures of personal health information by HICs to Authorized OLIS Recipients who are designated as prescribed entities in the PHIPA Regulation and, as such, are authorized to receive such information without consent for the purposes of managing, evaluating or monitoring the health system. PHIPA also permits disclosures of personal health information to Authorized OLIS Recipients who are designated as prescribed persons (in respect of a prescribed registry) in the PHIPA Regulation and, as such, are authorized to receive personal health information, without consent, from HICs for the purpose of facilitating or improving the provision of healthcare. Other legitimate secondary purposes include disclosures of personal health information to the Chief Medical Officer of Health for public health reporting and surveillance purposes[7] See also Authorized *OLIS Recipient*
OLIS Test Request Nomenclature	The OLIS Test Request Nomenclature is the system of records and elements used within OLIS to uniquely identify and describe Test Requests
OLIS Result Nomenclature	The OLIS Result Nomenclature is the system of records and elements used within OLIS to uniquely identify and describe test results and observations. The OLIS Result Nomenclature contains a subset of codes and elements from the LOINC database and it also contains records not provided by LOINC. It uses standardized lists for other components (e.g. micro-organisms and fungi)
On-line Transaction Processing (OLTP)	OLTP is a type of computer processing in which the computer system responds interactively to user requests, and each request constitutes an identifiable unit of work known as a transaction
Order	An Order is a collective term used to refer to one or more Test Requests from an authorized practitioner to be performed on a specimen(s) obtained from individuals
Order Filler	An Order Filler is an actor in the OLIS Use-case Model. An Order Filler interacts with OLIS to retrieve Orders for Test Requests that it intends to fulfill, and to submit Test Results. This role will typically be performed by a Laboratory, but it could also be performed at the Ordering Practitioner's office, as in the case of physician office testing

7 At this time, OLIS does not facilitate such disclosures however in the future, when these disclosures are facilitated, the policy will be updated with details on these disclosures.

Term or Acronym	Definition
Order Placer	An Order Placer is an actor in the OLIS Use-case Model. An Order Placer interacts with OLIS to create and maintain Test Requests for a specific patient, and to retrieve Test Results recorded in OLIS for previously ordered Test Requests. The Order Placer role is ideally the ordering practitioner, but in many cases this role will be performed on behalf of the ordering practitioner at the first point of contact with OLIS (e.g., at the Specimen Collection Centre or Laboratory). A Laboratory also acts as an Order Placer when adding lab-initiated Test Requests to an Order, or when referring Test Requests to another laboratory. A Healthcare Facility may also act as an Order Placer
Organization	Person who is legally responsible for the registration process in the organization, and identifies the sponsors and RAs/LRAs for the organization (known as the Legally Responsible Person). E.g. Organization CEO or CAO
ONE ID	An identity and access management system and processes
PCP	Primary Contact Person
PHIPA	*Personal Health Information Protection Act*, *2004* and its accompanying Regulation (Ontario Regulation 329/04). PHIPA and its Regulation is Ontario's health information specific privacy statute which provides laws for the collection, use, disclosure and protection of personal health information by health information custodians (e.g. hospitals, laboratories and private practices/ practitioners, the MOHLTC), and other prescribed healthcare organizations that are not HICs, such as *Authorized OLIS Recipients*.
PKCS#7	Public Key Cryptography Standard #7 Version 1.5 A general syntax for data that may have cryptography applied to it, such as digital signatures and encryption. OLIS uses only the digital signing capabilities of PKCS#7, not the encryption – that is done at the network layer via HTTPS. Note: The Cryptographic Message Syntax (CMS – RFC 2630) standard is based on PKCS#7 version 1.5. The CMS SignedData version 1 structures (but not other versions) are identical to PKCS#7 SignedData structures. See: http://www.rsasecurity.com/rsalabs/node.asp?id= 2129
PKCS#9	Public Key Cryptography Standard #9 A standard that defines selected attribute types for use in, among other things, PKCS#7. See: http://www.rsasecurity.com/rsalabs/node.asp?id= 2131
PKCS#10	Public Key Cryptography Standard #10 This standard describes the syntax for requesting a certificate from a certificate authority (PKI). i.e. CSRs conform to the PKCS#10 standard. See: http://www.rsasecurity.com/rsalabs/node.asp?id= 2132
PKI	Public Key Infrastructure A set of policies, processes, server platforms and software used to administer certificates and public-private key pairs, including the ability to issue, maintain, and revoke public key certificates. Smart Systems for Health operates the PKI that will be used to issue certificates for use with OLIS.
POT	Physician Office Testing (POT)
Parent-Child Test Request	A Test Request that has a Test Result may be identified as a Parent in relation to a child Test Request for reporting purposes. For example, a microbiology test that identifies a bacterium may be identified as a Parent in relation to microbial sensitivity testing performed on the bacterium, thereby facilitating the reporting of sensitivity Test Results for the specified bacterium

Term or Acronym	Definition
Patient Identifier	In the context of an HL7 message, the Patient Identifier is the information that identifies a patient, specifically the patient name, sex, date of birth, as well as one or more IDs such as an Ontario Health Number or an alternative patient ID
Personal Health information	Defined in section 4(1) of PHIPA as identifying information about an individual in oral or recorded form, where the information: • Relates to the physical or mental health of the individual, including information that consists of the health history of the individual's family, • Relates to the providing of healthcare to the individual, including the identification of a person as a provider of healthcare to the individual, • Is a plan of service within the meaning of the Long-Term Care Act, 1994 for the individual, • Relates to payments or eligibility for healthcare, or eligibility for coverage for healthcare, in respect of the individual, • Relates to the donation by the individual of any body part or bodily substance of the individual or is derived from the testing or examination of any such body part or bodily substance, • Is the individual's health number, or Identifies an individual's substitute decision maker "identifying information" means information that identifies an individual or for which it is reasonably foreseeable in the circumstances that it could be utilized, either alone or with other information, to identify an individual. For a complete definition of PHI, please see ss.4(1)-4(4) of PHIPA.
Performance Metric	Performance Metrics for each process model are the precise units of measurement (including their associated collection methods and/or standards) used to measure an element of Performance All business processes are subject to metrics that gauge the effectiveness of the process. Performance Metrics are a description of those metrics as they pertain to the Core Business workflows identified as part of the Process Modeling exercise. A Performance Metrics Model will identify key processes and deliverables of the Service and describe what Performance Metrics will be used to assess their performance
Performing Laboratory	A laboratory that conducts the test and produces the Test Result
Permission	An Indicator used to identify an action, function or information which a specific OLIS user is allowed to utilize

Term or Acronym	Definition
Prescribed Entity	A prescribed entity is an organization (typically a legal corporate body) listed in section 18(1) of the PHIPA Regulation involved in analysis with respect to the planning and management of the health system. These prescribed entities are permitted to receive personal health information without individual consent from health information custodians "for the purpose of analysis or the compiling of statistical information with respect to the management of, evaluation or monitoring of, the allocation of resources to or planning for all or part of the health system, including the delivery of services" as described in section 45(1) of PHIPA. They are also permitted to subsequently use and disclose the information they receive from custodians for authorized purposes listed in section 18 of the PHIPA Regulation For the purposes of this policy, Prescribed Entities are categorized as *Authorized OLIS Recipients* Prescribed Perso–s - A prescribed person is a healthcare organization (typically a legal corporate body) listed under section 13(1) of the PHIPA Regulation who "compiles or maintains a registry of personal health information for purposes of facilitating or improving the provision of healthcare or that relates to the storage or donation of body parts or bodily substances". These persons who operate and maintain health registries (sometimes referred to as "prescribed registries") are permitted to receive personal health information from health information custodians without individual consent for the purpose of their functions as more fully described in section 39(1)(c) of PHIPA. They are also permitted to subsequently use and disclose the information they receive from custodians for authorized purposes listed in section 13 of the PHIPA Regulation For the purposes of this policy, prescribed registries are categorized as *Authorized OLIS Recipients*
Privacy	The right of individuals, groups or institutions to determine for themselves when, how and to what extent information about them is communicated to others[8]
Privacy Impact Assessment (PIA)	A risk management tool used to analyze risks to patient privacy arising from a new technology, initiative or program and which identifies strategies for obviating risks
Privacy Officer	An individual appointed by a custodian to facilitate the custodian's compliance with PHIPA, ensure that agents of the custodian are appropriately informed of their duties under PHIPA, respond to inquiries and complaints from the public regarding the custodian's privacy and information practices, and respond to requests from an individual for access to or correction of the individual's personal health information[9]
Public Key Infrastructure (PKI)	PKI is also known as a trust hierarchy, a PKI is a system of X.509 standard digital certificates stored in X.500 format of LDAP directories, associated public keys, and certificate-issuing certificate and registration authorities that verify and authenticate the validity of each party involved in a transaction. This infrastructure is the basis for all user authentication, data encryption, and non-repudiation, and may be extended to govern role-based access as well

8 Westin, A. F. (1968). Privacy and Freedom. New York: Atheneum, 42-43.

9 This definition is based on the functions of a "contact person" at section 15(3) of PHIPA.

Term or Acronym	Definition
Pathology Information Management System (PIMS)	An automated cancer reporting system maintained by Cancer Care Ontario
Point of Service (POS) System	Any system interacting with OLIS including web applications and portlets
Policy	A **policy** is a deliberate plan of action to guide decisions and achieve rational outcome(s). The term may apply to government, private sector organizations and groups, and individuals. Presidential executive orders, corporate privacy policies, and parliamentary rules of order are all examples of policy. Policy differs from rules or law. While law can compel or prohibit behaviors (e.g. a law requiring the payment of taxes on income) policy merely guides actions toward those that are most likely to achieve a desired outcome Policy or policy study may also refer to the process of making important organizational decisions, including the identification of different alternatives such as programs or spending priorities, and choosing among them on the basis of the impact they will have. Policies can be understood as political, management, financial, and administrative mechanisms arranged to reach explicit goals
Practitioner	For the purposes of OLIS, a practitioner is a physician, nurse practitioner, midwife or dentist
Practitioner Type	OLIS defines five practitioner types: physician, nurse practitioner, dentist, midwife and naturopath
Preliminary Result	A Preliminary Result is a Test Result reported to the ordering Practitioner prior to the completion of the test
Privacy	The right of an individual to live free of intrusive monitoring of their personal affairs by third parties not of their choosing
Procedure	A **procedure** is a specification of series of actions, acts or operations which have to be executed in the same manner in order to always obtain the same result in the same circumstances (for example, emergency procedures). Less precisely speaking, this word can indicate a sequence of activities, tasks, steps, decisions, calculations and processes, that when undertaken in the sequence laid down produces the described result, product or outcome. A procedure usually induces a change
Process	A **process** is a naturally occurring or designed sequence of changes of properties or attributes of an object or system. More precisely, and from the most general systemic perspective, every process is representable as a particular trajectory (or part thereof) in a system's phase space
Protocol	A **Protocol** is a set of guidelines or rules
Pseudonymization	In OLIS, the term pseudonymization refers to the use of repeatable algorithms to mask the identities of patients, practitioners, laboratory service providers, and payers of tests before passing this information to MOHLTC for updating the pseudonymous repository
RMS	Registration Management System
Record	Defined in section 2 of PHIPA as information in any form or in any medium, whether in written, printed, photographic or electronic form or otherwise, but not a computer program or other mechanism that can produce a record
Redirection	Redirection is the process of forwarding a Test Request(s) and associated specimen(s) from one laboratory to another in which the destination laboratory undertakes the responsibility for reporting Test Results to the ordering Practitioner
Reference Laboratory	Reference lab is a destination laboratory to which lab tests are referred from a referring Laboratory

Term or Acronym	Definition
Referral	Referral is the process of forwarding of Test Requests from one laboratory to another in which the referring laboratory retains the responsibility for reporting Test Results to the ordering Practitioner. (contrast with Redirection)
Reflex Testing	Reflex testing is follow-up testing that is automatically initiated when certain test results are observed in the laboratory; used to clarify or elaborate on primary test results
Registered Person	An individual who has been registered by the Ontario Ministry of Health and Long-Term Care and assigned a unique Health Number. Most Registered Persons will be registered in conjunction with application for basic healthcare coverage, while others may be registered only because it is necessary to record health services information related to them. Health and Long-Term Care and assigned a unique Health Number
Registered Persons Database (RPBD)	This is a Ministry of Health and Long-Term Care corporate database that contains information about individuals who are healthcare recipients. SOB Schedule of Benefits for Laboratory Services, defined in the Health Insurance Act
Registration Authority (RA)	Person who is responsible for the registration and service enrolment processes within the organization for all Ontario Health services. The RA supports the LRAs and is responsible for providing the names of sponsors to the LRAs. RA's have the authority to register individuals as well as additional LRA for their respective organization. The role of a RA is not service specific
Reinstatement of Consent	Individuals may reinstate their consent to the use and disclosure of ALL of their personal health information in OLIS to ALL OLIS Adopters This means that individuals, who had previously withheld/withdrawn consent with respect to the use and disclosure of personal health information via OLIS are requesting to make their personal health information available for viewing (clinical use) to ALL OLIS Adopters by providing express consent
Reportable Laboratory Result	The Health Protection and Promotion Act requires that "The operator of a laboratory shall report to the medical officer of health of the health unit in which the laboratory is located each case of a positive laboratory finding in respect of a reportable disease, as soon as possible after the making of the finding." Reportable diseases are identified in the Specification of Reportable Diseases, Ontario Regulation 559/91. In the context of OLIS a reportable test is a test that if the result of which indicates the presence of a disease that is reportable to an organization such as Public Health Division
Reporting Laboratory	The Reporting Laboratory is the Laboratory that reports a Test Result to OLIS
Research Testing	Research testing is a diagnostic health service on specific patients and that is in the process of being evaluated for its usefulness in qualifying as a "clinical test" (see clinical testing). NOTE: (not to be confused with clinical testing or occupational testing)
Real Time Transaction Processing (RTTP)	Data processed and transferred as it is being generated Real Time Transfer Protocol - a standardized packet format for delivering audio and video over the Internet
SAA	System Access Agreement
SCP	Secondary Contact Person

Term or Acronym	Definition
SOAP	Simple Object Access Protocol SOAP is a protocol specification for invoking methods on servers, services, components and objects. SOAP codifies the practice of using XML and HTTP as a method invocation mechanism. See: http://www.w3.org/TR/2000/NOTE-SOAP-20000508/
SOP	Standard Operating Procedure
Specimen Collection Centre (SCC) -	The facility where a patient's specimen is procured. Specimen Collection Centres are located in the community and are the main points of contact between the laboratories and the public
ServiceOntario INFOline	The Government of Ontario's multilingual call centre providing toll-free call centre services in more than 20 languages in addition to English and French. INFOline supports inquiries from the public regarding OLIS and administrative functions for OLIS consent directives received from individuals INFOline is available to the public via phone: 1-866-752-6405, fax: 1-416-314-8721, and TTYL: 1-800-387-5559
Session	The active connection between a user and a computer or between two computers
Sex	Sex refers to the biological and physiological characteristics that define men and women. Male and female are sex categories (refer to Gender)
Simple Object Access Protocol (SOAP)	SOAP is a messaging framework which has gained widespread support in the Java, .NET and open source communities during the early part of the 2000s. It has served as the foundation of many Web services projects and provides the mechanism by which many other Web services standards communicate. SOAP is a way for a program running in one kind of operating system (such as Windows 2000) to communicate with a program in the same or another kind of an operating system (such as Linux) by using the World Wide Web's Hypertext Transfer Protocol (HTTP) and its Extensible Markup Language (XML) as the mechanisms for information exchange
Substitute Decision Maker (SDM)	A person who is authorized under section 5 of PHIPA to consent on behalf of the individual to the collection, use or disclosure of personal health information about the individual. As such, all references to an "individual" or "patient" made in this Policy also apply to authorized SDMs
SNOMED	Systematized Nomenclature of Human and Veterinary Medicine, a standardized vocabulary system for medical databases. Current modules contain more than 144,000 terms and are available in at least 12 languages
Schedule of Benefits (SOB)	Schedule of Benefits for Laboratory Services, defined in the Health Insurance Act
Specimen	A Specimen is a substance collected from the human body for examination to obtain information for diagnosis, prophylaxis, or treatment
Specimen Type	The Specimen Type is a general description of the source and nature of a specimen. Examples include: collected urine, feces, cerebrospinal fluid, sputum, blood, skin, amniotic fluid, ascetic fluid, and tissues
Sponsor	Sponsor means an individual Representative of Client who Client has designated as being responsible for determining whether or not a potential Registrant who requests a Sponsored Service is eligible to be an end user of that Sponsored Service. "**Sponsors**" means more than one Sponsor
Sponsored Service	Sponsored service means any service or other resource which: (i) Client may access over Ontario Health's technology infrastructure; and (ii) is made available to Client, possibly subject to a separate agreement, by Ontario Health or one of Ontario Health's clients. "**Sponsored Services**" means two or more of such services or resources

Term or Acronym	Definition
Sponsorship Organization	means any client of Ontario Health who has been given the authority to sponsor its Representatives for enrolment in one or more Sponsored Services.
Standing Order	A Standing Order is a schedule, frequency, and/or period for performing an action, e.g., random glucose every 3 hours for 4 days. OLIS does not support standing orders
Synoptic Reporting	In pathology reporting, "synoptic" traditionally has referred to checklists of various types intended to ensure that essential elements are consistent and not omitted from reports
TLS	Transport Layer Security
TR / TRC	Test Request / Test Request Code
Threat Risk Assessment (TRA)	A risk management tool used to identify threats, risks and vulnerabilities to any informational assets, hardware and software, and to recommend strategies for mitigating risks
Transmission Control protocol / Internet protocol (TCP/IP)	TCP/IP is the collection of "protocols" underlying the functioning of the Internet. Each computer connected to the Internet is identified by a unique IP Address
Test Request Code	A Test Request Code uniquely identifies a single Test Request in the OLIS Test Request Nomenclature
Test Request Identifier	In the context of an HL7 message, a Test Request Identifier is the representation of a Test Request Code and its corresponding Test Name from the OLIS Test Request Nomenclature
Test Request Name	The Test Request Name is a consistent, unambiguous OLIS standard test name that identifies an orderable test (Test Request)
Test Result	The result of a test done in a laboratory
Test Result Code	A Test Result Code uniquely identifies a single Test Result observation in the OLIS Result Nomenclature
Test Result Identifier	In the context of an HL7 message, a Test Result Identifier is the representation of a Test Result Code and its corresponding LOINC Fully Specified Name from the OLIS Result Nomenclature
UML	The Unified Modeling Language (UML) is an object-oriented analysis and design "language" (really, it is a set of suggested diagram types useful for expressing designs) developed by the Object Management Group. UML standardizes several diagramming methods into eight diagram types: Use Case diagrams, Sequence Diagrams, Collaboration diagrams, Class diagrams, State chart diagrams, Activity diagrams, Component diagrams, and Deployment diagrams.
Uniform Resource Locator (URL)	This is a website address
Use	Defined in section 2 of PHIPA "to handle or deal with personal health information." The definition of use does not include disclosing the information
Validate	

Term or Acronym	Definition
Version Code	An assigned sequence code, uniquely identifying a Health Card issued (or potentially issued) to a Registered Person
Virtual Private Network (VPN)	VPN uses the Internet for network connections between people and information sites. However, it includes stringent security mechanisms so that sending private and confidential information is as secure as in a traditional closed system
Viewer	
Web Portal	Website that serves as a gateway or a main entry point on the internet to a specific field-of-interest or an industry. For example, OLIS Web Application is available via the eHealthontario.ca portal. This portal is the gateway or main entry point to web application services available to OLIS Adopters
Withholding Consent	Individuals can request their personal health information not be disclosed to OLIS Adopters before it is ever disclosed
Withdrawing Consent	Individuals can decide later, after some disclosure may have taken place, to request that their information not be disclosed
WSDL	Web Services Definition Language
XML	Extensible Mark-up Language - XML is a general-purpose *specification* for creating custom markup languages. It is classified as an extensible language because it allows its users to define their own elements. Its primary purpose is to facilitate the sharing of structured data across different information systems, particularly via the Internet, and it is used both to encode documents and to serialize data

13 Reference Data

13.1 Data Definition Tables

Table 101 Data Definition Tables

Type	Table	Name	Value	Description	OLIS Usage Note
User	1	Sex			
	1		F	Female	
	1		M	Male	
	1		U	Unknown	
HL7	3	Event Type			
	3		O01	ORM – Order message	
	3		O02	ORR – Order response	
	3		Q08	SPQ – Stored procedure request	
	3		R01	ORU/ACK – Unsolicited transmission of an observation message	
	3		R08	TBR – tabular data response	
	3		R09	ERP – event replay response	
User	4	Patient Class			
	4		Z	Community (e.g., practitioner's office)	OLIS Localization
	4		E	Emergency	
	4		I	Inpatient	
	4		L	Long-Term Care Facility	OLIS Localization
	4		O	Outpatient	
	4		P	Pre-admit	
HL7	8	Acknowledgment code			
	8		AA	Original mode: Application Accept – Enhanced mode: Application acknowledgment: Accept	
	8		AE	Original mode: Application Error – Enhanced mode: Application acknowledgment: Error	
	8		AR	Original mode: Application Reject – Enhanced mode: Application acknowledgment: Reject	
HL7	27	Priority			
	27		S	Stat (do immediately)	
	27		A	As soon as possible (a priority lower than stat)	

Type	Table	Name	Value	Description	OLIS Usage Note
	27		R	Routine	
	27		P	Preoperative (to be done prior to surgery)	
	27		T	Timing critical (do as near as possible to requested time) As per the HL7 Standard, version 2.3.1, section 4.4.6, the degree of criticality can optionally be further specified: TS<integer> = timing critical within <integer> seconds TM<integer> = timing critical within <integer> minutes TH<integer> = timing critical within <integer> hours TD<integer> = timing critical within <integer> days TW<integer> = timing critical within <integer> weeks TL<integer> = timing critical within <integer> months	
HL7	65	Specimen action code			
	65		G	Generated order; reflex order	This value is not required. However, supported for backward compatibility since v1.08
	65		L	Lab to obtain specimen from patient	
HL7	70	Specimen source codes			Refer to the Appendix C of the OLIS Nomenclature Standard for values.
HL7	76	Message type			
	76		ACK	General acknowledgment message	
	76		ERP	Event replay response	
	76		ORM	Order message	
	76		ORR	Order acknowledgment message	
	76		ORU	Observe result/unsolicited	
	76		SPQ	Stored procedure request	
	76		TBR	Tabular data response	
HL7	78	Abnormal flags			

Type	Table	Name	Value	Description	OLIS Usage Note
	78		L	Below low normal	
	78		H	Above high normal	
			LL	Below lower panic limits	
			HH	Above upper panic limits	
	78		N	Normal (applies to non-numeric results)	
	78		A	Abnormal (applies to non-numeric results)	
	78		AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)	
	78		For microbiology susceptibilities only:		
	78		S	Susceptible	
	78		R	Resistant	
	78		I	Intermediate	
	78		MS	Moderately susceptible	
	78		VS	Very susceptible	
	78		NI	No Interpretation	
	78		S-DD	Susceptible-dose dependant	
	78		NS	Non Susceptible	
HL7	80	Nature of abnormal testing			
	80		A	An age-based population	
	80		N	None – generic normal range	
	80		R	A race-based population	
	80		S	A sex-based population	
HL7	85	Observation result status codes interpretation			
	85		C	Amended results	
	85		F	Final results	
	85		P	Preliminary results	
	85		X	Results cannot be obtained for this observation	
	85		W	Test result is not valid for this patient	
	85		Z	Ancillary order information submitted by an order-placing system to be considered by the laboratory.	OLIS Localization
	85		N	No results available; procedure not performed.	OLIS Localization To be used by laboratory when laboratory determines that test will not be performed.

Type	Table	Name	Value	Description	OLIS Usage Note
HL7	103	Processing ID			
	103		C	Conformance	OLIS Localization
	103		P	Production	
	103		S	Self-Test	OLIS Localization
	103		T	Training	
HL7	104	Version ID			
	104		2.3.1	Release 2.3.1	
HL7	105	Source of comment			
	105		L	Ancillary (filler) department is source of comment	
	105		P	Orderer (placer) is source of comment	
	105		O	Other system is source of comment	
HL7	106	Query/response format code			
	106		R	Response is in record-oriented format	
	106		T	Response is in tabular format	
HL7	119	Order control codes and their meanings			
	119		NW	New order (O01)	
	119		OK	Order accepted & OK (O02)	
	119		UA	Unable to accept order (O02/ORR)	
	119		CA	Cancel order request (O01)	
	119		CR	Canceled as requested (O02)	
	119		UC	Unable to cancel (O02)	
	119		RP	Order replace request (O01)	
	119		RO	Replacement order (O01)	
	119		RQ	Replaced as requested (O02)	
	119		UM	Unable to replace (O02)	
	119		XO	Change order request (O01)	
	119		UX	Unable to change (O02)	
	119		XR	Changed as requested (O02)	
HL7	123	Test Request status			
	123		A	Some, but not all, results available	
	123		C	Correction to results	
	123		E	Expired. OLIS has expired the test request because no activity has occurred within a reasonable amount of time.	OLIS Localization
	123		F	Final results; results stored and verified. Can only be changed with a corrected result.	

Type	Table	Name	Value	Description	OLIS Usage Note
	123		I	No results available; specimen received, procedure incomplete.	Use this code to indicate that a specimen has been collected.
	123		O	Order received; specimen not yet received.	
	123		P	Preliminary: A verified early result is available, final results not yet obtained.	
	123		X	No results available; Order cancelled.	
HL7	124	Transportation mode			
	124		PORT	The examining device goes to patient's location	Use to identify a point-of-care test.
HL7	125	Value type			
	125		CE	Coded Entry	
	125		DT	Date	
	125		ED	Encapsulated Data	
	125		FT	Formatted Text (Display)	
	125		NM	Numeric	
	125		SN	Structured Numeric	
	125		ST	String Data	
	125		TM	Time	
	125		TS	Time Stamp (Date & Time)	
	125		TX	Text Data (Display)	
HL7	126	Quantity limited request			
	126		RD	Records	
HL7	136	Yes/no indicator			
	136		Y	Yes	
	136		N	No	
HL7	190	Address type			
	190		M	Mailing	
	190		B	Firm/Business	
	190		O	Office	
	190		H	Home	
	190		E	Emergency Contact Address	OLIS Localization
HL7	191	Type of referenced data			
	191		SI	Scanned image	
	191		NS	Non-scanned image	
	191		SD	Scanned document	
	191		TEXT	Machine readable text document	

Type	Table	Name	Value	Description	OLIS Usage Note
	191		IM	Image data	
HL7	200	Name type			
	200		U	Unspecified	
HL7	201	Telecommunication use code			
	201		PRN	Primary Residence Number	
	201		ORN	Other Residence Number	
	201		WPN	Work Number	
	201		VHN	Vacation Home Number	
	201		ASN	Answering Service Number	
	201		EMR	Emergency Number	
	201		NET	Network (email) Address	
	201		BPN	Beeper Number	
HL7	202	Telecommunication equipment type			
	202		PH	Telephone	
	202		FX	Fax	
	202		CP	Cellular Phone	
	202		BP	Beeper	
	202		Internet	Internet Address: Use Only If Telecommunication Use Code Is NET	
User	203	Identifier type (acceptable usage varies by field)			
	203		ANON	Non-nominal Identifier (patient)	Adopted from v2.5
	203		DDSL	Dentist Licence Number (practitioner)	OLIS Localization
	203		JHN	Jurisdictional Health Number (Canada) (patient)	Adopted from v2.5
	203		MDL	Physician Licence Number (practitioner)	OLIS Localization
	203		ML	Midwife Licence Number (practitioner)	OLIS Localization
	203		MR	Medical record number (patient)	
	203		NAT	Naturopath License Number (practitioner)	OLIS Localization
	203		NPL	Nurse Practitioner Licence Number (practitioner)	OLIS Localization

Type	Table	Name	Value	Description	OLIS Usage Note
	203		PHARM	Pharmacist Licence Number (practitioner)	OLIS Localization
HL7	208	Query response status			
	208		OK	Data found, no errors (this is the default)	
	208		NF	No data found, no errors (although a warning due to a patient block or test request block may be returned in the ERR segment).	
	208		AE	Application error	
	208		AR	Application reject	
HL7	211	Alternate character sets			
	211		Jan-59	The displayable characters from the ISO 8859/1 character set	
HL7	291	Subtype of referenced data			
	291		TIFF	TIFF image data	
	291		JPEG	Joint Photographic Experts Group	
	291		GIF	Graphics Interchange Format	
	291		HTML	Hypertext Mark-up Language	
	291		XML	Extensible Mark-up Language (HL7 V2.3.1 and later)	
	291		RTF	Rich Text Format	
	291		PDF	Portable Document Format	OLIS Localization
	291		PNG	PNG image data	
	291		DOC	Word document format	
HL7	299	Encoding			
	299		Base64	encoding as defined by MIME (Multipurpose Internet Mail Extensions) standard RFC 1521. Four consecutive ASCII characters represent three consecutive octets of binary data.	
HL7	301	Universal ID type			
	301		ISO	An International Standards Organization Object Identifier.	
	301		X500	An X.500 directory name.	
User	347	State / Province Two-character state and province abbreviations from the Canada Postal Guide. A partial list appears below:			
	347		AB	Alberta	
	347		BC	British Columbia	

Type	Table	Name	Value	Description	OLIS Usage Note
	347		MB	Manitoba	
	347		NB	New Brunswick	
	347		NL	Newfoundland and Labrador	
	347		NT	Northwest Territories	
	347		NS	Nova Scotia	
	347		NU	Nunavut	
	347		ON	Ontario	
	347		PE	Prince Edward Island	
	347		QC	Québec	
	347		SK	Saskatchewan	
	347		YT	Yukon	
	347		NY	New York	
	347		MI	Michigan	
	347		MN	Minnesota	
	347		etc.		
HL7	354	Message structure			
	354		ORM_O01	O01	
	354		ORR_O02	O02	
	354		ORU_R01	R01	
	354		ACK_R01	R01	
	354		SPR_Q08	Q08	
	354		ERP_R09	R09	
	354		TBR_R08	R08	
HL7	357	HL7 Error Codes and Messages (HL7 Table 0357) on page 314			
HL7	364	Comment Type			
	364		RE	Remark	
HL7	399	Country			
	399			The set of 3-character country codes from the ISO-3166 standard, e.g., CAN, USA	
User	471	Query Name			
	471		Z_QryLabInfoForPatientID		OLIS Localization
	471		Z_QryLabInfoForLaboratoryID		OLIS Localization
	471		Z_QryLabInfoUpdatesForPractitionerID		OLIS Localization
	471		Z_QryLabInfoUpdatesForLaboratoryID		OLIS Localization

Type	Table	Name	Value	Description	OLIS Usage Note
	471		Z_QryLabInfoUpdatesForHCFID		OLIS Localization
	471		Z_QryLabInfoByPHBReportFlag		OLIS Localization
	471		Z_QryLabInfoByCCOReportFlag		OLIS Localization
	471		Z_QryLabOrderForPatientID		OLIS Localization
	471		Z_IDPatientByNameSexDoB		OLIS Localization
Local	9901	OLIS Test Request Nomenclature			Refer to the OLIS Test Request Nomenclature for values.
Local	9902	OLIS Test Result Nomenclature			Refer to the OLIS Test Result Nomenclature for values.
Local	9903	Business Rule Intervention			
	9903		DTA	Override duplicate test avoidance reject.	
Local	9904	Payor Code			
	9904		MOHLTC	Tests covered by OHIP	OLIS Localization
	9904		SELF	Tests paid for privately	OLIS Localization
	9904		3RDPARTY	Tests paid for by Third Party agencies	OLIS Localization
	9904		WSIB	Tests paid for by WSIB	OLIS Localization
	9904		UNKNOWN	When payor is unknown. This must not be used when reporting lab results	OLIS Localization
	9904		ORDFAC	Test paid by Ordering Facility	OLIS Localization
Local	9905	OLIS Microorganism Nomenclature			Refer to the OLIS Microorganism Nomenclature for values.
Local	9906	Reportable Test Indicator			
	9906		PH2	Reportable to Public Health	
	9906		CCO	Reportable to Cancer Care Ontario	
HL7	9912	Test Request Replace Indicator			
	9912	Y			

13.2 Units of Measure

13.2.1 Medical Laboratory Commonly Used Units of Measure

This list contains commonly used medical laboratory units of measure. It is not intended to be an exhaustive list, but provides examples of the units of measure that laboratories should use when reporting test results to OLIS. Refer also to section 13.2.2 *HL7 ISO+ Units of Measure* on the following pages.

Table 102 Medical Laboratory Commonly Used Units of Measure

Code	Description
%	Percent
% Normal	Percent of normal
% RECOVERY	Percent recovery
% Sat.	Percent saturation
%CV	Percent coefficient of variation
(null)	no value or null
/100 Lkc	Per 100 leukocytes
/100 LKC"s	Per 100 leukocytes
/100 WBC	Per 100 leukocytes
/100 WBC"S	Per 100 leukocytes
/HPF	Per high power field
/LPF	Per low power field
/TCC	Per total cell count
/ul	Per microliter
10**12/L	Times one trillion per liter
10**9/L	Times one billion per liter
10E12/L	Times one trillion per liter
10E6/L	Times one million per liter
10E9/L	Times one billion per liter
AI	Arbitrary international units
AI Units	Arbitrary international units
Anti-Xa IU/mL	International units/milliliter
APL	Anticariolipin immune globulin A units
B.U./mL	Bethesda units per milliliter
BU/ml	Bethesda units per milliliter
C	Degrees Celsius
cells/uL	Cells per microliter
Cent	Centimeter
Centipoise	Centipoise
CH50 units	Complement CH50 units per liter
cm	Centimeter
day	Day
Days	Day
Degrees	Degrees Celsius
E12/L	One trillion per liter
E9/L	One billion per liter
Erc/uL	Erythrocytes per liter
Ery/mcL	Erythrocytes per liter
fL	Femtoliter
ft	Feet
g	Gram
g/12 Hr	Grams per twelve hours
g/48 hr	Grams per forty eight hours
g/CP	Grams per specific heat capacity (in Joules per gram at X degrees Celsius)
G/D	Grams per day
g/day	Grams per day
G/L	Grams per liter
g/mmol	Grams per millimole
GM/L	Grams per liter
GPL	Anticardiolipin Immune gamma globulin units
GPL-U/mL	Anticardiolipin Immune gamma globulin units per milliliter
GPL-UmL	Anticardiolipin Immune gamma globulin units per milliliter
h	Hour
HB FRACT	Hemoglobin fraction

Code	Description
Hours	Hour
hr	Hour
in	Inch
INR	International normalized ratio
IU/L	International units per liter
IU/ml	International units per milliliter
IU/mL RBC	International units per milliliter of erythrocytes
IUx10e3/L	One thousand International units per liter
KEU/L	Kilo enzyme unit per liter
Kg	Kilogram
KIU/L	Kilo international enzyme unit per liter
kU/L	Kilo enzyme unit per liter
L	Liter
L/12 Hr	Liters per twelve hours
L/day	Liters per day
L/L	Liters per liter
L/min	Liters per minute
lb	Pound
lbs	Pounds
Leu/mcL	Leukocytes per microliter
leuk/uL	Leukocytes per microliter
LITRES	Liters
LPM	Liters per minute
M x M	Square meter
m2	Square meter
mcg/L	Micrograms per liter
mcg/ml	Micrograms per milliliter
mcmol/mmol	Micromole per millimole
mg/CP	Milligram per Specific heat capacity (in Joules per gram at X degrees Celsius)
mg/d	Milligram per day
mg/day	Milligram per day
mg/dL	Milligram per deciliter
MG/L	Milligram per liter
mg/mmol	Milligram per millimole
mg/mmol cr	Milligram per millimole of creatinine
mg/mmol Creat	Milligram per millimole of creatinine
min	Minute
MIN.	Minute
MINS	Minutes
MINUTES	Minutes
mIU/L	Micro international unit per liter
mIU/mL	Micro international unit per milliliter
ml	Milliliter
mL/d	Milliliter per day
mL/min	Milliliter per minute
mL/min/1.73 m*2	Milliliter per minute per 1.73 square meter of body surface area
mL/min/1.73 m2	Milliliter per minute per 1.73 square meter of body surface area
mL/min/1.73m*2	Milliliter per minute per 1.73 square meter of body surface area
mL/min/1.73m2	Milliliter per minute per 1.73 square meter of body surface area
ML/S	Milliliter per second
mL/s/1.73 sq M	Milliliter per minute per 1.73 square meter of body surface area
mL/s/1.73m*2 bsa	Milliliter per minute per 1.73 square meter of body surface area
mL/s/m2	Millilter per second per square meter
mL/s/SA	Milliliter per second per surface area

Code	Description
MLS	Milliliters
mm	Millimeters
MM HG	Millimeters of mercury
mm/h	Millimeters per hour
mm/hour	Millimeters per hour
mm/Hr	Millimeters per hour
mmHg	Millimeters of mercury
mmol/48 hr	Millimoles per forty eight hours
mmol/CP	Millimoles per specific heat capacity (in Joules per gram at X degrees Celsius)
MMOL/D	Millimoles per day
mmol/day	Millimoles per day
MMOL/KG	Millimoles per kilogram
MMOL/L	Millimoles per liter
mmol/mmol	Millimoles per millimole
mmol/mol	Millimoles per mole
mmol/mol Cr	Millimoles per mole of creatinine
mOsm/kg	Milliosmole per kilogram
mosmol/kg	Milliosmole per kilogram
MPL	Anti cardiolipin immune globulin M
MPL-U/mL	Anticardiolipin immune globulin M units per milliliter
MU/L	Milli units per liter
N/A	Not applicable
ng/g	Milligram per gram
ng/L	Nanogram per liter
ng/L/s	Nanograms per liter per second
ng/mL	Nanograms per milliliter
nM	Nanometer
nmol/CP	Nanomoles per specific heat capacity (in Joules per gram at X degrees Celsius)
nmol/d	Nanomoles per day
nmol/day	Nanomoles per day
NMOL/DRY G	Nanomoles per dry gram
NMOL/H/MG	Nanomoles per hour per milligram
NMOL/L	Nanomoles per liter
nmol/mmol	Nanomoles per millimole
nmol/mmol cr	Nanomole per millimole of creatinine
nmol/mmol creat	Nanomole per millimole of creatinine
nmol/mol creat	Nanomole per mole of creatinine
Normaliz Ratio	Normalization ratio
OF T Hgb	Of total hemoglobin
P/UL	Phosphorous per microliter
per 100 WBC	Per one hundred white blood cells
pg	Picogram
PG/ML	Picograms per milliliter
pH Units	[pH]
PMOL/L	Picomoles per liter
pmol/ng	Picomoles per nanogram
Ratio	Ratio
RATIO (%)	Ratio in percent
RU/mL	Relative units per milliliter
s	Second
sec	Second
seconds	Seconds
SECS	Seconds
See Below	See below
SPERM/HPF	Spermatozoa per high power field

Code	Description
sq.m.	Square meter
U	Unit
U/CP	Units per specific heat capacity (in Joules per gram at X degrees Celsius)
U/D	Units per day
U/day	Inits per day
U/g Hb	Units per gram of hemoglobin
U/g HGB	Units per gram of hemoglobin
U/gHb	Units per gram of hemoglobin
U/L	Units per liter
U/ML	Units per milliliter
U/mL RBC	Units per milliliter of red blood cells
UG EQ/ML	Microgram equivilents per milliliter
UG/L	Micrograms per milliliter
ug/Minute	Micrograms per minute
ug/mL	Micrograms per milliliter
ug/s	Micrograms per second
umol ZPP/mol heme	Micromoles of zinc protoporphyrins per mole of hemoglobin
umol/CP	Micromoles per specific heat capacity (in Joules per gram at X degrees Celsius)
umol/d	Micromoles per day
umol/day	Micromoles per day
UMOL/L	Micromoles per liter
umol/L erythrocytes	Micromoles per liter of erythrocytes
umol/mmol	Micromoles per millimole
umol/mmol cr	Micromoles per millimole of creatinine
umol/mmol creat	Micromoles per millimole of creatinine
umol/mol	Micromoles per mole
umol/mol creat	Micromoles per mole of creatinine
unit/g Hgb	Units per gram of hemoglobin
unit/ml	Units per milliliter
Units	Units
units/mL	Units per milliliter
X 10 9/L	Times one billion per liter
x 10*12/L	Times one trillion per liter
x 10*6/mL	Times one million per milliliter
x 10*6cfu/L	Times one million colony forming units per liter
x 10*9/L	Times one billion per liter
x 10E6/L	Times one million per liter
X 10E6/mL	Times one million per milliliter
x E12/L	Times one trillion per liter
x E6 CFU/L	Times one million colony forming units per liter
x E6/L	Times one million per liter
x E9/L	Times one billion per liter
X10 12/L	Times one trillion per liter
x10 6/L	Times one million per liter
X10 6/ML	Times one million per milliliter
x10 9/L	Times one billion per liter
x10**6/ml	Times one million per milliliter
x10E12/L	Times one trillion per liter
x10E6	Times one million
x10E6/L	Times one million per liter
x10E6/ml	Times one million per milliliter
x10E9/L	Times one billion per liter

13.2.2 HL7 ISO+ Units of Measure

Table 103 HL7 ISO + Units of Measure

Code/Abbr.	Name
/(arb_u)	*1 / arbitrary unit
/iu	*1 / international unit
/kg	*1 / kilogram
/L	1 / liter
1/mL	*1 / milliliter
10.L/min	*10 x liter / minute
10.L /(min.m2)	*10 x (liter / minute) / meter^2 = liter / (minute × meter^2)
10*3/mm3	*10^3 / cubic millimeter (e.g., white blood cell count)
10*3/L	*10^3 / Liter
10*3/mL	*10^3 / milliliter
10*6/mm3	*10^6 / millimeter^3
10*6/L	*10^6 / Liter
10*6/mL	*10^6 / milliliter
10*9/mm3	*10^9 / millimeter^3
10*9/L	*10^9 / Liter
10*9/mL	*10^9 / milliliter
10*12/L	*10^{12} / Liter
10*3(rbc)	*1000 red blood cells†
a/m	Ampere per meter
(arb_u)	*Arbitrary unit
bar	Bar (pressure; 1 bar = 100 kilopascals)
/min	Beats or Other Events Per Minute
bq	Becquerel
(bdsk_u)	*Bodansky Units
(bsa)	*Body surface area
(cal)	*Calorie
1	*Catalytic Fraction
/L	Cells / Liter
cm	Centimeter
cm_h20	* Centimeters of water =H_20 (pressure)
cm_h20.s/L	Centimeters H_20 / (liter / second) = (centimeters H_20 × second) / liter (e.g., mean pulmonary resistance)
cm_h20/(s.m)	(Centimeters H_20 / second) / meter = centimeters H_20 / (second × meter) (e.g., pulmonary pressure time product)
(cfu)	*Colony Forming Units
m3/s	Cubic meter per second
d	Day
db	Decibels
dba	*Decibels a Scale
cel	Degrees Celsius
deg	Degrees of Angle
(drop)	Drop
10.un.s/cm5	Dyne × Second / centimeter^5 (1 dyne = 10 micronewton = 10 un) (e.g., systemic vascular resistance)
10.un.s/(cm5.m2)	((Dyne × second) / centimeter^5) / meter^2 = (Dyne × second) / (centimeter^5 × meter^2) (1 dyne = 10 micronewton = 10 un) (e.g., systemic vascular resistance/body surface area)
ev	Electron volts (1 electron volt = 160.217 zeptojoules)
eq	Equivalent
f	Farad (capacitance)
fg	Femtogram
fL	Femtoliter

Code/Abbr.	Name
fmol	Femtomole
/mL	*Fibers / milliliter
g	Gram
g/d	*Gram / Day
g/dL	Gram / Deciliter
g/hr	Gram / Hour
g/(8.hr)	*Gram / 8 Hour Shift
g/kg	Gram / Kilogram (e.g., mass dose of medication per body weight)
g/(kg.d)	(Gram / Kilogram) / Day = gram / (kilogram × day) (e.g., mass dose of medication per body weight per day)
g/(kg.hr)	(Gram / Kilogram) / Hour = gram / (kilogram × hour) (e.g., mass dose of medication per body weight per hour)
g/(8.kg.hr)	(Gram / Kilogram) /8 Hour Shift = gram / (kilogram × 8 hour shift) (e.g., mass dose of medication per body weight per 8 hour shift)
g/(kg.min)	(Gram / Kilogram) / Minute = gram / (kilogram × minute) (e.g., mass dose of medication per body weight per minute)
g/L	Gram / Liter
g/m2	Gram / Meter^2 (e.g., mass doses of medication per body surface area)
g/min	Gram / Minute
g.m/(hb)	Gram × meter / heart beat (e.g., ventricular stroke work)
g.m/((hb).m2)	(Gram × meter/ heartbeat) / meter^2 = (gram × meter) / (heartbeat × meter^2) (e.g., ventricular stroke work/body surface area, ventricular stroke work index)
g(creat)	*Gram creatinine
g(hgb)	*Gram hemoglobin
g.m	Gram meter
g(tot_nit)	*Gram total nitrogen
g(tot_prot)	*Gram total protein
g(wet_tis)	*Gram wet weight tissue
gy	Grey (absorbed radiation dose)
hL	Hectaliter = 10^2 liter
h	Henry
in	Inches
in_hg	Inches of Mercury (=Hg)
iu	*International Unit
iu/d	*International Unit / Day
iu/hr	*International Unit / Hour
iu/kg	International Unit / Kilogram
iu/L	*International Unit / Liter
iu/mL	*International Unit / Milliliter
iu/min	*International Unit / Minute
j/L	Joule/liter (e.g., work of breathing)
kat	*Katal
kat/kg	*Katal / Kilogram
kat/L	*Katal / Liter
k/watt	Kelvin per watt
(kcal)	Kilocalorie (1 kcal = 6.693 kilojoule)
(kcal)/d	*Kilocalorie / Day
(kcal)/hr	*Kilocalorie / Hour
(kcal)/(8.hr)	*Kilocalorie / 8 Hours Shift
kg	Kilogram

Code/Abbr.	Name
kg(body_wt)	* kilogram body weight
kg/m3	Kilogram per cubic meter
kh/h	Kilogram per hour
kg/L	Kilogram / liter
kg/min	Kilogram per minute
kg/mol	Kilogram / mole
kg/s	Kilogram / second
kg/(s.m2)	(Kilogram / second)/ meter² = kilogram / (second × meter²)
kg/ms	Kilogram per square meter
kg.m/s	Kilogram meter per second
kpa	Kilopascal (1 mmHg = 0.1333 kilopascals)
ks	Kilosecond
(ka_u)	King-Armstrong Unit
(knk_u)	*Kunkel Units
L	Liter
L/d	*Liter / Day
L/hr	Liter / hour
L/(8.hr)	*Liter / 8 hour shift
L/kg	Liter / kilogram
L/min	Liter / minute
L/(min.m2)	(Liter / minute) / meter² = liter / (minute × meter²) (e.g., cardiac output/body surface area = cardiac index)
L/s	Liter / second (e.g., peak expiratory flow)
L.s	Liter / second / second² = liter × second
lm	Lumen
lm/m2	Lumen / Meter²
(mclg_u)	*MacLagan Units
mas	Megasecond
m	Meter
m2	Meter² (e.g., body surface area)
m/s	Meter / Second
m/s2	Meter / Second²
ueq	*Microequivalents
ug	Microgram
ug/d	Microgram / Day
ug/dL	Microgram / Deciliter
ug/g	Microgram / Gram
ug/hr	*Microgram / Hour
ug(8hr)	Microgram / 8 Hour Shift
ug/kg	Microgram / Kilogram
ug/(kg.d)	(Microgram / Kilogram) /Day = microgram / (kilogram × day) (e.g., mass dose of medication per patient body weight per day)
ug/(kg.hr)	(Microgram / Kilogram) / Hour = microgram / (kilogram × hours) (e.g., mass dose of medication per patient body weight per hour)
ug/(8.hr.kg)	(Microgram / Kilogram) / 8 hour shift = microgram / (kilogram × 8 hour shift) (e.g., mass dose of medication per patient body weight per 8 hour shift)
ug/(kg.min)	(Microgram / Kilogram) / Minute = microgram / (kilogram × minute) (e.g., mass dose of medication per patient body weight per minute)
ug/L	Microgram / Liter
ug/m2	Microgram / Meter² (e.g., mass dose of medication per patient

Code/Abbr.	Name
	body surface area)
ug/min	Microgram / Minute
uiu	*Micro international unit
ukat	*Microkatel
um	Micrometer (Micron)
umol	Micromole
umol/d	Micromole / Day
umol/L	Micromole / Liter
umol/min	Micromole / Minute
us	Microsecond
uv	Microvolt
mbar	Millibar (1 millibar = 100 pascals)
mbar.s/L	Millibar / (liter / second) =(millibar × second) / liter (e.g., expiratory resistance)
meq	*Milliequivalent
meq/d	*Milliequivalent / Day
meq/hr	*Milliequivalent / Hour
meq/(8.hr)	Milliequivalent / 8 Hour Shift
meq/kg	Milliequivalent / Kilogram (e.g., dose of medication in milliequivalents per patient body weight)
meq/(kg.d)	(Milliequivalents / Kilogram) / Day = milliequivalents / (kilogram × day) (e.g., dose of medication in milliequivalents per patient body weight per day)
meq/(kg.hr)	(Milliequivalents / Kilogram) / Hour = milliequivalents / (kilogram × hour) (e.g., dose of medication in milliequivalents per patient body weight per hour)
meq/(8.hr.kg)	(Milliequivalents / Kilogram) / 8 Hour Shift = milliequivalents / (kilogram × 8 hour shift) (e.g., dose of medication in milliequivalents per patient body weight per 8 hour shift)
meq/(kg.min)	(Milliequivalents / Kilogram) / Minute = milliequivalents / (kilogram × minute) (e.g., dose of medication in milliequivalents per patient body weight per minute)
meq/L	Milliequivalent / Liter
	Milliequivalent / Meter^2 (e.g., dose of medication in milliequivalents per patient body surface area)
meq/min	Milliequivalent / Minute
mg	Milligram
mg/m3	Milligram / Meter^3
mg/d	Milligram / Day
mg/dL	Milligram / Deciliter
mg/hr	Milligram / Hour
mg/(8.hr)	Milligram / 8 Hour shift
mg/kg	Milligram / Kilogram
mg/(kg.d)	(Milligram / Kilogram) / Day = milligram / (kilogram × day) (e.g., mass dose of medication per patient body weight per day)
mg/(kg.hr)	(Milligram / Kilogram) / Hour = milligram/ (kilogram × hour) (e.g., mass dose of medication per patient body weight per hour)
mg/(8.hr.kg)	(Milligram / Kilogram) /8 Hour Shift = milligram / (kilogram × 8 hour shift) (e.g., mass dose of medication per patient body weight per 8 hour shift)
mg/(kg.min)	(Milligram / Kilogram) / Minute = milligram / (kilogram × minute) (e.g., mass dose of medication per patient body weight per hour)
mg/L	Milligram / Liter
mg/m2	Milligram / Meter^2 (e.g., mass dose of medication per patient body surface area)
mg/min	Milligram / Minute
mL	Milliliter

Code/Abbr.	Name
mL/cm_h20	Milliliter / Centimeters of Water (H_20) (e.g., dynamic lung compliance)
mL/d	*Milliliter / Day
mL/(hb)	Milliliter / Heart Beat (e.g., stroke volume)
mL/((hb).m2)	(Milliliter / Heart Beat) / Meter² = Milliliter / (Heart Beat × Meter²) (e.g., ventricular stroke volume index)
mL/hr	*Milliliter / Hour
mL/(8.hr)	*Milliliter / 8 Hour Shift
mL/kg	Milliliter / Kilogram (e.g., volume dose of medication or treatment per patient body weight)
mL/(kg.d)	(Milliliter / Kilogram) / Day = milliliter / (kilogram × day) (e.g., volume dose of medication or treatment per patient body weight per day)
mL/(kg.hr)	(Milliliter / Kilogram) / Hour = milliliter / (kilogram × hour) (e.g., volume dose of medication or treatment per patient body weight per hour)
mL/(8.hr.kg)	(Milliliter / Kilogram) / 8 Hour Shift = milliliter / (kilogram × 8 hour shift) (e.g., volume dose of medication or treatment per body weight per 8 hour shift)
mL/(kg.min)	(Milliliter / Kilogram) / Minute = milliliter / (kilogram × minute) (e.g., volume dose of medication or treatment per patient body weight per minute)
mL/m2	Milliliter / Meter² (e.g., volume of medication or other treatment per patient body surface area)
mL/mbar	Milliliter / Millibar (e.g., dynamic lung compliance)
mL/min	Milliliter / Minute
mL/(min.m2)	(Milliliter / Minute) / Meter² = milliliter / (minute × meter²) (e.g., milliliters of prescribed infusion per body surface area; oxygen consumption index)
mL/s	Milliliter / Second
mm	Millimeter
mm(hg)	*Millimeter (HG) (1 mm Hg = 133.322 kilopascals)
mm/hr	Millimeter/ Hour
mmol/kg	Millimole / Kilogram (e.g., molar dose of medication per patient body weight)
mmol/(kg.d)	(Millimole / Kilogram) / Day = millimole / (kilogram × day) (e.g., molar dose of medication per patient body weight per day)
mmol/(kg.hr)	(Millimole / Kilogram) / Hour = millimole / (kilogram × hour) (e.g., molar dose of medication per patient body weight per hour)
mmol/(8.hr.kg)	(Millimole / Kilogram) / 8 Hour Shift = millimole / (kilogram × 8 hour shift) (e.g., molar dose of medication per patient body weight per 8 hour shift)
mmol/(kg.min)	(Millimole / Kilogram) / Minute = millimole / (kilogram × minute) (e.g., molar dose of medication per patient body weight per minute)
mmol/L	Millimole / Liter
mmol/hr	Millimole / Hour
mmol/(8hr)	Millimole / 8 Hour Shift
mmol/min	Millimole / Minute
mmol/m2	Millimole / Meter² (e.g., molar dose of medication per patient body surface area)
mosm/L	*Milliosmole / Liter
ms	Milliseconds
mv	Millivolts
miu/mL	*Milliunit / Milliliter
mol/m3	Mole per cubic meter
mol/kg	Mole / Kilogram

Code/Abbr.	Name
mol/(kg.s)	(Mole / Kilogram) / Second = mole / (kilogram × second)
mol/L	Mole / Liter
mol/s	Mole / Second
ng	Nanogram
ng/d	Nanogram / Day
ng/hr	*Nanogram / Hour
ng/(8.hr)	Nanogram / 8 Hour shift
ng/L	Nanogram / Liter
ng/kg	Nanogram / Kilogram (e.g., mass dose of medication per patient body weight)
ng/(kg.d)	(Nanogram / Kilogram) / Day = nanogram / (kilogram × day) (e.g., mass dose of medication per patient body weight per day)
ng/(kg.hr)	(Nanogram / Kilogram) / Hour = nanogram / (kilogram × hour) (e.g., mass dose of medication per patient body weight per hour)
ng/(8.hr.kg)	(Nanogram / Kilogram) / 8 Hour Shift = nanogram / (kilogram × 8 hour shift) (e.g., mass dose of medication per patient body weight per 8 hour shift)
ng/(kg.min)	(Nanogram / Kilogram) / Minute = nanogram / (kilogram × minute) (e.g., mass dose of medication per patient body weight per minute)
ng/m2	Nanogram / Meter^2 (e.g., mass dose of medication per patient body surface area)
ng/mL	Nanogram / Milliliter
ng/min	*Nanogram / Minute
ng/s	*Nanogram / Second
nkat	*Nanokatel
nm	Nanometer
nmol/s	Nanomole / Second
ns	Nanosecond
n	Newton (force)
n.s	Newton second
(od)	*O.D. (optical density)
ohm	Ohm (electrical resistance)
ohm.m	Ohm meter
osmol	Osmole
osmol/kg	Osmole per kilogram
osmol/L	Osmole per liter
/m3	*Particles / Meter^3
/L	*Particles / Liter
/(tot)	*Particles / Total Count
(ppb)	*Parts Per Billion
(ppm)	*Parts Per Million
(ppth)	Parts per thousand
(ppt)	Parts per trillion (10^12)
pal	Pascal (pressure)
/(hpf)	*Per High Power Field
(ph)	*pH
pa	Picoampere
pg	Picogram
pg/L	Picogram / Liter
pg/mL	Picogram / Milliliter
pkat	*Picokatel
pm	Picometer
pmol	*Picomole
ps	Picosecond
pt	Picotesla
(pu)	*P.U.

Code/Abbr.	Name
%	Percent
dm2/s2	Rem (roentgen equivalent man) = 10^{-2} meter^2 / second^2 = decimeter^2 / second^2 Dose of ionizing radiation equivalent to 1 rad of x-ray or gamma ray) [From Dorland's Medical Dictionary]
sec	Seconds of arc
sie	Siemens (electrical conductance)
sv	Sievert
m2/s	Square meter / second
cm2/s	Square centimeter / second
t	Tesla (magnetic flux density)
(td_u)	Todd Unit
v	Volt (electric potential difference)
1	Volume Fraction
wb	Weber (magnetic flux)
*Starred items are not genuine ISO, but do not conflict. †This approach to units is discouraged by IUPAC. We leave them solely for backward compatibility	

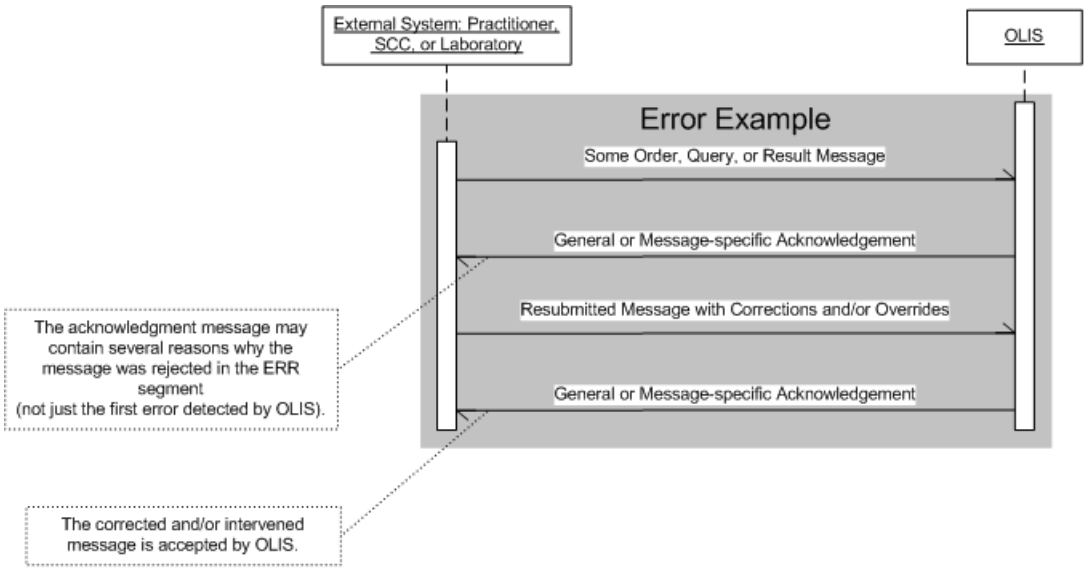
13.3 LOINC Table

Table 104 LOINC numbers and their corresponding fully specified names

LOINC_NUM	Fully Specified Name
11636-8	BIRTHS.LIVE:NUM:PT:^PATIENT:QN:REPORTED
8301-4	BODY HEIGHT:LEN:PT:^PATIENT:QN:ESTIMATED
3137-7	BODY HEIGHT:LEN:PT:^PATIENT:QN:MEASURED
3138-5	BODY HEIGHT:LEN:PT:^PATIENT:QN:STATED
3140-1	BODY SURFACE:AREA:PT:^PATIENT:QN:DERIVED
8335-2	BODY WEIGHT:MASS:PT:^PATIENT:QN:ESTIMATED
3142-7	BODY WEIGHT:MASS:PT:^PATIENT:QN:STATED
3141-9	BODY WEIGHT:MASS:PT:^PATIENT:QN:MEASURED
8665-2	DATE LAST MENSTRUAL PERIOD:TMSTMP:PT:^PATIENT:QN:REPORTED
34970-4	DATE ULTRASOUND:TMSTMP:PT:^PATIENT:QN
29546-9	HISTORY OF SYMPTOMS & DISEASES:FIND:PT:^PATIENT:NAR:OBSERVED
10182-4	HISTORY OF TRAVEL: FIND:PT:^PATIENT:NAR:REPORTED
29549-3	MEDICATION ADMINISTERED:TYPE:PT:^PATIENT:NAR
11996-6	PREGNANCIES:NUM:PT:^PATIENT:QN:REPORTED
11996-6	PREGNANCIES:NUM:PT:^PATIENT:QN
11636-8	BIRTHS.LIVE:NUM:PT:^PATIENT:QN

13.4 Error Codes

13.4.1 Interaction Diagram



OLIS
Error Example

13.4.2 HL7 Error Codes and Messages (HL7 Table 0357)

This table contains a list of application-level error codes and messages that may be returned to an external system by OLIS. In most but not necessarily all cases, the segment and or field that contains the error may be identified in the ERR.1 *Error Code and Location* field.

Transport-protocol error messages are reported outside of the HL7 message. These errors are specified in section 11.6 Errors on page 263.

13.4.2.1 Business Logic Error Codes

Some error codes contain placeholders where OLIS will insert instance-specific data into the error text, e.g., {0}. The third column indicates the additional pointer information in the ERR segment that accompanies the error code,

which may point to the field, the segment, the SPR.4 query parameter list, or nothing depending on the error type. The sequence component of the ERR segment is populated for most segments that repeat.

Table 105 Business Logic Error Codes

Error Code	Description	Error Points To
100	Segment sequence or cardinality error	Nothing
101	The field must not be empty	Field
102	Data type error	Field
103	The identifier or code '{0}' is not a valid value	Field
104	The value '{0}' was submitted but '{1}' was expected	Field
105	The following identifier or code is not active: '{0}'	Field
106	The message contains data that is not valid in the ISO8859/1 character set.	Nothing
107	The field must be empty	Field
108	The maximum length is exceeded	Field
109	The specified value is incorrect: {0}	Field
110	The structure and/or content is not valid for the following parameter: '{0}'	SPR.4 Parameter List
111	The value '{0}' cannot be future dated	Field
112	Note identifiers must be unique	Segment
113	Data must not be submitted in HL7 fields not supported by OLIS	Field
115	The sending application is not mapped to the certificate.	Nothing
117	The number of repeating elements falls outside the range of the allowed number of repetitions	Field
118	The field must contain the same value on all test requests in the order	Field
119	The value '{0}' is not valid relative to other information in the order	Field
120	The value in this field cannot be changed because a test result(s) exists	Field
121	The value in this field cannot be changed by the system or user that submitted the request	Field
122	The value in this field cannot be changed	Field
123	The test request code ‘{0}’ and test result code ‘{1}’ combination is unknown to OLIS. Please review for validity.	Field
124	The amending message is missing a required test request	Segment
125	The value provided {0} cannot be used in conjunction with the value provided in {1}	Field
126	The value {0} for amendment does not exist in OLIS repository	Segment
127	The sending application is not authorized to perform the action indicated in {0}	Field
200	The submitted message type is not recognized	Nothing
204	The Order ID '{0}' does not correspond to any order in OLIS	Field
205	The identifier '{0}' must be unique	Field
302	Name format rule violation	Field
303	Health card reported lost	Field
304	Health card reported stolen	Field
305	Identifier format validation failed for ID '{0}'	Field

Error Code	Description	Error Points To
306	Multiple patient identifiers of the same type are not permitted	Field
307	Patient identifiers can be added but not modified	Field
308	The submitted Patient ID type is not valid for MOHLTC-funded tests	Field
309	A non-nominal patient identifier must not be submitted with other patient identifiers	Field
310	The submitted patient identifier(s) in the message do not match any patient identifiers on the order	Field
311	Different values or notes cannot be reported for the same test result with the same Test Result Release Date Time	Segment
312	No changes are permitted to an expired test request	Segment
313	Payer must be the same or Self for all test requests in the order	Field
314	A Physician Office Test must be ordered, collected, and performed by the ordering physician	Segment
315	Specimen information can only be changed by a laboratory or the specimen collector	Field
317	Test requests may only be added or amended by a laboratory because a specimen has already been collected	Segment
318	Warning: The requested test request level block will not restrict access to the information until such time as test-request-level locking is permitted by OLIS	Field
319	Clinical relationship assertion required	Nothing
320	Warning: Some or all of the requested laboratory information was not returned due to a patient consent directive. If appropriate, the query may be resubmitted with an override.	Nothing
322	The test request date must not be more than 13 months in the future	Field
323	OLIS has found a consent directive in effect and hence the order cannot be referred via OLIS. Please follow alternate referral processes to complete the reporting.	Field
324	Maximum search range must not exceed {0}	Nothing
330	The identifier or code {0} is not valid. OLIS will remove the value to persist the data. Please ensure the accuracy of the data.	Field
401	The system that submitted the message has not passed conformance testing	Nothing
402	The laboratory is not authorized to perform the following test: '{0}'	Field
403	The practitioner is not authorized to order the following test: '{0}'	Nothing
404	Not authorized	Nothing
901	Warning: Health card version code is incorrect	Nothing
902	Warning: Patient does not have current OHIP coverage	Nothing
904	Warning: Patient name, sex, and/or date of birth is not current	Field
905	Warning: The value in this field cannot be changed by the user or system that submitted the request. The proposed change has been ignored.	Field
906	Warning: The value '{0}' was submitted but '{1}' was expected”	Field
907	Warning: The specified value is incorrect: ‘{0}’	Nothing
911	Warning: The format of the content used in ‘{0}’ will be deprecated in the future. Please make necessary changes to your interface to support the standard format defined in the OLIS interface specifications or reach out to eHealth Ontario for further assistance.	Field
912	Warning: The content you have submitted in the ‘{0}’ contains unnecessary space(s). OLIS will remove these space(s) to persist the data. Please ensure the	Field

Error Code	Description	Error Points To
	accuracy of the data.	
913	Warning: The organization information {0} is not current.	Field
920	Warning: At the time the query was submitted to OLIS, a patient-level block consent directive was in effect.	Nothing
923	OLIS has found a consent directive in effect for the order {0} and has been removed from the result set of the query. Please follow alternate referral processes to complete the reporting.	Field
924	Warning: Order {0} contained a virus that has been removed.	Field
925	Warning 925: The submitted consent directive was not applied in OLIS.	Nothing
926	Warning: The following identifier or code {0} will be deprecated {as of 1}	Field
927	Warning: The following identifier or code {0} is no longer active {as of 1}. Please choose an appropriate code as this code will be rejected in the future.	Field
928	Warning: Order '{0}' contained duplicate notes that have been removed.	Field
999	Host Processing Error	Nothing