EMR Ontario Laboratory Information System (OLIS)

Business View

June 15, 2021

Document Version & Status: 1.0 – Final

Table of Contents

1. INTRODUCTION

1.1 Overview

This specification provides information and guidance for an EMR Offering to integrate functionality to interface with the Ontario Laboratories Information System (OLIS) using Health Level Seven (HL7) to view patient laboratory test orders and results directly in their EMR Offering.

1.2 The OLIS Service

The OLIS is a system that connects hospitals, community laboratories, public health laboratories and practitioners to facilitate the secure electronic exchange of laboratory test orders and results. Clinicians using an EMR that has integrated OLIS functionality can access the latest lab results for their patients or perform patient queries. It also provides the Ministry of Health (MOH) with program management information.

OLIS is designed to meet high availability, reliability, and performance specifications that stakeholders can rely on to satisfy their needs for laboratory information exchange and access.

OLIS interfaces with laboratory information systems (LIS), specimen collection centre systems, hospital information systems and EMR systems. This document often refers to these systems collectively as external systems. A web-based portlet application may also be provided for users who do not have access to an OLIS-connected external system.

OLIS provides the following services to external clinical applications:

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

OLIS captures, transmits, stores and maintains information about laboratory tests. This supports clinical decision-making capability by providing clinicians with comprehensive and timely results, facilitating ordering, and offering best practice guidelines and code tables. OLIS interfaces with LIS using an HL7 interface. This allows laboratories to retrieve orders and provide results data online. This also facilitates the verification of patient data and the medical necessity of tests.

1.3 Scope of EMR OLIS Specification

OLIS interfaces with EMRs using an HL7 interface. This allows physicians the ability to view results in their EMR Offering.

A key concept for implementing OLIS functionality in an EMR Offering consists of the following three queries:

- OLIS Preload Query
- OLIS Practitioner Query
- OLIS Patient Query

This specification conceptually describes these three types of OLIS queries from a functional perspective within an EMR Offering to support OLIS clinical workflow and functionality. This does not define or necessarily correlate with the different queries supported by OLIS at the messaging layer which are defined in the OLIS interface guide.

2. SYSTEM VIEW

1.4 Actors and Workflow Description

The diagrams that appear on the following pages illustrate:

- How the EMR users interact with the EMR Offering, poll OLIS to retrieve status updates and new test results for orders placed by the practitioner via the Lab Requisition Order (paper-based)
- How the lab test results are processed by the EMR Offering based on query type (Preload Query, Practitioner Query, Patient Query)
- Participants:
    - Authorized Practitioner: The physician that completes the paper requisition or that orders a lab test for a patient.The physician receiving OLIS lab test results/reports.
    - EMR system
    - OLIS

1.4.1 EMR – OLIS Business Use Case

Figure 1 - EMR-OLIS Business Use Case

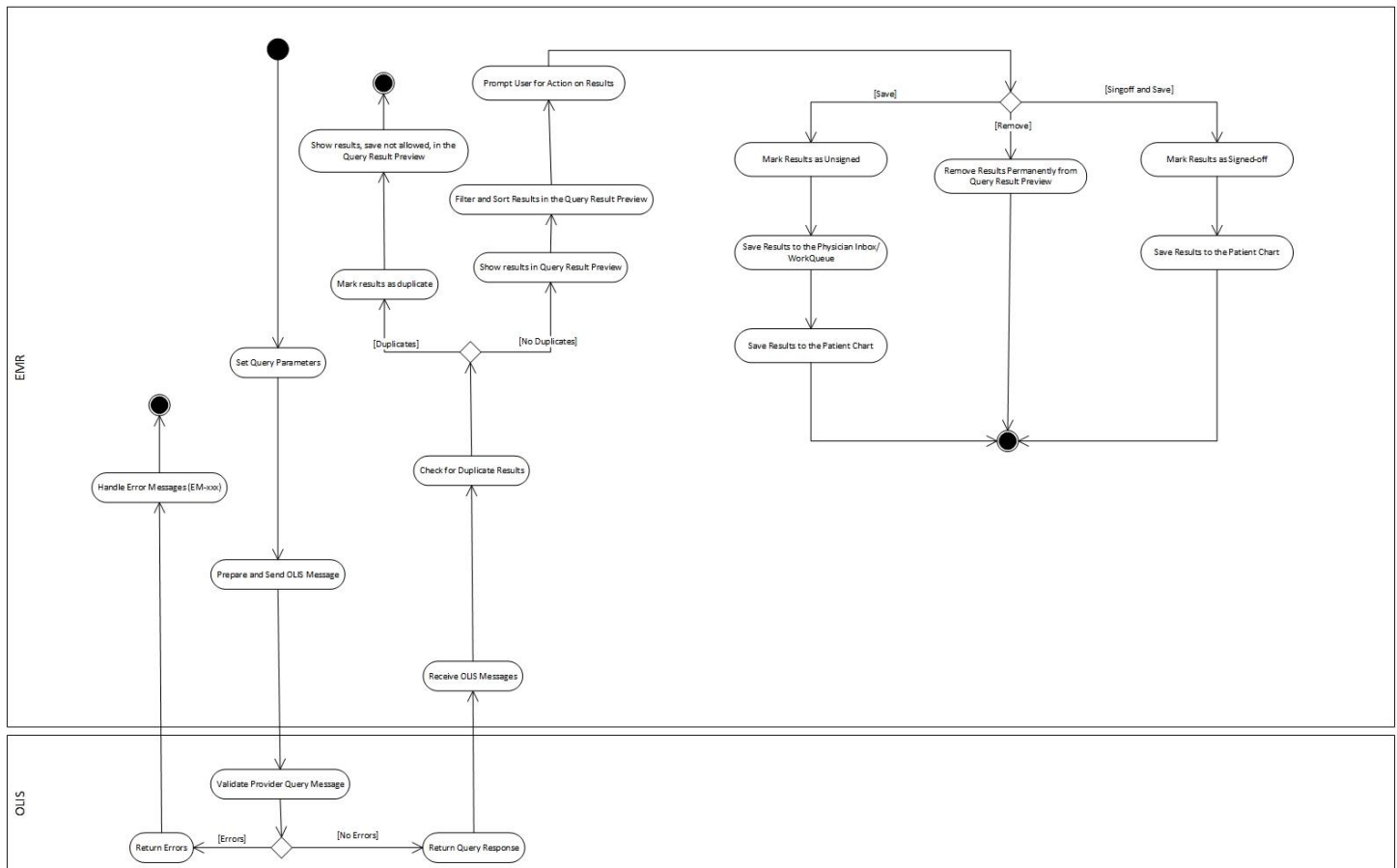## 1.4.2   Preload Query and Practitioner Query – Activity Diagram

Figure 2 - Preload Query and Practitioner Query

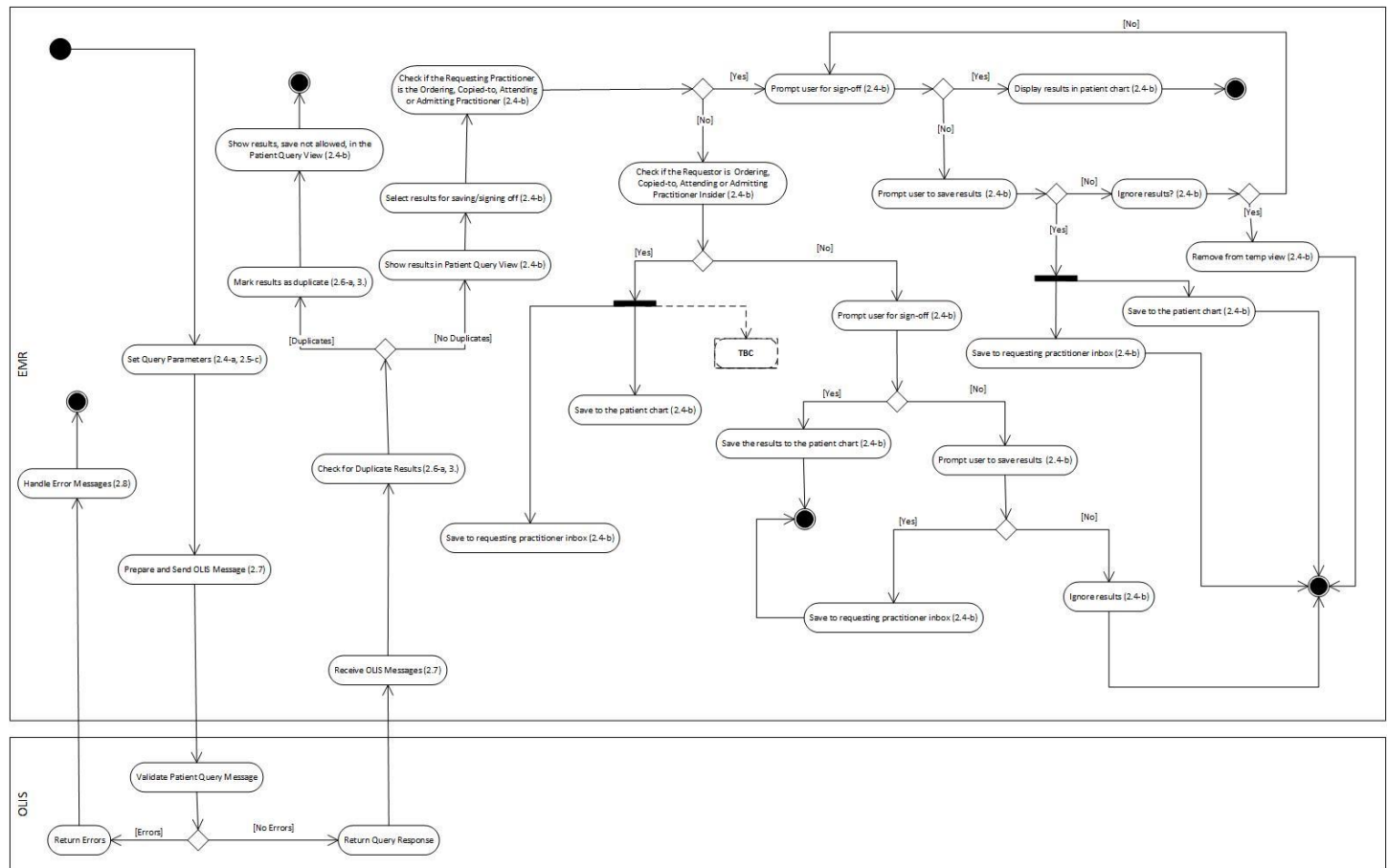## 1.4.3 Patient Query – Activity Diagram

Figure 3 - Patient Query

3. DATA VIEW

1.5 OLIS Preload Query

The OLIS Preload Query allows external systems, such as EMR Offerings acting on behalf of a laboratory information client (e.g., requesting health information custodian (HIC)) to request laboratory information (e.g., laboratory test results) from the OLIS Clinical Repository for non-nominal patients over a pre-defined period on an on-demand basis. In the context of the OLIS Preload Query and OLIS Practitioner Query, non-nominal patients are those that can only be identified through a unique identifier known to the requesting HIC, and as such, patient demographic data (e.g., first name, last name, health card number, date of birth, gender) are not required parameters.

This query is typically used to retrieve OLIS laboratory information into the EMR Offering:

- for practitioners who transition from paper-based medical records to an EMR Offering
- for practitioners who transition from one EMR Offering to another EMR Offering

1.5.1 Query Characteristics

- The "OLIS Preload Query" is based on the "OLIS Practitioner Query" (Z04) message structure.
- Query parameters are specified in the Input Parameter List (SPR.4) of the SPR segment (refer to OLIS HL7 Interface Specification).
- The Requesting HIC is the provider using the EMR who is identified as a report recipient (ZRP.1).
- If a query is initiated by the practitioner on their own behalf, the individual is identified in both the Requesting HIC query parameter (ZRP.1) and the ZSH (ZSH.1 and ZSH.2) segments.
- If a query is initiated by an automated process on behalf of the requesting practitioner, then Requesting HIC is identified in both the Requesting HIC query parameter (ZRP.1) and the ZSH (ZSH.1 and ZSH.2) segment.
- If the query is initiated by a person (non-provider) 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 as the ZSH (ZSH.1 and ZSH.2) segment.
- Requesting HIC and Start Timestamp & End Timestamp are mandatory parameters.
- Requesting HIC parameter applies to @ZRP.1 in the Input Parameter List (SPR.4).
- The Start Timestamp & End Timestamp parameter applies to "Results Rpt/Status Chng – Date/Time" (@OBR.22) in the Input Parameter List (SPR.4).
- The person who initiates the query is asserted in the ZSH segment.

1.5.2 Response Characteristics

This query returns all orders/reports from the OLIS Clinical Repository that have Results Rpt/Status Chng - Date/Time Timestamp (OBR.22) within the specified timeframe and the Requesting HIC (ZRP.1) identified as one of the following:

- Ordering Practitioner (OBR.16)
- Copied-to Practitioner (OBR.28)
- Attending Practitioner (PV1.7)
- Admitting Practitioner (PV1.17)

1.5.3 Differences

- "OLIS Preload Query" runs on-demand while "OLIS Practitioner Query" runs periodically (e.g., every 30 min).
- "OLIS Practitioner Query" is used to upload new and/or updated OLIS laboratory information into the EMR Offering while "OLIS Preload Query" is used to upload historic OLIS laboratory information into the EMR Offering.
- The Start Timestamp & End Timestamp parameter applies to "Results Rpt/Status Chng – Date/Time" (@OBR.22) in the Input Parameter List (SPR.4).
- Use of the End Timestamp parameter that applies to "Results Rpt/Status Chng – Date/Time" (@OBR.22) in the Input Parameter List (SPR.4) is not recommended for the "OLIS Practitioner Query" since this might result in less lab test results to be returned by the query. The End Timestamp parameter is recommended to be used for the "OLIS Preload Query".

1.6 OLIS Practitioner Query

The OLIS Practitioner Query allows external systems, such as EMR Offerings acting on behalf of a laboratory information client (e.g., requesting HIC) to request laboratory information (e.g., laboratory test results) from the OLIS Clinical Repository that was created or updated within a specified period for non-nominal patients. This query can be used to retrieve new and updated OLIS laboratory information into the EMR Offering periodically.

1.6.1 Query Characteristics

- Query parameters are specified in the SPR.4 Input Parameter List of the SPR segment (refer to OLIS Interface Specification > HL7 Message Specification > Message Structure > Message Segments > SPR Segment).
- The Start Timestamp and Requesting HIC parameters are mandatory. The End Timestamp is an optional parameter, but it is typically not provided so that the most up-to-date information will be returned in the query response (excerpt from OLIS Interface Specification).

- The Start Timestamp and End Timestamp parameters apply to "Results Rpt/Status Chng – Date/Time" (@OBR.22) in the Input Parameter List (SPR.4).
- Requesting HIC parameter applies to @ZRP.1 in the Input Parameter List (SPR.4).
- The person who initiates the query is asserted in the ZSH segment.

1.6.2 Response Characteristics

This query returns all orders/reports from the OLIS Clinical Repository that have Results Rpt/Status Chng - Date/Time Timestamp (OBR.22) within the specified timeframe and the Requesting HIC (ZRP.1) is identified as one of the following:

- Ordering Practitioner (OBR.16)
- Copied-to Practitioner (OBR.28)
- Attending Practitioner (PV1.7)
- Admitting Practitioner (PV1.17)

1.7 OLIS Patient Query

The OLIS Patient Query allows external systems (e.g., EMR Offerings) acting on behalf of a laboratory information customer (e.g., requesting HIC), to request laboratory information (e.g., laboratory test results) from the OLIS Clinical Repository *for an individual patient and timeframe*. The external system may optionally request that the result be limited according to a variety of criteria (e.g., ordering practitioner). This query can be used to retrieve OLIS laboratory information into the EMR Offering on an on-demand basis.

1.7.1 Query Characteristics

- Query parameters are specified in the Input Parameter List (SPR.4) of the SPR segment (refer to the OLIS Interface Specification).
- Patient ID (HCN), Requesting HIC and Start Timestamp & End Timestamp are mandatory parameters.
- Requesting HIC parameter applies to (@ZRP.1) parameter in the Input Parameter List (SPR.4) and is not a filter criterion.
- The Start Timestamp & End Timestamp parameter applies to "Results Rpt/Status Chng – Date/Time" (OBR.22) or "Observation Date/Time" (OBR.7) in the Input Parameter List (SPR.4).
- Patient ID (HCN) applies to the @PID.3 parameter in the Input Parameter List (SPR.4).
- The person who initiates the query is asserted in the ZSH segment.

1.7.2   Response Characteristics

- This query returns all orders/reports that meet the query criteria and that have a "Results Rpt/Status Chng - Date/Time Timestamp" (OBR.22) within the specified timeframe or an "Observation Date/Time" (OBR.7) within the specified timeframe.
- This query returns full orders/reports (i.e., all test requests and test results for the order) unless the query originates from an SCC or a test-request-level block exists.
- For those test requests that have test results, only current test results are returned; a prior test result is not returned if it has been subsequently amended by a later test result.

2. APPENDIX A: GLOSSARY OF KEY TERMS AND DEFINITIONS

2.1 Acronyms and Abbreviations

This table identifies definitions for terms used within or that are relevant to this document.

ACRONYM	DEFINITION
DOB	Date of Birth
EMR	Electronic Medical Record
HCN	Health Card Number
HIC	Health Information Custodian
HIS	Hospital Information System
HL7	Health Level Seven
LIS	Laboratory Information System
OLIS	Ontario Laboratory Information System