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# Texas Electronic Laboratory Reporting (ELR) Onboarding Guide

Version 2.0

# Table of Contents

## Purpose

This document serves as a guide to display the step-by-step process and a roadmap that an intending facility will need to follow in order to successfully implement Electronic Lab Reporting (ELR) with the Texas Department of State Health Services' (DSHS) implementation of the National Electronic Disease Surveillance System (NEDSS). The intent of this document is to provide a succinct ELR implementation guide to facilitate a rewarding partnership with the DSHS.

Hospitals participating in the Centers for Medicare and Medicaid Services Electronic Health Record Incentive Programs can use this guide to assist them in meeting the ELR measure in the Public Health Objective.

There are a number of steps a facility must complete to successfully submit ELR data. The Onboarding Process Chart provides a visual representation of the steps required. Descriptions of the steps are presented after the chart. DSHS NEDSS staff can provide additional explanation as necessary.

## Scope

ELR allows laboratories (including hospitals and other facilities) to report test results for reportable diseases through an automated and secure process to the statewide disease surveillance system. Laboratory data are sent in a standard HL7 2.5.1 format electronically from a laboratory information system or electronic health record system through a secure interface to DSHS.

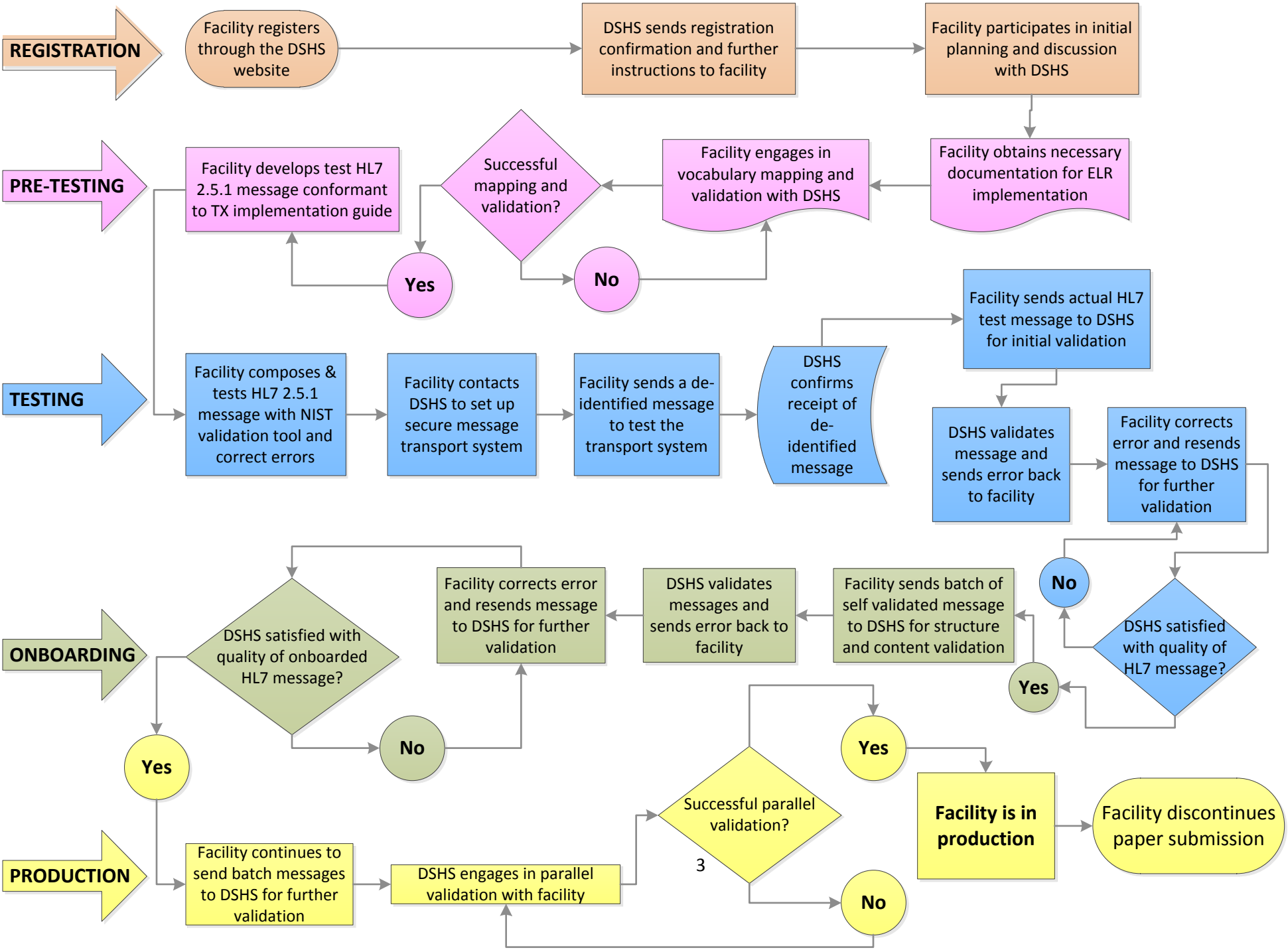
Detailed within are processes to obtain authorization for communicating ELR to the DSHS NEDSS, producing acceptable HL7 messages, and validating these messages for structure and vocabulary constraints. In order to meet the DSHS NEDSS requirements, the messages must be in HL7 2.5.1 using DSHS-adopted standards.

This document serves to facilitate the communication of data in a standard format to DSHS NEDSS. It is assumed that the reader has background knowledge of, and access to the version of HL7 specifications, on which they wish to build a message. DSHS NEDSS may provide some guidance with regard to base HL7 specifications, but cannot be relied upon as the sole authority for which all decisions are based.

More information about NEDSS may be found at http://www.dshs.state.tx.us/nedss. Questions about ELR may be directed to NEDSS@dshs.state.tx.us.

General information about public health reporting and meaningful use may be found at http://www.dshs.state.tx.us/mu.

# Texas HL7 2.5.1 MU Onboarding Process Chart



**Texas Department of State Health Services Onboarding for HL7 2.5.1 ELR**

**Meaningful Use Process Summary**

## ELIGIBILITY CRITERIA FOR ONBOARDING

| | | |
|---|---|---|
| Is the facility an Eligible Hospital (EH) or Critical Access Hospital (CAH), as defined by the Centers for Medicare and Medicaid Services Electronic Health Records Incentive Programs? | Yes ☐ | No ☐ |
| Does the facility have an Electronic Health Record (EHR) system that is certified for 170.314(b) (5) Incorporate Laboratory Test and Values/Results and 170.314(f) (4) Transmission of Reportable Laboratory Tests and Value/Results?<br>For a list of Certified Electronic Health Record Technology (CEHRT) products certified for ELR reporting, visit the Certified Health IT Product List at http://oncchpl.force.com/ehrcert. Use the tools provided to determine if your technology is on currently on the list and meets meaningful use program requirements specific to ELR. | Yes ☐ | No ☐ |
| Does the facility have the ability to set up electronic transmission either through SFTP or PHINMS? | Yes ☐ | No ☐ |

## REGISTRATION

- An Eligible Hospital or Critical Access Hospital facility who wants to engage in ELR for MU with DSHS must register their intent at https://www.dshs.state.tx.us/nedss/forms/Public-Health-Gateway-Provider-Registration-Form.aspx
- DSHS will receive the registration of intent and send registration confirmation with further information/instructions necessary for on-boarding to the facility to the email address included in the registration of intent.

- Facility will participate in an initial planning meeting to discuss of the on-boarding process with DSHS' NEDSS team. During the initial meeting, DSHS will review necessary documentation as well as the standards in the HL7 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm) that are required for meeting the Meaningful Use objectives with the facility.
- Facility will then decide if they want to continue with DSHS' ELR on-boarding process.

**PRE-TESTING**

- If the facility decides to continue with the on-boarding process, the facility will obtain necessary documentation for ELR on-boarding implementation from DSHS NEDSS.
- Facility must proceed to do vocabulary mapping and validation with DSHS. The facility will complete the ELR vocabulary mapping worksheet provided by DSHS as much as possible.
- DSHS NEDSS staff will validate the mapping sheet and send errors and edits to the facility for correction.
- Once the corrections have been done, facility will re-send the mapping sheet again to DSHS for validation.
- Once DSHS is satisfied with the validation of the vocabulary mapping sheet, the facility will be notified.
- If DSHS is **not satisfied with the worksheet after 3 months**, the facility will be moved to the end of the pre-testing queue to free up space for other facilities.
- The facility will develop HL7 message that conform to the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) with Errata.

**TESTING**

- The facility will test their message with the NIST validation tool (http://hl7v2-elr-testing.nist.gov/mu-elr/) and correct errors.
- After the facility is the message meets applicable criteria, they will contact DSHS to set up a secure message transport system.
- The facility will send a de-identified message to DSHS in order to test the transport system.
- DSHS NEDSS staff will confirm the receipt of the de-identified message.
- Facility will then send an actual HL7 message that is conformant to the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) with Errata for initial validation by DSHS.
- DSHS will validate the message and send errors back to the facility.

- Facility will have up to **3 months** to correct the errors and resend message to DSHS for further validation and error correction.
- If the messages are not at a satisfactory state as determined by DSHS, the facility will be put at the end of the testing queue.
- Once DSHS is satisfied with the quality of the HL7 message, DSHS will inform the facility to proceed to onboarding phase.

**ON-BOARDING**

- The facility will begin to send batch transmission of messages to DSHS for structure and content validation.
- DSHS will review and validate the messages and send errors and corrections back to the facility.
- Facility will correct the errors and resend the messages for further validation.
- If DSHS is satisfied with the structure and content of the messages and it meets the data quality requirements of DSHS NEDSS, the facility will go into production phase.
- However, if DSHS is not satisfied with the messages structure, content and quality, the facility will have **3 months** to correct any errors and resend the messages to DSHS for further review.

**PRODUCTION**

- Facility will continue to send batch messages to DSHS for validation.
- DSHS will give permission to engage the facility in parallel validation, a process whereby the Subject Matter Experts (SMEs) at DSHS will compare the data submitted into DSHS NEDSS with the content of the paper laboratory report to make sure the content are similar and synonymous.
- Any issues with parallel validation are discussed with the DSHS NEDSS team and communicated to the facility for appropriate action if there is any necessity.
- Once parallel validation is concluded, DSHS will inform the facility when to discontinue paper submission of reportable disease events.

**Electronic Laboratory Reporting (ELR) Onboarding Checklist**

Before registering with DSHS, these items are suggested to accelerate the on-boarding process.

| Trading Partner (TP) Activity | | |
|---|---|---|
| Map local lab test codes to LOINC standard vocabulary | Yes | |
| Map local, non-numeric lab test result values to SNOMED-CT standard vocabulary | Yes | |
| Map other local codes according to the HL7 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm) | Yes | |
| Develop an HL7 message conformant to the HL7 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm) | Yes | |
| Test ELR messages using the NIST HL7 ELR 2.5.1 Validation Suite | Yes | |
| Resolve message issues found using the NIST HL7 ELR 2.5.1 Validation Suite | Yes | |

**Phase 1: Registration with Texas Department of State Health Services**

| Facility Activity | Complete | Date | DSHS NEDSS Response | Official Communication |
|---|---|---|---|---|
| Register for ELR through the DSHS website | Yes | | Send confirmation of registration and further instructions to facility | Registration acceptance |
| Participate in initial onboarding call with DSHS | Yes | | Schedule onboarding call with facility | N/A |

*Note: All official communication will be done via email to the contact email provided in the registration of intent. To update contact information, please email nedss@dshs.state.tx.us.*

**Phase 2: Pre-testing**

| Facility Activity | Complete | Date | DSHS NEDSS Response | Official Communication |
|---|---|---|---|---|
| Engage in Vocabulary Mapping and Validation with DSHS | Yes | | Confirm successful Vocabulary Mapping and Validation | Yes |
| Compose HL7 2.5.1 Message | Yes | | | N/A |

**Phase 2: Testing**

| Facility Activity | Complete | Date | DSHS NEDSS Response | Official Communication |
|---|---|---|---|---|
| Validate the HL7 2.5.1 message using NIST validation tool and correct errors | Yes | | | |
| Contact DSHS to set up secure message transport | Yes | | Provide secure transport options | N/A |
| Send de-identified message to test the transport system | Yes | | Confirm receipt of de-identified message | N/A |
| Send actual HL7 **test** message to DSHS for initial validation | Yes | | Validate message and send errors back to facility | N/A |

**Phase 3: Onboarding**

| Facility Activity | Complete | Date | DSHS NEDSS Response | Official Communication |
|---|---|---|---|---|
| Send batch of validated message to DSHS for structure and content | Yes | | Validate message and send errors back to facility | N/A |
| Facility correct error and resend message back to DSHS | Yes | | State whether message is free of error not | UAT test completion |

| | | | | |
|---|---|---|---|---|
| Document what errors have been corrected and send updated batch to DSHS | Yes | | Verify all errors corrected and discuss parallel test validation with facility | |
| Participate in parallel test validation process as decided during discussion with DSHS | Yes | | Discuss moving to production with facility | |

**Phase 4: Production**

| Facility Activity | Complete | Date | DSHS NEDSS Response | Official Communication |
|---|---|---|---|---|
| Start sending production ELR batch transmissions to DSHS and continue parallel validation | Yes | | Send Facility any issues that need correction | N/A |
| Stop parallel validation process | Yes | | Inform facility about the end of the onboarding process | Letter of completion of onboarding |

**Best Practices**

• Narrative or text results are not accepted in the OBX_5 fields.

• Observation values in OBX_5 (as indicated in OBX_2) are constrained to **SN** and **CE** data types only.

• LOINC (in OBR_4 and OBX_3) and SNOMED (in OBX_5 when OBX2=CE) are required components

• **Clinical Laboratory Improvement Amendment (**CLIA) certificate numbers are preferred over the use of OIDS to identify hospitals and laboratory facilities.

**Standard Reference Tables**

| Description | Value Set | Other Available value sets |
|---|---|---|
| Abnormal Flags | HL70078 | Abnormal Flags |
| Body Site Value Set | SNOMED CT Anatomical Structure hierarchy | |
| Diagnostic Services | HL70074 | |
| Ethnic Group | HL70189 | PHVS_EthnicityGroup_CDC |
| Identifier type | HL70203 | PH_IdentifierType_HL7_2x |
| Observation Result Status | HL70085 | |
| Race Category | HL70005 | PHVS_RaceCategory_CDC |
| Result Status | HL70123 | |
| Resulted Test Name<br>Ordered Test Name | LOINC | |
| Resulted Test Result | SNOMED | |
| Patient Sex | HL70001 | |
| Specimen Type | HL70487 | PHVS_Specimen_CDC; SNOMED CT Specimen sub-tree |
| Units of Measure | UCUM | |

## Texas ELR Issue Resolution Checklist

Common critical areas to address during message pre-testing

### Message Header: MSH

| Issue # | Item | What does good look like? |
|---|---|---|
| 1 | MSH4 – Sending Facility -- Verify a CLIA number is used as the ID | Reporting Institution Name^99XXXXXXX^CLIA |

### Patient Information: PID

| Issue # | Item | What does good look like? |
|---|---|---|
| 2 | PID10 – Patient Race -- Verify standard race codes are used | 2131-1^Other^HL70005 |
| 3 | PID22 – Patient Ethnicity -- Verify standard ethnicity codes are used | N^Non-Hispanic^HL70189 |

### Observation Request: OBR

| Issue # | Item | What does good look like? |
|---|---|---|
| 4 | OBR4– Verify a LOINC code is used as the UniversalServiceID | 24325-3^Hepatic Function Panel^LN |
| 5 | OBR4 – Verify LOINC is in OBR4.1-4.3 | **24325-3^Hepatic Function Panel^LN**^321^HEP^L |
| 6 | OBR4 – Verify local codes, if provided, are in OBR4.4-4.6 | 24325-3^Hepatic Function Panel^LN^**321^HEP^L** |

### Observation Result: OBX

| Issue # | Item | What does good look like? |
|---|---|---|
| 7 | OBX – Verify every OBX segment is only used to provide standardized test results | The following OBX segment should actually be created as an NTE segment:<br>OBX\|2\|TX\|49580-4^^LN^HIVR^HIV-RAPID TEST^99USI\|11\|Called to and read back by: \| |
| 8 | OBX2 – Verify only SN, CE, or CWE | OBX\|1\|**CE**\| |
| 9 | OBX3 – Verify a LOINC code is used as the Observation Identifier | 625-4^Stool Culture^LN |
| 10 | OBX3 – Verify LOINC is in OBX3.1-3.3 | **625-4^Stool Culture^LN**^225^Stool Culture^LN |
| 11 | OBX3 – Verify local codes, if provided, are in OBX3.4-3.6 | 625-4^Stool Culture^LN**^225^Stool Culture^LN** |
| 12 | OBX5 – Verify a SNOMED code is used as the Observation Value for discreet results (CE/CWE) | 372342007^Salmonella species (organism)^SCT |
| 13 | OBX5 – Verify SNOMED is in OBX5.1-5.3 for discreet results (CE/CWE) | **11214006^REACTIVE^SCT**^REACTIVE^REACTIVE^L |

| | | |
|---|---|---|
| 14 | OBX5 – Verify local codes, if provided, are in OBX5.4-5.6 for discreet results (CE/CWE) | 11214006^REACTIVE^SCT^**REACTIVE^REACTIVE^L** |
| 15 | OBX5 – Verify titers are created as structured numeric | \|^1^:^16\| |
| 16 | OBX5 – Verify all numeric values are created as structured numeric, with comparator (if present) is in OBX5.1 | \|>^500\| |

**Specimen: SPM**

| Issue # | Item | What does good look like? |
|---|---|---|
| 17 | SPM4 – Verify a standardized code is used in Specimen Type | 119297000^Blood^SCT |