OntarioMD

OntarioMD Inc.

Electronic Medical Records

SPECIFICATION

Appendix E – EMR/OLIS Interface Requirements

FINAL

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Ontario
eHealth Ontario

TABLE OF CONTENTS

1. INTRODUCTION

1.1 SCOPE / PURPOSE OF THE DOCUMENT

The following Appendix defines requirements of the Electronic Medical Record (EMR) to interface with the Ontario Laboratories Information System (OLIS). These requirements complement existing Laboratory management requirements identified in Appendix A.

OLIS is a provincial system whose goal is to allow all laboratory information of Ontario residents to be exchanged electronically between practitioners and laboratory service providers, and to provide the Ministry of Health and Long-Term Care (MOHLTC) with program management information.

Today OLIS captures, transmits, stores, and maintains information on laboratory test results. This supports clinical decision-making by providing health practitioners with comprehensive and timely result reports, and by offering standardized reports, consistent nomenclature and code tables.

IN-SCOPE FOR EMR SPECIFICATION 4.0

OLIS is another method of transmission for lab results reports that is meant to supplement and eventually replace the existing proprietary interface(s). EMRs will interface with OLIS using HL7 messages. This will allow physicians to:

a) Retrieve laboratory results reports in a consistent format.

b) Retrieve laboratory results reports by practitioner or by patient.

c) Preview and/or selectively process lab results reports before saving and managing them in the EMR.

d) Override a consent directive to retrieve blocked reports once patient consent is received.

The latest OLIS Specification documents are available on the OHISC Standards Knowledge Management Tool at http://www.skmtportal.cred.ca/search.aspx under the item “Laboratories”. In particular, there are two OLIS Specification documents available on the site relevant to interfacing with OLIS, and downloading data to the EMR.

1) Ontario Laboratories Information System (OLIS) Interface Specification

2) Ontario Laboratories Information System (OLIS) Nomenclature Standard

When fully deployed, OLIS will provide the following services to external clinical applications:

1) Capture and retrieval of laboratory orders, including specimen information
2) Capture and retrieval of test results reports
3) Queries to access laboratory information by patient, practitioner, and health care facility
4) Lab-to-lab exchange of orders and results

1.2 DEFINITIONS, ACRONYMS AND ABBREVIATIONS

TERM	MEANING
OLIS	**O**ntario **L**aboratories **I**nformation **S**ystem
OHIP	**O**ntario **H**ealth **I**nsurance **P**lan
OHN	**O**ntario **H**ealth **N**umber
MOHLTC	**M**inistry of **H**ealth and **L**ong-**T**erm **C**are
MRP	**M**ost **R**esponsible **P**hysician - the attending physician who is primarily responsible for the day-to-day care of patient. In absence, the covering physician will fulfill the MRP role.
Provider	A person who provides healthcare services to patients or an organization that facilitates such services.

1.3 RELATED DOCUMENTS AND REFERENCES

The following table lists all documents related to, or referenced by, the Software Requirements Specification:

DOCUMENT NAME	VERSION	DATE
EMR Specification 4.0 Main Document	Final / v4.0	17-Jan-2011
Appendix A – EMR Baseline Requirements	Final / v4.0	17-Jan-2011
Ontario Laboratories Information System (OLIS) Interface Specification	V1.07 and later versions as amended from time to time	17-Sept-2010
Ontario Laboratories Information System (OLIS) Nomenclature Specification	V1.27	N/A
OLIS – Report Identification Guidance	V1.0	17-Jan-2011

2. ONTARIO LABORATORIES INFORMATION SYSTEM REQUIREMENTS

This section consists of the functional requirements for EMR solutions under EMR Specification v. 4.0.

Scoring Key: **M** = Mandatory criteria for certification
W = Weighted criteria

Status Key: **N** = New requirement for EMR Specification 4.0

2.1 PRIVACY & SECURITY, AUDIT, CONSENT

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) The EMR will maintain a log for all OLIS related queries.	The application will maintain a log containing the parameters used in all OLIS queries and the date and time the query was executed. The log entries will be retained in accordance with regulations governed by the Medicine Act, 1991. The queries and HL7 messages need to be stored for audit purposes	M	N	
b) Provide the ability to override a patient consent directive in OLIS to see all blocked results reports for that patient. Refer to the OLIS Interface Specification section 2.9.28 – *Overrides To Access Blocked Laboratory Information*.	If the set of results returned includes an indication that some results within reports have been blocked because the patient has withdrawn their consent, the EMR must visually indicate this condition If the EMR User chooses to override the patient's consent directive, user must: • Be prompted with an option to override the patient consent directive with the consent of the patient or the patient's substitute decision maker • Actively be prompted to assert that he/she has chosen this option • Specify and track/log whether consent was obtained from the patient or the patient's substitute decision maker Log the event in the EMR, including when the override occurred, the identity of the person performing the override, the practitioner on whose behalf they were acting, and whether it was the patient or the substitute decision maker who authorized the override.	M	N	The Ordering Practitioner, CC'd Practitioner(s) and the participating laboratory can always access reports where they are identified as the report recipients regardless of patient consent concerning blocked results.
c) Identify results reports that are blocked in OLIS.	If a User chooses to save the results of a query for which a consent directive exists, then the results report must be clearly tagged as sensitive information (i.e. pertaining to blocked result(s)) in the EMR. The results report will be available to practitioners within the circle of care but its "sensitive blocked result(s) status" must be clearly identified to all who are able to review the report.	M	N	

2.2 CERTIFICATION, REGISTRATION AND ENROLMENT

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) EMR Offerings will have to comply with the OLIS Client Software Certification.	See Section 5: *Client Software Certification* of the OLIS Interface Specification for an overview of this process. At a minimum, the conformance test scripts for Connectivity and HL7 message structure and format for the requirements identified in this appendix must be met. After successfully completing the certification process, vendors will be issued a certificate by the OLIS team. OLIS may require a repeat of conformance testing if the OLIS Interface Specification is updated. Vendors will be given 6-months notice of any changes to the OLIS interface.	M	N	
b) EMR Offerings must comply with eHealth Ontario Registration & Enrolment requirements.	See Section 3.5: *Certificates of the OLIS Interface Specification* for additional information about this process and the requirements to access OLIS after conformance testing is complete. Registration of each instance of the EMR is required in order to get the proper security credentials.	M	N	Each EMR instance will require a separate registration, and will be given a unique certificate issued by eHealth Ontario's Certificate Authority. For both ASPs and local: A certificate is required per clinic, not per user, All doctors for a clinic will use the same certificate.

2.3 RETRIEVE LABORATORY INFORMATION UPDATES FOR PRACTITIONER

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) Automatically retrieve Laboratory reports for practitioners every 30 minutes. Refer to the OLIS Interface Specification section 2.1.2.7 – *Retrieve Laboratory Information Updates for Practitioner*	This automated query will return laboratory reports that identify the requesting practitioner as being the ordering practitioner, a CC'd practitioner, admitting practitioner, or attending practitioner. If this query fails to execute or is run manually, the subsequent execution of the query must automatically adjust to ensure all laboratory reports are provided to the practitioner and results are not unnecessarily duplicated.	M	N	Section 2.8.3.17.1 - *Query Parameter Matrix* of the OLIS Interface Specification identifies the parameters available to OLIS queries.
b) Allow the user to set optional filters to reduce instances of unwanted lab results reports before they are saved in the EMR. At a minimum the EMR should support (a user defined option) for report filtering by patient. Refer to the OLIS Interface Specification section 2.8.3.12 – *ERP^Znn Segment-Level Profile*) for additional parameters that can be considered for EMR filtering.	If a User chooses not to employ a report filter, all results reports unmatched to patients that pre-exist within the EMR must be available and flagged for review in the practitioner inbox Including or excluding results reports in the patient's record or in-box of the EMR will be dependent on the filtering criteria set by the practitioner.	M	N	OLIS output messages contain: Placer Group #: Order/Report ID –- global/unique identifier PID segment: Patient information ORC-OBR-ZBR segment: Practitioner (Ordering and CC'ed) Test(s) ordered by Practitioner Specimen information Context information OBX-ZBR segment: Test results information NTE-ZBX segment: Notes associated with the report
c) Allow the user to manually submit the practitioner query.	If an automated practitioner query fails, or is required before the next interval, the EMR must permit the physician to manually submit the practitioner query rather than having to wait until the next timed automated query is sent. This query can be submitted for a single user, a group of users, or all users.	M	N	

Requirement	Guidelines	Scoring	Status	Discussion/Comments
	As per 2.3 (a) the subsequent automated query will adapt to ensure no gap in laboratory results reporting occurs and resolve unnecessary duplicate reports previously retrieved by the EMR.			
d) Provide the ability to set Start and End Timestamp parameters for the first time the automatic practitioner query is run. Refer to the OLIS Interface Specification section 2.1.2.7 – *Retrieve Laboratory Information Updates for Practitioner*	These parameters will identify the laboratory results reports being retrieved from OLIS and being made available to the EMR. The initial Practitioner Query should be presented and structured so that it can be executed by the practitioner. The Start and End Timestamp parameters constrain the query to return those results reports that fall within the start and end timestamps. Vendor must apply the preview and query selection parameters to enable the practitioner/recipient to eliminate unwanted lab reports from being stored in the EMR. When the preview functionality is applied, the following data elements should be displayed: Preview information should include: Patient Name and summary information, Collection Date/Time, Tests Names, Results Indicator and Ordering Practitioner. Additional data elements can be included. The Results Reports generated by the initial Practitioner Query that are accepted by the practitioner, will not require the practitioner to take additional action to review and sign-off.	M	N	This query can be used to preload OLIS data into the EMR without forcing the practitioner to resign lab reports they had signed previously.

2.4 RETRIEVE LABORATORY INFORMATION FOR PATIENT

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) Implement *Retrieve Laboratory Information for Patient* query through the EMR (Patient Query) Refer to the OLIS Interface Specification section 2.1.2.5 – *Retrieve Laboratory Information for Patient*	This manual query provides practitioners the ability to search lab reports for a single patient on an on-demand basis. The EMR User must have the option of specifying the following additional parameters to narrow the results reports returned: - Ordering Practitioner (OBR.16) - Copied-to Practitioner (OBR.28) - Attending Practitioner (PV1.7) - Admitting Practitioner (PV1.17) - Reporting Laboratory – identifies the laboratory that reported the test result to OLIS (ZBR.4) - Exclude Reporting Laboratory (ZBE.4) - Test Result Code – identifies the test that was performed (OBX.3) - Consent to View Blocked Information (ZPD.1) The remaining parameters are described in the OLIS Interface specification and can also be implemented: - Performing Laboratory (ZBR.6) - Exclude Performing Laboratory (ZBE.6) - Ordering Facility Laboratory - Deprecated value (ORC.21) - Test Request Code (OBR.4) - Test Request Status (OBR.25) - Specimen Collector (ZBR.3) - Destination Laboratory (ZBR.8) - Test Request placer (ZBR.2) - Priority – Deprecated value (OBR.27.6) - Placer Group Number (ORC.4) - Abnormal Flag – Deprecated value (OBX.8) - Observation Result Status - Deprecated value (OBX.11)	M	N	

Requirement	Guidelines	Scoring	Status	Discussion/Comments
b) Allow the User to preview the lab reports returned by the Patient Query and select those lab results reports that are to be saved to or excluded from the EMR.	The lab results reports returned from the OLIS Patient query must not be committed to the patient chart or the practitioner inbox automatically. The EMR must provide a mechanism for the user to preview and select which labs reports are to be saved to the EMR. The list of returned lab reports needs to be sortable by all preview fields and /or grouped by Category: Allergens, Chemistry, Hematology, Immunology, Microbiology, Pathology, Serology. Note that one report may contain multiple categories. Category information must be obtained from the nomenclature reference data and is not in the returned results report. Preview information should include: Collection Date/Time, Tests Names, Results Indicator, Ordering Practitioner and means of signing off results report immediately. Additional data elements can be included. The response message from OLIS can be found beginning in section 2.8.3.11 – *Message-Level Profile* of the OLIS Interface Specification.	M	N	

2.5 OLIS GENERAL REQUIREMENTS

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) Provide the ability to identify the status of lab test requests. See section 2.6.1 – *Test Request States* of the OLIS Interface Specification	Differentiate between: • F- Final – results are stored and verified. Can only be changed with a corrected result • A - Some, but not all, results available – Only some of the full complement of test results that the reporting laboratory ultimately intends to post are recorded in OLIS • P -Preliminary – verified early result is available, final results not yet obtained • C - Correction to results - One or more test results have been amended	M	N	To clarify Laboratory Results Reports may contain one or more Laboratory Results.
b) Provide the ability to identify the status of lab test results. See sections 2.4.14.1 - *Storage of Laboratory Reports Received from OLIS* and section 2.6.2 – *Test Result States* of the OLIS Interface Specification	Differentiate between: • F- Final - results are stored and verified. Can only be changed with a corrected result • P -Preliminary - verified early result is available, final results not yet obtained • C - Correction to results - One or more test results have been amended	M	N	To clarify Laboratory Results Reports may contain one or more Laboratory Results.
c) Vendors must provide a selection list of participating laboratories to enable users a means of identifying and selecting Reporting Laboratories for query creation, previewing results reports and results reports display.	OLIS maintains a list of participating laboratories that report results and vendors may base their selection list on. The default for the list is to include all Reporting Laboratories however the Selection list must include or exclude Reporting Laboratories as specified by each practitioner based on their preferences.	M	N	If the practitioner receives a results report from a "new" Reporting lab (a lab that hasn't been identified on or excluded from the selection list) then the user will be asked if they wish to include or exclude this new Reporting Laboratory on their selection list.

2.6 EMR FUNCTIONALITY

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) Provide the ability to manage duplicate test results	Labs results may now come from multiple sources (OLIS or existing lab interfaces). The application must be able to manage duplicate lab information in the event that the same lab is sent via a different mechanism such that the user is not required to manage the same report twice. A laboratory may send a report to OLIS in several discrete fragments over time; when the EMR queries OLIS, OLIS will send the cumulative report to EMRs so identification of net new is important. A lab must be added only once to the patient chart and only show up once in the inbox. Please refer to the document titled "OLIS – Report Identification Guidance" on the OntarioMD website for additional information.	M	N	
b) Display an alternate, meaningful test name in place of the LOINC test name.	When displaying a Test Name, it needs to cross-reference to one of the following naming convention: • the Alternate Name 1 • Test Name preferred by the physician as defined within the EMR (locally mapped/cross-referenced) The LOINC test name should not be used as a primary way to identify a report. (Please refer to the OLIS Nomenclature Standard document)	M	N	

2.7 MESSAGING

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) Transport from OLIS to EMR interface.	All messages interacting with OLIS must comply with the OLIS Message Transport Protocol Specification Please refer to the *OLIS Message Transport Protocol Specification* in Section 3 of the OLIS Interface Specification. It is expected that this section will be updated.	M	N	

2.8 ERROR MANAGEMENT

Requirement	Guidelines	Scoring	Status	Discussion/Comments
a) EMR Application Error Management	The EMR must handle the failure of any internal functions related to OLIS and must continue operating. The EMR must provide appropriate notification(s) to user for errors: • 110 (The structure and/or content is not valid for the following parameter: '{0}' • 320 (Warning: The patient has blocked access to his/her laboratory information. If appropriate, the query may be resubmitted with an override) • 404 (Not authorized) • 10001 (Request Timeout) • 10006 (Authorization failed) • A general error message for all remaining items encouraging them to seek guidance including NF (Nothing Found) response for a query that returns no information The EMR administrator should receive appropriate error messages for: - 100 (Segment sequence or cardinality error) - 101 (The field must not be empty) - 102 (Data type error) - 10002 (Signature extract failed) - 10003 (Signature decode failed) - 10004 (Signature validation failed) - 10005 (Signing certification invalid) - 10006 (Authorization failed) - 10007 (Incorrect certificate usage) - 10008 (Incorrect certificate usage) - 10009 (Virus detected) - 10010 (Virus detected) - 11000 (System Error) All Translator Error Codes	M	N	Sections 2.12 *OLIS HL7 Error Codes and Messages* and 3.9.7 *Response* of the OLIS Interface Specification identifies error management and the list of errors that OLIS can return.
b) Network Error Management	The EMR application must handle the failure of a communication link with OLIS and must continue operating. The EMR application must provide appropriate notification to user(s) or administrator regarding the applications ability to complete the requested retrieval process. The EMR application must be able to retry and re-establish network connectivity and perform the operation at a later time without any human intervention.	M	N	

3. REPORT IDENTIFICATION GUIDANCE

Please refer to the document titled “OLIS – Report Identification Guidance” on the OntarioMD website.

The intent of the document is to provide some guidance to Electronic Medical Record (EMR) vendors with identifying laboratory reports in support of the EMR Specification 4.0 (Appendix A). The information contained in this document is dynamic and may change over time. This is especially valid since Community Laboratories manage the existing direct lab feeds into the EMR. EMR vendors are advised to validate the information contained in this document before it is used