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1 Introduction

This document provides guidelines for implementing Claim and Diagnostics Information (CDI) in external systems (e.g. medical providers' EMR systems) to facilitate exchange of CDI data with Washington State Department of Labor & Industries (L&I) via OneHealthPort (OHP) HIE.

1.1 Document Purpose

CDI data mappings are based on the HL7 CDA R2 schema for the "Subsequent Evaluation Note" template (aka "Progress Note" template). To meet CDI requirements, the Progress Note template has been further constrained with data conformance rules, namespaces, conventions and value sets.

The purpose of this document is to explain those additional constraints—how the HL7 format was tailored to the CDI exchange and how these conformance rules, namespaces, conventions and value sets are used for CDI data mappings for the purpose of exchanging data with L&I.

1.2 Scope

The scope of this document is limited to the exchange format, data conformance rules, namespaces, conventions and value sets used for CDI data mappings to allow the data exchange with L&I, in addition to Progress Note template constraints.

CDI data mappings are based on the CDA R2 schema for the Progress Note template; however, explanation of the implementation requirements and constraints for the Progress Note template are out of scope for this document. For information about L&I's implementation requirements related to the Progress Note template, please send an email to HIESupport@lni.wa.gov or refer to the IHE Health Story Consolidation [Implementation Guide](#) available at the HL7 website.

1.3 Embedding Data

Embedding this data within an external system such as an Electronic Medical Records (EMR) system is also outside the scope of this document. Embedding the Progress Note template will depend upon the system and processes of your external system and will vary across systems and business processes.

1.4 Intended Audience

- Business stakeholders of external systems implementing CDI functionality
- IT Staff implementing CDI functionality in Core systems
- OneHealthPort (OHP) Health Information Exchange (HIE)
- L&I IT Staff implementing CDI functionalities

1.5 Acronyms and Abbreviations

CDI	Claim and Diagnostics Information
CDA R2	Clinical Document Architecture (Release 2)
COHE	Center of Occupational Health and Education
EHR	Electronic Health Record
EMR	Electronic Medical Record
HIE	Health Information Exchange
HL7	Health Level 7
L&I	Washington State Department of Labor & Industries (L&I)
OHMS	Occupational Health Management System
OHP	OneHealthPort (WA State HIE provider)
OID	Object Identifier
ROA	Report of Accident
XML	Extensible Markup Language

2 Implementation Guide

Listed below are the CDI data exchange format and guidelines.

2.1 Sample Document

A sample document with header section and body section has been provided with this implementation guide.

2.1.1 Sample Document Usage

The primary purpose of sample CDI XML document provided with these implementation guidelines is to illustrate the layout/format of documents conforming to these guidelines. Please note the following when using this sample document:

- The `<?xml-stylesheet type="text/xsl" href="styles/CDA.xsl"?>` directive at the top of the sample xml document is only for viewing it in an XSL aware browser (e.g. Internet Explorer). This **should not be** present in actual XML documents being generated for data exchange.
- Comments in the sample XML document are only intended to provide additional information to assist in development of exchange documents. These **should not be** present in actual XML documents being generated for data exchange. Comments are enclosed in `<!-- -->` tags (e.g. `<!-- US General Header realmCode. Fixed - Not to be changed. -->`)
- Some nodes in the sample xml document are not discussed in this implementation guide. Usually, these codes are only needed for “human readable format” rendering of exchange data using standard CDA R2 stylesheets. These should be present in the exchange data as is. E.g. `<title>` tag with a value of Claim and Diagnostics Information, `<languageCode>` tag with en-US code, etc..
- The values in the sample xml document **are for illustration purposes only** and provide a visual representation of constraints defined in this implementation guide. Actual values will be populated from the systems of record on the sender’s side.

2.1.2 General Guidelines

The XML document must enforce UTF-8 encoding in the xml declaration.

2.2 Header Constraints

In addition to HL7 CDA R2 Progress Note constraints, following are header constraints specific to the CDI document schema. These constraints must be followed to ensure L&I’s successful processing of the CDI.

2.2.1 Templates

The CDI document will have the following template IDs in the header. All three must be present:

- ✓ US Realm header:

```
<templateId root="2.16.840.1.113883.10.20.22.1.1"/> <!--US Realm Header-->
```

- ✓ Progress Note template:

```
<templateId root="2.16.840.1.113883.10.20.22.1.9"/> <!--Progress Note-->
```

- ✓ CDI template:

```
<templateId root="2.16.840.1.113883.3.4819.11.2.1.1"/> <!--CDI V1 Template-->
```

2.2.2 id

The **id** header must have one *<id>* node present such that:

- the **@root** attribute has a globally unique document id (generated by the sending system), and
- the **@extension** attribute mapped to partnerId with unique document ID.

For CDI, the **@extension** attribute is mandatory and *must have* the associated PartnerID_UniqueID present.

Example:

```
<id extension="ProviderID_RandomNumber" root="2.16.840.1.113883.19.5.99999.1"/>
```

In the above example, "ProviderID" represents the unique provider ID and "_RandomNumber" represents the automated random number generated by the provider system.

LNI Document Request ID requirements:

- ✓ It must be prefixed with the provider ID followed by a Random Number
- ✓ The RequestID is used as a unique identifier to associate the transactions with the requested claim number.

2.2.3 effectiveTime

The **effectiveTime** header indicates when the document was last modified or when it was created in the sender system (modify timestamp). This entry must be precise to date and preferably should have hour/minute followed by time zone values (if hour/minute values are provided, time zone must also be included).

Example:

```
<effectiveTime value="201402131320-0800"/> OR <effectiveTime value="20140213"/>
```

2.2.4 recordTarget

The **recordTarget** header represents the patient information, although this document can also represent the clinic details. The **recordTarget** header must have at least one **<patientRole>** node and it must have the following:

- ✓ an first **<id>** node having intended recipient information
 - an **@root** attribute set to 1.3.6.1.4.1.38630.2.1.1.46 (OHP OID for L&I) ,
 - an **@extension** attribute set to f5tp1v00 (OHP Production server ID for L&I)
 - an **@extension** attribute set to f5tp1v01 (OHP pre-production server ID for L&I).

This information is required by HIE to route document to L&I.

id Examples:

For OHP Production OrgID for L&I:

```
<id root="1.3.6.1.4.1.38630.2.1.1.46" extension="f5tp1v00" />
```

For OHP UAT OrgID for L&I:

```
<id root="1.3.6.1.4.1.38630.2.1.1.46" extension="f5tp1v01" />
```

- ✓ a second **<id>** representing the sender organization using OHP assigned OID and OrgID
*****IMPORTANT:** The example below shows the information for the OHP Test account.
Sender organizations should replace the following values with the ones applicable to them
- ✓ an **<addr>** node with appropriate **@use** attribute
****NOTE:** nodes beneath the **<addr>** node must have address information for the patient;
- ✓ a **<telecom>** node with **@value** and **@use** attributes set to phone number and phone number type respectively;
- ✓ a **<patient>** node with patient name information;
- ✓ an **<administrativeGenderCode>** node with patient gender code (conforming to code system 2.16.840.1.113883.5.1) and;
- ✓ a **<birthTime>** node (accurate to date).
- ✓ a **<providerOrganization>** node with **<id>** and **<name>** of the sender Organization information

```
<id root="1.3.6.1.4.1.38630.2.1.1.15.3"/>  
<name>Good Health Clinic</name>
```

Example:

```
<recordTarget>
  <patientRole>
    <id root="1.3.6.1.4.1.38630.2.1.1.46" extension="f5tp1v01" />
    <!-- OHP UAT OID for L&I -->
    <id root="1.3.6.1.4.1.38630.2.1.1.15.3" extension="7uyco03"/>
    <!-- Fake Sender organization using OHP OID -->
    <addr use="HP">
      <streetAddressLine>1234 Main Street</streetAddressLine>
      <city>Olympia</city>
      <state>WA</state>
      <postalCode>98512</postalCode>
      <country>US</country>
    </addr>
    <telecom value="(360)123-4567" use="HP"/>
    <patient>
      <name use="L">
        <given>Jane</given>
        <given>H.</given>
        <family>Doe</family>
      </name>
      <administrativeGenderCode code="F" codeSystem="2.16.840.1.113883.5.1"
        displayName="Female"/>
      <birthTime value="19980501"/>
    </patient>
    <providerOrganization>
      <id root="1.3.6.1.4.1.38630.2.1.1.15.3"/>
      <name>Good Health Clinic</name>
    </providerOrganization>
  </patientRole>
</recordTarget>
```

2.2.5 author

The **author** header represents the author information for the CDI. Depending on the medical facility, this may be different from the attending provider. It may also be a device (which is represented by the *<assignedAuthoringDevice>* node below). The **author** header must have following:

- ✓ an *<author>* node with:
 - a *<time>* node with @value attribute containing Date of Service.
- ✓ an *<assignedAuthor>* node with:
 - at least one *<id>* node with:
 - **@extension** attribute set to the assigned person id (e.g. NPI) in sender system and
 - **@root** attribute set to the naming system
(e.g. 2.16.840.1.113883.4.6 for NPI,
2.16.840.1.113883.3.4819.12.1.1 for L&I Issued Provider ID)
 - an *<addr>* node with:

- appropriate values for author’s address information.
 - <telecom> node with:
 - appropriate @use and @value attributes set for author’s phone number.
 - an <assignedPerson> node with author’s name.
- ✓ The <assignedAuthoringDevice> node *is optional* and may contain information to identify the system information from the providers Electronic Medical Records system for the document that is being processed.

author Example:

```

<author>
  <time value="201402131320-0800"/>
  <assignedAuthor>
    <id extension="99999999" root="2.16.840.1.113883.4.6"/>
    <addr>
      <streetAddressLine>1234 Healthcare Street </streetAddressLine>
      <city>Olympia</city>
      <state>WA</state>
      <postalCode>98512</postalCode>
      <country>US</country>
    </addr>
    <telecom use="WP" value="360-102-3435"/>
    <assignedPerson>
      <name>
        <given>Attending</given>
        <family>Provider</family>
      </name>
    </assignedPerson>
    <assignedAuthoringDevice>
      <manufacturerModelName>Good Health Medical Device</manufacturerModelName>
      <softwareName>Good Health Report Generator</softwareName>
    </assignedAuthoringDevice>
  </assignedAuthor>
</author>

```

*optional {

2.3 Data Conformance – CDI Acceptance

The data conformance rules listed below are limited to conformity of CDI data exchange format only. These rules define the minimum “acceptance” criteria (in addition to header constraints explained above) for CDI at L&I and are only limited to required sections, templates etc.

CDI documents failing to meet these “acceptance” criteria will not be processed by L&I systems.

2.3.1 Required Sections

For the successful submission of the CDI document to L&I, the Assessment and Plan sections are required, and must be submitted together.

Implementation Guideline:

In the CDI document, the structuredBody//Assessment and Plan section (identified by fixed [templateld/@root="2.16.840.1.113883.10.20.22.2.9"](#)) must be present.

2.3.2 Assessment and Plan Section Requirements for Acceptance

The Assessment and Plan section in the CDI must contain at least one claim number for the Claim / Diagnosis Request to be processed and results returned.

***Note:** The sample below is shown with **text, attributes and elements** for the section. These values follow a specific pattern for locally “codifying” the narrative text. Each `<element>/<attribute>` is explained in detail for the acceptance requirement.

- ✓ The section must contain at least one `<claimDiagnosticRequest>/<entry>` for requesting claim information
- ✓ A requestType with value “CLAIMSTD” is mandatory.
- ✓ The claim number must be valid, meaning it conforms to the following requirements:
 - Must be 7 characters in length
 - Cannot contain special characters
 - The following format will be accepted:
[a-ruxyzA-RUXYZ][a-zA-Z0-9][0-9][0-9][0-9][0-9]
 - Currently we do not accept self-insured claims, these start with [S,T,W]
 - Example: AW09910
- ✓ Patient Details is required for every claim number to validate the Claim against the patient.
- ✓ *claimDiagnosticRequest shall contain at least one <entry> element for each piece of patient claim information.*

Sample 1: Claim request section with one claim number

```
<!-- ***** CLAIM/DIAGNOSIS STATUS REQUEST ***** -->
<component>
<section>
<templateId root="2.16.840.1.113883.10.20.22.2.9" />
<code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="51847-2"
displayName="ASSESSMENT AND PLAN"/>
<title>CLAIM/DIAGNOSIS STATUS REQUEST</title>
<text>
  <table ID="cdi.request.assessment">
    <!-- <tbody> element has one attribute with constant value "CLAIMSTD" Not to be changed -->
    <tbody requestType="CLAIMSTD">
      <!-- each <tr> represents claim number -->
      <tr>
        <td ID="assessment.request.claimNumber">CD234345</td>
        <td ID="assessment.request.patientInfo">
          <content ID="firstName">David</content>
          <content ID="lastName">Bost</content>
          <content ID="gender">Male</content>
          <content ID="dateOfBirth">19710629</content>
        </td>
      </tr>
    </tbody>
  </table>

```

```

        <content ID="dateOfInjury">20160811</content>
    </td>
</tr>
</tbody>
</table>
</text>
</section>
</component>

```

Sample 2: Claim request section with multiple entries for claim numbers

```

<!-- ***** CLAIM/DIAGNOSIS STATUS REQUEST ***** -->
<component>
<section>
<templateId root="2.16.840.1.113883.10.20.22.2.9"/>
<code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="51847-2"
displayName="ASSESSMENT AND PLAN"/>
<title>CLAIM/DIAGNOSIS STATUS REQUEST</title>
<text>
    <table ID="cdi.request.assessment">
        <!-- <tbody> element has one attribute with constant value "CLAIMSTD" Not to be changed
        -->
        <tbody reqestType="CLAIMSTD">
            <!-- each <tr> represents claim number -->
            <tr>
                <td ID="assessment.request.claimNumber">CD234345</td>
                <td ID="assessment.request.patientInfo">
                    <content ID="firstName">David</content>
                    <content ID="lastName">Bost</content>
                    <content ID="gender">Male</content>
                    <content ID="dateOfBirth">19710629</content>
                    <content ID="dateOfInjury">20160811</content>
                </td>
            </tr>
            <tr>
                <td ID="assessment.request.claimNumber">AS234345</td>
                <td ID="assessment.request.patientInfo">
                    <content ID="firstName">John</content>
                    <content ID="lastName">Doe</content>
                    <content ID="gender">Male</content>
                    <content ID="dateOfBirth">19710629</content>
                    <content ID="dateOfInjury">20160811</content>
                </td>
            </tr>
        </tbody>
    </table>
</text>
</section>
</component>

```

3 CDI Acknowledgements/Responses

CDIs sent to L&I will have two responses sent back.

- 1) Sent from OHP HIE (HIE Acknowledgement) indicates successful delivery of the document to L&I.
- 2) Sent from L&I (L&I Claim Information Response) contains Claim Diagnostic Information about each <claim number> request received at L&I if there was more than one claim number.

OHP HIE acknowledgements will inform sender about “delivery” of document to L&I.

L&I Claim Information Response will inform the sender about Patient/Claim details with allowed Diagnostics details.

3.1 Sample OHP HIE Acknowledgement

Below is a sample OHP HIE Acknowledgement message. Notice the root node name = OHPHIEack.

Sample

```
<?xml version="1.0" encoding="UTF-8" ?>
<OHPHIEack version="1.0">
  <Status>Delivered</Status>
  <Comments/>
  <HIEId>ZZOHPUAT</HIEId>
  <HIName>OHP UAT</HIName>
  <SenderId>f5tp1v00</SenderId>
  <SenderName>State of WA Dept of Labor & Industries</SenderName>
  <ReceiverId>f5tp1v00</ReceiverId>
  <ReceiverName>State of WA Dept of Labor & Industries</ReceiverName>
  <DeliveredTime>06-11-2014 14:19:21 PST</DeliveredTime>
  <DocumentType>CDI</DocumentType>
  <FileName>testfile.hl7</FileName>
</OHPHIEack>
```

- The <Status> field in the message above indicates successful delivery of the document to L&I.
- The <SenderId> and <SenderName> fields in the message are related to the original sender of the file.
- The <ReceiverId> and <ReceiverName> fields in the message are related to the receiver of original document (L&I).

3.2 L&I Claim Information Response Scheme

The L&I Claim Information Response scheme will duplicate the CDA R2 Progress Note schema. The response to each request can be found under the Objective section identified as:

[\[templateId: 2.16.840.1.113883.10.20.21.2.1 \]](#).

HL7 CDA R2 requires documents to be renderable in a human readable format representing the data accurately. This functionality allows for renderable information to be returned within the <text> tags from the template used for Claim Diagnostic Information.

CDI implementation of the CDA R2 schema for the "Progress Note" document template further "codifies" these text entries to allow for treating them as coded entries while maintaining the renderability of the document in human readable form using HL7 CDA R2 standard XSL transformations. Below is an overview of these coding schemes with examples from sample document. Each of these section elements and their value sets are explained further in the next section.

Sample 1: Claim response section

```
<component>
<section>
  <templateId root="2.16.840.1.113883.10.20.21.2.1"/>
  <code code="61149-1" codeSystemName="LOINC" codeSystem="2.16.840.1.113883.6.1"
displayName="OBJECTIVE DATA"/>
  <title>CLAIM STATUS RESPONSE</title>
  <text>
  <table ID="cdi.response">
    <tbody>
      <!-- represents claim status response-->
      <tr>
        <td ID="cdi.response.claimStatus">
          <content ID="dateOfInjury">2014-10-27</content>
          <content ID="determineDate">2014-10-27</content>
          <content ID="closeDate">2014-10-27</content>
          <content ID="correctClaimId">A</content>
          <content ID="establishedDate">1990-06-05</content>
          <content ID="determinationDesc">ALLOWED</content>
          <content ID="claimStatusDesc">clm_stat_desc</content>
        </td>
        <td ID="cdi.response.diagnosisAllowanceList">
          <th id="diagnosisCodes">
            <content ID="status">1</content>
            <content ID="dental">n/a</content>
            <content ID="beginToothNumber">32</content>
            <content ID="endToothNumber">26</content>
            <content ID="beginId">S23.8XXA</content>
            <content ID="endId">S23.8XXA</content>
            <content ID="description">SPRAIN OTHER SPEC PARTS OF THORAX INITIAL ENCINTR</content>
            <content ID="bodySide">L</content>
            <content ID="activityDate">2015-12-22</content>
            <content ID="beginDate">2015-10-01</content>
            <content ID="endDate">2099-12-31</content>
          </th>
          <th id="diagnosisCodes">
            <content ID="status">A</content>
            <content ID="dental">n/a</content>
            <content ID="beginToothNumber">32</content>
            <content ID="endToothNumber">26</content>
          </th>
        </td>
      </tr>
    </tbody>
  </table>
  </text>
</section>
</component>
```

```

<content ID="beginId">S23.8XXA</content>
<content ID="endId">S23.8XXA</content>
<content ID="description">SUPERIOR GLENOID LABRUM LESIONS</content>
<content ID="bodySide">R</content>
<content ID="activityDate">2013-02-09</content>
<content ID="beginDate">1993-12-31</content>
<content ID="endDate">2099-12-31</content>
</th>
</td>
</tr>
</tbody>
</table>
</text>
</section>
</component>

```

The Objective section identified by the templateID is appropriately updated with:

title=CLAIM STATUS RESPONSE

The text entry in the Objective section provides the response for each claim number requested in the CDI Request as a separate response with a common root **ID extension="prsuin00_GUID"** to identify it.

claimStatus entries

Content entries	Purpose/Description
dateOfInjury	Date of Injury
determineDate	Claim Determination Date
closeDate	Close Date
correctClaimId	Correct Claim
establishedDate	Claim Established Date
determinationDesc	Determination Description
ClaimStatusDesc	Claim Status Description

diagnosisAllowanceList > diagnosisCodes > entries

Content entries	Purpose/Description
status	Allowed is identified by "A" as code
dental	n/a
beginToothNumber	Begin Tooth code
endToothNumber	End Tooth code
beginId	Begin Diagnosis ID
endId	End Diagnosis ID
description	Diagnosis Description
bodySide	Body Side Code
activityDate	Activity Date
beginDate	Begin Date
endDate	End Date

3.3 CDI Sample CDA XML

In order to clarify the structure of the documents, samples of both the CDI CDA Request that is sent and the response from L&I are provided in the Appendix section.

4 Recommended Implementation Approach

4.1 Placeholder

We still need to write this section, which Deepa will be working on.

5 Appendix

Provider Request:



ClaimDiagnostics_C
DA_Req_1.1.xml

L&I Response:



ClaimDiagnostics_C
DA_Response_1.1.xr