

Oregon Public Health Division

Manual for Electronic Laboratory Reporting

elr.project@state.or.us
Tel. 971-673-1111
FAX 971-673-1100

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Oregon Electronic Laboratory Reporting

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For Information about Oregon ELR, visit us on the web at: healthoregon.org/elr
Or contact us at 971-673-1111

Revision History	Issue Date	Summary of Changes
3	March 7, 2012	Version created by JA Magnuson
4	May 26, 2016	Major revisions completed

Introduction to Electronic Laboratory Reporting (ELR)

The Oregon ELR Project is an effort to convert laboratories from traditional paper-based reporting to electronic data interchange (EDI) with the Oregon Public Health Division (OPHD). In this system, the state health department functions as an electronic hub to accept, translate, and route lab and clinical data contained in HL7-formatted files. Laboratories report notifiable condition data to public health, and public health acts upon the data. The data transfer to the county level will be virtually immediate, and the county health department will continue to perform its current investigative responses.

Reports received by ELR are propagated within our integrated electronic disease surveillance system, Orpheus. Orpheus is intended for local and state public health epidemiologists and disease investigators to efficiently manage communicable disease reports. Most case investigations are initiated by ELR, which are automatically imported and accessible to both local and state users, who can work together on cases. Orpheus is compatible with national standards, and complies with the highest level of security and confidentiality.

Benefits

ELR offers long-term benefits to both laboratories and public health. ELRs are critical for an effective public health response both for routinely reportable diseases as well as conditions of potential public health concern.

Laboratory benefits include:

- Automation of reporting reduces lab person hours and duplicate data entry
- Single data depository removes need for multiple county faxes and phone calls
- Faster, more timely reporting
- Reduced human errors

Public health benefits include:

- Faster, more accurate data lead to improved public health efficacy
- Reduced duplicate data entry
- Reduced burden for laboratory partners

Oregon Administrative Rules and ELR Resources

In June 2010, in an effort toward improving disease surveillance and timely notification of disease reports for public health intervention, ELR was legally mandated for all laboratories licensed in Oregon sending an average of more than 30 records per month to public health. For these laboratories, failure maintain ELR submissions may result in civil penalties (http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html). For lower volume labs, ELR may still be beneficial in that these facilities will incur the same benefits of lower human error, reduced duplicative entry, etc. Further, OPHD is interested in working with any laboratory that is interested in participating in ELR in an effort to meet the Meaningful Use objective for Public Health Reporting.

References and Tools

If you have this document, you've probably already found the Oregon ELR website:

<http://www.healthoregon.org/elr>. Here you can access the Oregon's local HL7 2.5.1 Implementation Guide, Oregon's Laboratory Reportable Poster, and links for nationally recognized standards like LOINC and SNOMED. There are also links for Oregon Public Health Meaningful Use and Oregon Administrative Rules. This document, along with the Oregon HL7 ELR Implementation Guide will assist you in developing, testing, validating, and delivering production level reports to OPHD.

If you choose to participate in ELR, reports must be submitted directly to the state ELR program; laboratories not participating in ELR are required to report directly to the Local Health Department (LHD) of the patient's County of Residence.

ELR Readiness Checklist

The following checklist can be used to help determine your readiness to participate in ELR in Oregon. We are happy to provide assistance to labs as they work toward meeting these criteria. Please contact the Oregon ELR Project at 971-673-1111, via email at elr.project@state.or.us, or visit our website at www.healthoregon.org/elr for more information.

- Laboratory must either perform tests for which results are reportable by law to Oregon Public Health or incorporate results received from reference laboratories into their Laboratory Information System which can, in turn, be sent to Oregon Public Health. See the Oregon Administrative Rules (OARS) for Disease Reporting at http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html and the Laboratory Reporting Poster (<http://www.healthoregon.org/elrresources>) for details.
- Laboratory must be prepared to meet OPHD-specified reporting guidelines:
 - Report all reportable disease data, including HIV, blood lead (and other reportable environmental exposures) through ELR.
 - Report required data fields in acceptable HL7 format (as specified in the Oregon HL7 Implementation Guide, unless otherwise approved). The ELR program will work with labs to validate sample messages containing test data in order to test message translation.
 - Use standardized reporting codes (e.g., LOINC, SNOMED, and ICD). In some instances it will be acceptable to provide us with a table of local laboratory codes, with the provision that the laboratory is actively working towards a goal of utilizing standardized codes. In this case, you will be asked to provide your local codeset to Oregon's ELR Coordinator in advance. [Note: Local codesets are not acceptable if attempting to meet Meaningful Use.]
 - Provide complete patient address information in the report (street, city, state, zip and county).
 - Provide complete specimen information (type, collection method, and source site as appropriate).
 - Submit reports in a timely manner (meet or surpass the required time specifications listed in the Oregon Administrative Rules).
 - Utilize an OPHD-approved secure transmission methodology. Currently accepted methods include secure file transfer protocol (SFTP) or via the Public Health Information Network Messaging System (PHINMS). Details on these methods and credential provision will be provided by OPHD.
 - Laboratory must have an emergency preparedness plan for reporting continuity in the event of emergency situations that would disrupt electronic communications. It is recommended that this backup plan utilize at least two alternative methodologies (e.g., fax, secure email). Initial and/or periodic tests of alternative methodologies may be requested.
 - Laboratory must agree to participate fully in Oregon's Data Quality Control program. This includes specified duties such as periodic data checks, verification of reportable codes, etc.

Reporting Details

Initiating contact with the Oregon ELR Project is the first step in being able to craft a message for the purpose of communicating electronic laboratory reports. For sites that are attempting to meet the Meaningful Use objective, registration in the Public Health Meaningful Use Registration System (<http://healthoregon.org/mu>) is also required. Once the request to establish an ELR feed with the ELR Coordinator is made, a kick-off call will be scheduled to discuss message format, standards, reportable conditions, and transport methodology. Once transport is decided, you will need to complete the requisite paperwork to establish transport credentials.

We recommend pre-testing structure and content of HL7 2.5.1 ORU messages using the Public Health Information Network Message Quality Framework (PHIN-MQF - <https://phinmqf.cdc.gov/>) as well as the National Institute of Standards and Technology (NIST) ELR Validation Tool (<http://hl7v2-elr-testing.nist.gov/mu-elr/>). These tools will aid in the construction of messages that conform to the Oregon Implementation Guide. Next, test messages will be sent to the Oregon ELR test environment where they will be reviewed by the ELR Coordinator. Once all parties are satisfied that the message content and structure are sufficient, you will move into an acceptance testing phase.

During acceptance testing you will send production data to our production environment, while continuing your existing reporting method (e.g., faxing the local public health authority). Laboratories will remain in acceptance testing for a minimum of 30 days. During this time, local public health nurses and state epidemiologists will compare the timeliness, completeness, and accuracy of the ELRs with your existing reporting method. As issues arise, they will be reported back to you for corrective action. If the volume of reporting is sufficient and when all identified issues have been resolved, the ELR Coordinator will solicit approval from the local health departments to move your facility to full production mode.

Once in full production, your facility will discontinue faxing reports and only send ELRs. Issues identified while in production (e.g., missing ELRs, lags, incorrect codes, etc.) are require immediate remediation. Failure to address issues will result in a return to acceptance testing (e.g., fax and ELR) until resolved. Issues not resolved in a timely manner, or failure to dual-report as requested may result in civil penalties.

Format

Currently, the recommended format for Oregon ELR is HL7 message type ORU R01, version 2.5.1. Oregon maintains a local implementation guide (available on our website) that mirrors the national standard, but is abbreviated to include only those required and recommended elements relevant to Oregon ELR. This guide also includes an example of a susceptibility report that laboratories in Oregon may find helpful. We will consider accepting alternate formats (e.g., HL7 2.3.1) on a case by case basis, though it is important to note that any alternate format is not suitable for Meaningful Use.

Standards and Coding

Use of standardized reporting codes LOINC® and SNOMED is required. Links to these standards are available on our website and are referencing in the Oregon HL7 Implementation Guide. In addition, the Reportable Condition Mapping Tables (RCMT), which contain mapping between reportable conditions, LOINC test codes, and SNOMED result codes, can be accessed here as well. In some instances it may be acceptable to provide a table of local laboratory codes, with the provision that the laboratory is actively working towards a goal of utilizing standardized codes. In this case, you will be asked to provide your local codeset to in advance.

Transport Method

Laboratories must utilize an OPHD-approved secure transmission methodology. Currently accepted methods include secure file transfer protocol (SFTP) or via the Public Health Information Network Messaging System (PHINMS). The appropriate method will be determined on a case-by-case basis, and credential provision will be provided by OPHD once decided.

Ongoing Quality Assurance

The ELR data quality control plan consists of four-stages: development, testing, review, and maintenance. Labs entering ELR will progress through the stages as shown below. The following checklist summarizes the responsibilities of laboratories participating in Oregon ELR.

- Stage I: Onboarding and Development
 - Agree upon transmission method, set up procedures, begin formatting
 - Internal testing, confirm using NIST validation tool (<http://hl7v2-elr-testing.nist.gov/mu-elr/>)
- Stage II: Testing
 - Laboratory transmits data to Oregon ELR for validation testing and transmission testing
 - Must conform to specification and include all required elements and code sets
- Stage III: Acceptance Testing
 - Laboratory begins regular transmission of production data in parallel with traditional reporting method (i.e., faxing to local health departments [LHD])
 - ELR timeliness and completeness are reviewed by state epidemiologists and LHDs
 - Remain in this stage for minimum of 30 days or until approval from state and LHDs
- Stage IV: Production and Maintenance
 - Monitor ongoing lab data quality and quantity. Serious problems may result in regression to Stage III: Acceptance Testing
 - Laboratory will participate in a yearly review of our ELR system to ensure the integrity of Oregon Public Health's reporting system; this will include provision of LOINC and SNOMED codes as well as an audit list of selected reports determined by OPHD.