Additional Information Specification 0011:
Periodontal Attachment

Release 1.0
Based on HL7 CDA Standard Release 2.0,
with supporting LOINC® Tables

Ballot Draft, August 2007
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1 Introduction

This publication provides the defined data items and their corresponding LOINC®\(^1\) code values specific to a periodontal attachment for the following applications.

- Those codes that identify the attachment or attachment components used in transactions such as those defined by the ASC X12N 277 Health Care Claim Request for Additional Information and the ASC X12N 275 Additional Information to Support a Health Care Claim or Encounter implementation guides which are products of the insurance subcommittee, X12N, of Accredited Standards Committee X12.\(^2,^3\)

- Those codes used in HL7 Clinical Document Architecture (CDA) documents designed for inclusion in the BIN segment of the 275 transaction set as described in the HL7 Additional Information Specification Implementation Guide.\(^4\)

The format of this document and the methods used to arrive at its contents are prescribed in the HL7 Additional Information Specification Implementation Guide.

Note to ballot reviewers:

- Some of the concepts included in the attachment will be assigned LOINC codes after the ballot process validates the rest of the specification (we use "placeholder" codes where we intend to acquire real codes). In addition, we found several LOINC codes already in existence, which appeared similar enough to meet our purposes. Your comments regarding whether these are correct choices are much appreciated.

- The non-normative example files (i.e., the XML/CDA files which satisfy the use cases in Section 4) are under construction at this time. These are not subject to ballot comments; however, we will send a note to the HL7 Attachments list server (the main ASIG list; see: http://www.hl7.org/listservice) when available. In the final (post-ballot) publication of this specification, all of the referenced example files will be included, and the "screen shots" based upon them will be reflected appropriately in this specification document.

- We include a new "Appendix 1", a non-normative section which seeks to explain how we applied the concepts known to modelers/implementers of HL7 version 3 (including CDA). We intend to incorporate such modeling explanations into future specifications, and welcome your comments on the content of Appendix 1.

Thank you for your review and comments on this material.

Section 2 of this document identifies the LOINC code used to request a periodontal attachment, and the LOINC codes of each component of the attachment. These components represent the

\(^1\) LOINC® is a registered trademark of Regenstrief Institute and the LOINC Committee. The LOINC database and LOINC Users’ Guide are copyright 1998-2007 Regenstrief Institute and the LOINC Committee; the LOINC database codes and names are available at no cost from http://www.LOINC.org. Email: LOINC@regenstrief.org

\(^2\) Information on this and other X12N/HIPAA-related implementation guides is available from the Washington Publishing Company, http://www.wpc-edi.com

\(^3\) Within this Health Level Seven document, references to the transaction defined by these X12N implementation guides will be abbreviated by calling them 275 and 277.

\(^4\) Health Level Seven, Inc. 3300 Washtenaw Ave., Suite 227, Ann Arbor, MI 48104-4250. (http://www.hl7.org)
American National Standard/American Dental Association (ANS/ADA) Specification Number 1047; Standard Content of an Electronic Periodontal Attachment.

Section 3 further describes each component of the attachment, the cardinality of the components and their answer parts, and the description, entry types, data types, codes, and units of each answer part.

Section 4 presents coding examples, with narrative scenarios, an XML example, and a display image of the attachment using a popular browser.

Section 5 further describes the code sets used in the response to each answer part of the attachment.

Appendix 1 contains information related to the modeling of this attachment specification, using concepts well known to analysts and implementers who work with the HL7 version 3 family of standards, including the CDA.

Note: All LOINC codes and descriptions are copyrighted by the Regenstrief Institute, with all rights reserved. See http://www.LOINC.org.

1.1 Business Purpose

Additional Information Specifications (AIS) are used to convey information associated with a specific business purpose. AIS’s are used to convey clinical and non-clinical additional information to support other health care transactions, such as the X12 837 claims and the X12 278 Health Care Services Review.

The Periodontal attachment is used to convey information about periodontal related services. The items defined for electronic supporting documentation were developed by the Standards Committee on Dental Informatics of the American Dental Association (ADA). Many of the items described in the attachments are based on an analysis of paper forms that have been used by dentists and payers in the past. Each possible attachment item, however, has been reviewed for appropriateness in an electronic format.

If this attachment is to be used for a HIPAA transaction, please refer to federal regulations for further guidance.

1.2 LOINC Codes and Structure

LOINC codes are used for several purposes:

- In the 277 or 278 Response transaction set, LOINC codes identify the attachment type or attachment components being requested to support a claim or encounter.
- In the HL7 CDA document or 278 Request transaction, LOINC codes are used to identify the attachment type, the attachment components, and their answer parts. LOINC codes may also identify the type of clinical document, if the provider has created the clinical document in CDA format. The HL7 CDA document is returned in the BIN segment of the 275 transaction set.

5 Specification 1047 is copyrighted (2006) by, and available from, the American Dental Association at American Dental Association, 211 East Chicago Avenue, Chicago, IL 60611-2678 or http://www.ada.org
• LOINC modifier codes may be used in the 277 or 278 transaction to further define the specificity of a request.

For further information on the relationship and use of LOINC Codes with the X12N Transactions, and HL7 CDA Documents, see section 1.5 in the HL7 Additional Information Specification Implementation Guide.

1.3 Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2007</td>
<td>Initial Ballot Draft</td>
</tr>
</tbody>
</table>

1.4 Privacy Concerns in Examples

The names of natural persons that appear in the examples of this document are intentionally fictional. Any resemblance to actual natural persons, living or deceased, is purely coincidental.

1.5 HL7 Attachment-CDA Document Variants

As described in the HL7 Additional Information Specification Implementation Guide, there are two variants of a CDA document when used as an attachment:

• The human-decision variant (HDV) is used solely for information that will be rendered for a person to look at, in order to make a decision. HL7 provides a non-normative style sheet for this purpose. The HDV is not required to have structured or coded answers. The only LOINC value used in an HDV CDA document is the LOINC for the Attachment Type Identifier. There are two further alternatives within the human-decision variant.
  • It can be a single <nonXMLBody> element that contains a reference to an external file that provides the content for the body of the document, or
  • It can contain a <structuredBody> element containing free text in XML elements that organize the material into sections, paragraphs, tables and lists as described in the HL7 Additional Information Specification Implementation Guide.

• The computer-decision variant (CDV) has the same content as the human-decision variant, but additional structured information and LOINC coded data is included so that a computer could provide decision support based on the document. Attachments in the CDV can be rendered for human decisions using the same style sheet that HL7 provides for rendering documents formatted according to the human-decision variant.

These variants do not differ in functional content. All variants of the same attachment have required and optional content as specified in the Additional Information Specification document for that attachment. The variants only differ with regard to whether structured and coded data is mandated.

Both variants place constraints upon what information must be present in the CDA to support the Attachment use case, described in Section 1.1. Additional CDA structures (document sections,
entries, etc.), may be present to support use cases other than those defined by this AIS. Anything not explicitly prohibited by this AIS may be present in the CDA document to support use cases other than those defined herein.

1.6 Request for Information versus Request for Service

This attachment specification for periodontal information defines a “send-me-what-you-have” attachment. It asks for a set of periodontal attachment components gathered during the course of patient care. **It is not asking for any additional data capture efforts.** For example, if the request for data is for physical findings of the teeth (LOINC 32478-0), it is not asking the provider to obtain new measurements, but just to report the measurements that had already been recorded during the examination.
2 LOINC Codes

2.1 Periodontal Supporting Documentation

The table shown below defines the LOINC code used to request a complete periodontal attachment data set.

**Use of the attachment level LOINC**

**Solicited Model** - The use of this code in the 277 request in the STC segment or the 278 Response HI segment represents an explicit request for the complete set of components relevant to the periodontal conditions.

**Unsolicited Model** – The 275 Periodontal Attachment must use the complete attachment data set, using this LOINC code and including the required data elements in accordance with cardinality.

### 2.1.1 LOINC Code for a Complete Periodontal Attachment

<table>
<thead>
<tr>
<th>LOINC code</th>
<th>Attachment Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>lxxx0-x</td>
<td>PERIODONTAL ATTACHMENT</td>
</tr>
</tbody>
</table>

The provider shall return all data components for which data is available.

The provider may choose to return images of pages that constitute the requested information by using the `<nonXMLBody>` element of the CDA as described in the *HL7 Additional Information Specification Implementation Guide*.

The set of components for a periodontal attachment, identified by individual LOINC codes, is defined in Section 2.4.

2.2 Scope Modification Codes

The HL7 publication *Additional Information Specification 0999: LOINC® Modifier Codes (For use with ASC X12 277 and X12 278 Implementation Guides when Requesting Additional Information)* provides code values for further defining the specificity of a request for additional information. Both time window and item selection modifier codes are defined. This publication is available from HL7, and is in the download package with the AIS documents.

2.3 Special Consideration for the Periodontal Attachment

If requested or relevant answer parts are omitted, the findings are presumed to be within normal limits.
2.4 Attachment Data Components

Data elements are defined in the ANS/ADA Specification 1047 Standard Content of an Electronic Periodontal Attachment. These data elements are then mapped into the clinical statement model used by the HL7 Clinical Document Architecture Release 2.0 standard. LOINC codes are then defined for each of the relevant data in the model. The data models are the result of a significant industry outreach project, and represent the complete set of periodontal attachment components.

The LOINC code in section 2.1.1 above represents a request for the complete periodontal attachment. However, the requester also has the option of focusing on one or more specific components of the attachment through the use of the LOINC codes defined in section 2.4.1 below. In this case the provider will respond with information, where available, specific to the requested data components.

These LOINC codes may be used in the 277 and 278 as defined in the associated X12N Implementation Guides and will be mirrored in the corresponding 275. In addition, these LOINC codes are used in the <code> element of the computer-decision variant of the HL7 Additional Information Specification Implementation Guide.

Use of the component level LOINCs

**Solicited Model** – The use of any of the component level LOINCs in the 277 request in the STC segment or the 278 response HI segment represents an explicit request for the associated answer part(s) for that component. The LOINC used in the 277 or 278 request must be echoed back in the 275 and the appropriate answer part(s) sent in the HL7 CDA document. The required answer part(s) for the specific component LOINC requested must be sent in accordance with cardinality.

**Unsolicited Model** – The 275 Periodontal Attachment must use the complete attachment data set, using this LOINC code and including the required data elements in accordance with cardinality.

2.4.1 LOINC Codes for Components of a Periodontal Attachment

<table>
<thead>
<tr>
<th>LOINC code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>32478-0</td>
<td>PHYSICAL FINDINGS, TEETH (COMPOSITE)</td>
</tr>
<tr>
<td>1xxx2-x</td>
<td>FRENUM INVOLVEMENT</td>
</tr>
<tr>
<td>1xxx3-x</td>
<td>RESTORATIVE TREATMENT</td>
</tr>
<tr>
<td>1xxx4-x</td>
<td>ORTHODONTIC TREATMENT</td>
</tr>
<tr>
<td>1xxx5-x</td>
<td>NARRATIVE INFORMATION PERTAINING TO THE ATTACHMENT OR CLAIM</td>
</tr>
</tbody>
</table>
3 Attachment Value Table

The table in section 3.1 below further describes the LOINC components listed above in section 2.4.1, along with the expected answer part(s) for each question, including the entry type, data type, cardinality, and codes/units of each answer.

The provider shall return all data components for which data is available.

The following describes the information you will see in each column and row, of the value table. We begin with a description of the left-most column, using the column names shown in the table heading row, and proceed in left-to-right order.

LOINC Code

Component – the LOINC code in bold, shown towards the left in this column, identifies the question or the information being requested.

Answer – the LOINC code for the answer part, shown towards the right in this column.

If there is a single answer part for the question, the LOINC code is nearly on the same line as the Component. (Space limitations prevent showing these on the same line.) If there are multiple answer parts, the LOINC codes for each answer part are in the subsequent rows of the table.

Description and Value

This column contains the full name of the question or answer part, as described by the LOINC code to the left. The questions or components are shown in bold. Further explanation is also given, along with the XPath\(^6\) statement, which may be helpful to implementers of the computer decision variant (CDV). In the heading of the table, the primary LOINC code and name of the attachment is shown for convenience.

With the CDV, some answers are placed in the CDA header of the document and are noted as such with the answer. When using the HDV method, those answers may be placed in either the CDA header or the CDA body. See the section on General Header Compliance Statements in the HL7 Additional Information Specification Implementation Guide for more details.

Entry Type

This column describes the type of entry used in the CDA document to record the information.

\(^6\) XPath is a language for addressing parts of an XML document, designed to be used by both XSLT and XPointer. See [http://www.w3.org/TR/xpath](http://www.w3.org/TR/xpath)
**Data Type**

This column shows the CDA Release 2 data type of the response value. For further information, see the Data Types section of the *HL7 Additional Information Specification Implementation Guide*.

**Card (Cardinality)**

HL7 uses the term Cardinality to refer to the specification of the number of times that a component may or must repeat. When the minimum number of repetitions is zero, the cardinality specification indicates optionality.

Cardinality is described as a pair of numbers, the first is the least number of repetitions that are required, and the second the greatest. The second number can also be “n” which means an unspecified number, more than one. The common patterns are:

- **1,1**  The attachment component or attachment component answer part is required; only a single occurrence is permitted
- **0,1**  The attachment component or attachment component answer part is optional; at most a single occurrence is permitted
- **1,n**  The attachment component or attachment component answer part is required; multiple occurrences are permitted
- **0,n**  The attachment component or attachment component answer part is optional; multiple occurrences are permitted

The Card column describes repetition in the pattern of attachment components and attachment component answer parts. If such a value appears in a row containing a LOINC code for an attachment component, it describes whether the entire component (including one or more answer parts) can repeat. If a repetition value appears in a row containing a LOINC code for an attachment component answer part, it indicates that the answer part can repeat within a single occurrence of the complete attachment component.

**Response Code / Numeric Units**

This column contains references to code tables or numeric units expected to be used in the response. See section 5 for specifics on each item.
### 3.1 Periodontal Attachment Value Table

<table>
<thead>
<tr>
<th>LOINC code</th>
<th>Component Answer</th>
<th>Description and Value</th>
<th>Entry Type</th>
<th>Data Type</th>
<th>Card</th>
<th>Response Code / Numeric Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>32478-0</td>
<td>PHYSICAL FINDINGS, TEETH (COMPOSITE)</td>
<td>Section 1,1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The dental examination section contains findings of the patient's mouth or teeth and also contains narrative text describing the patient's teeth.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The XPath statement is expressed as:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>/ClinicalDocument/section[@code='32478-0']</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NARRATIVE</td>
<td>OBS ED 0,1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Free text information pertaining to data elements on the attachment or on the original claim submission.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note to ballot reviewers: If we can determine a way to legitimately model this within the rules of the CDA R2 Standard, we intend to move this narrative block to the end of this table, and allow it to be requested with the LOINC listed at the bottom of table 2.3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The XPath statement is expressed as:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>/ClinicalDocument/section[@code='32478-0']/text</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32885-6</td>
<td>TOOTH OBSERVATION</td>
<td>OBS CD 0,48 JP or JO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All tooth numbers reported throughout the attachment must use the same tooth numbering system. Either Universal/National Tooth Numbering System (ANSI ASC X12 Code Set Qualifier &quot;JP&quot;) or ANSI/ADA/ISO Specification No. 3950 (ANSI ASC X12 Code Set Qualifier &quot;JO&quot;) may be used, as prescribed in Section 5 of this document.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Generally there will be up to 32 teeth. Extra teeth may be a combination of primary and permanent if the patient has transitional dentition, or if the patient has supernumerary dentition. See section 5 for code source.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The tooth number appears in the &lt;targetSiteCode&gt; element of the entry. The codeSystem attribute is valued with the JP OID or JO OID, depending upon which numbering system is used. The XPath statement with the JP OID is:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry[@code='32885-6' and @codeSystem=$LOINC]/targetSiteCode[@codeSystem='2.16.840.1.113883.19.2744.11.57']/@code</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Additional Information Specification 0011: Periodontal Attachment

#### LOINC code

<table>
<thead>
<tr>
<th>Component Answer</th>
<th>Description and Value</th>
<th>Entry Type</th>
<th>Data Type</th>
<th>Card</th>
<th>Response Code / Numeric Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>32910-2 TOOTH PROBING DEPTH</td>
<td>OBS CD 0,6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROBING POSITION</td>
<td>CD 1,1 PPP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROBING DEPTH LT11MM</td>
<td>PQ 0,1 &quot;mm&quot; from UCUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROBING DEPTH GT10MM</td>
<td>CD 0,1 Fixed value of &quot;&gt;&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34005-9 TOOTH MOBILITY</td>
<td>OBS CO 0,1 Miller</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The XPath statement is expressed as:

\[
\text{/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry/observation[@code='32885-6' and @codeSystem=$LOINC]/entryRelationship[@typeCode='COMP']/observation[@code='32910-2']}
\]

For each tooth, indicate the probing position in the `<targetSideCode>` element. See Section 5 for the list of codes.

For each position reported on each tooth, **must choose one Probing depth response**.

The XPath statement is expressed as:

\[
\text{/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry/observation[@code='32885-6' and @codeSystem=$LOINC]/entryRelationship[@typeCode='COMP']/observation[@code='32910-2']/targetSiteCode/@code}
\]

For each Periodontal probing depth measure in millimeters if between 0 and 10 mm.

The XPath statement is expressed as:

\[
\text{/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry/observation[@code='32885-6' and @codeSystem=$LOINC]/entryRelationship[@typeCode='COMP']/observation[@code='32910-2']/value/@value}
\]

- OR -

For each Periodontal probing depth measure in millimeters if greater than 10 mm.

The XPath statement is expressed as:

\[
\text{/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry/observation[@code='32885-6' and @codeSystem=$LOINC]/entryRelationship[@typeCode='COMP']/observation[@code='32910-2']/interpretationCode/@code}
\]

For each tooth, enter tooth movement using the Miller Classification in 0.0-3.0 increments of 0.5.

The XPath statement is expressed as:

\[
\text{/ClinicalDocument/section[@code='32478-0' and @codeSystem=$LOINC]/entry/observation[@code='32885-6' and @codeSystem=$LOINC]/entryRelationship[@typeCode='COMP']/observation[@code='34005-9']/value/@value}
\]
<table>
<thead>
<tr>
<th>LOINC code</th>
<th>PERIODONTAL ATTACHMENT</th>
<th>Entry Type</th>
<th>Data Type</th>
<th>Card</th>
<th>Response Code / Numeric Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>34015-8</td>
<td>TOOTH FURCATION</td>
<td>OBS</td>
<td>CO</td>
<td>0,1</td>
<td>Glickman</td>
</tr>
</tbody>
</table>

For each tooth, indicate tooth division using the Glickman Classification (Roman Numerals I through IV). See section 5 for details.

The XPath statement is expressed as:
```
/ClinicalDocument/section[@code='32478-0' and @codeSystem='LOINC']/entry/observation[@code='32885-6' and @codeSystem='LOINC']/entryRelationship[@typeCode='COMP']/observation[@code='34015-8']/value/@value
```

32911-0 GINGIVAL RECESSION OBS 0,1

For each tooth reported, must choose one recession depth response.

The XPath statement is expressed as:
```
/ClinicalDocument/section[@code='32478-0' and @codeSystem='LOINC']/entry/observation[@code='32885-6' and @codeSystem='LOINC']/entryRelationship[@typeCode='COMP']/observation[@code='32911-0']
```

GINGIVAL RECESSION LT11MM PQ 0,1 "mm" from UCUM

For each tooth, enter measure in millimeters if between 0 and 10 mm, use the GT10MM answer part, shown next.

The XPath statement is expressed as:
```
/ClinicalDocument/section[@code='32478-0' and @codeSystem='LOINC']/entry/observation[@code='32885-6' and @codeSystem='LOINC']/entryRelationship[@typeCode='COMP']/observation[@code='32911-0']/value/@value
```

- OR –

GINGIVAL RECESSION DEPTH GT10MM OBS CD 0,1 Fixed value of ">"

Use this code if recession is greater than 10 mm.

The XPath statement is expressed as:
```
/ClinicalDocument/section[@code='32478-0' and @codeSystem='LOINC']/entry/observation[@code='32885-6' and @codeSystem='LOINC']/entryRelationship[@typeCode='COMP']/observation[@code='32911-0']/interpretationCode/@code
```
**Periodontal Attachment**

<table>
<thead>
<tr>
<th>LOINC code</th>
<th>Component Answer</th>
<th>Description and Value</th>
<th>Entry Type</th>
<th>Data Type</th>
<th>Card</th>
<th>Response Code / Numeric Units</th>
</tr>
</thead>
</table>
| 32912-8    | ATTACHED GINGIVA | For each tooth, report the portion of the oral mucous membrane bound to the tooth and to the alveolar arches of the jaw. For each tooth reported, **must choose one increment response.**

**GINGIVA MEASURE IN MILLIMETERS IF BETWEEN 0 AND 10 MM**

Use this component if the amount of attached gingiva is less than 11mm, use the GT10MM answer part, shown next.

**OBS 0,1**

**GINGIVA ATTACHMENT MEASURE GT10MM**

Use this code if the amount of attached gingiva is greater than 10 mm.

**OBS BL 0,1**

**FRENUM INVOLVEMENT**

An indicator that frenum is involved.

```
true  indicates that frenum was involved
false indicates frenum was not involved
```

**OBS**

The XPath statement is expressed as:

/\ClinicalDocument//section[@code='1xxx2-x' and @codeSystem=$LOINC]/entry/observation[@code='1xxx2-x' and @codeSystem=$LOINC]/value/@value
<table>
<thead>
<tr>
<th>LOINC code</th>
<th>Component Answer</th>
<th>Description and Value</th>
<th>Entry Type</th>
<th>Data Type</th>
<th>Card</th>
<th>Response Code / Numeric Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1xxx3-x</td>
<td>1xxx3-x</td>
<td>RESTORATIVE TREATMENT</td>
<td>OBS</td>
<td>BL</td>
<td>0,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>An indicator of whether the periodontal procedure is related to other restorative procedures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>true  indicates that procedure is related to restorative treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>false indicates procedure is not related to restorative treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The XPath statement is expressed as:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ClinicalDocument//section[@code='1xxx3-x' and @codeSystem=$LOINC]/entry/observation[@code='1xxx3-x' and @codeSystem=$LOINC]/value/@value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1xxx4-x</td>
<td>1xxx4-x</td>
<td>ORTHODONTIC TREATMENT</td>
<td>OBS</td>
<td>BL</td>
<td>0,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>An indicator of whether the periodontal procedure is related to an orthodontic treatment plan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>true  indicates that procedure is related to an orthodontic treatment plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>false indicates procedure is not related to an orthodontic treatment plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The XPath statement is expressed as:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ClinicalDocument//section[@code='1xxx4-x' and @codeSystem=$LOINC]/entry/observation[@code='1xxx4-x' and @codeSystem=$LOINC]/value/@value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1xxx5-x</td>
<td>1xxx5-x</td>
<td>NARRATIVE INFORMATION PERTAINING TO THE ATTACHMENT OR CLAIM</td>
<td>OBS</td>
<td>ED</td>
<td>0,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free text information pertaining to data elements on the attachment or on the original claim submission.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>See the &quot;note to ballot reviewers&quot; at the beginning of this table; the location of the narrative block may change depending upon how we are able to model this; we prefer that it be here at the end but may not be able to conform to the CDA R2 Standard if we do that.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The XPath statement is expressed as:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;&lt;&lt; to be determined &gt;&gt;&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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4 Coding Examples

4.1 Scenario 1

Eve E. Everywoman of 2222 Home Street, was a patient of Charlie C. Chopper, DDS, and presented with an intermittent pain and bleeding in the upper right quadrant.

Dr. Chopper completed a full periodontal evaluation on Ms. Everywoman and found tooth number 04 (second premolar) had a severe periodontal pocket on the mesiofacial (front outside) with suppuration and bleeding.

The probing depth on JP tooth number 04 at position 1 was 3mm, position 2 was 5mm and position 3 was 7 mm. Positions 4, 5 and 6 were normal. The tooth mobility was normal. Gingival recession was found to be 2mm and the attached gingiva was 5 mm. There was no frenum involvement and this encounter was not related to any restorative or orthodontic treatment.

The claim associated with the CDA document is identified by the value XA728302 in data element TRN02-Attachment Control Number of Loop 2000A-Payer/Provider Control Number.

4.1.1 Scenario 1 Coded Example (Human-Decision Variant, HDV)

The HDV XML example file of a CDA document that will be included within the 275 response can be found in the `periohdv1.xml` file included with the supplemental files available with this specification document. The file includes comments that explain the various sections of the CDA structure and contents.

Figure 4.1-1 shows a portion of the human-decision variant as rendered by a popular browser.

![Perio Exam Full View](image)

Figure 4.1-1 Rendered Scenario 1 HDV Periodontal Attachment
4.1.2 Scenario 1 Coded Example (Computer-Decision Variant, CDV)

The CDV XML example file of a CDA document that will be included within the 275 response can be found in the `perioddv1.xml` file included with the supplemental files available with this specification document. The file includes comments that explain the various sections of the CDA structure and contents.

Figure 4.1-2 below contains a screen image of this CDA document as rendered in a commonly used Web browser using the current HL7-supplied XSL style sheet.

![Image to be inserted here, post-ballot.]

Figure 4.1-2 Rendered Scenario 1 CDV Periodontal Attachment

4.2 Scenario 2

Adam Everyman of 222 Home Street was a patient of Charlie C. Chopper, DDS and was seen on May 15 for periodontal evaluation and treatment. There were a number of missing teeth in the upper arch with tooth numbers 7-11 (JP) replaced by an implant (#9) supported six tooth fixed bridge. Probing depths around the remaining maxillary teeth were in the 4-6mm range. Class II furcation involvement was noted on the buccal aspects of the molars and these teeth also had Miller Type 2 mobility.

In the lower arch, probing depths also were generally in the 4-6mm range, with the posterior teeth most affected. Both first molars had Type 2 furcation involvement, while the left second molar had a Type 3 furcation defect and a hopeless prognosis. The molars also had Type 2 mobility.

There was generalized recession of the marginal gingiva with a lack of attached gingiva on a number of teeth.

**Diagnosis:** generalized moderate-severe chronic periodontitis.
Treatment Plan: Because this patient is medically compromised with multiple myeloma and recent administration of intravenous bisphosphonates, surgical treatment with bone exposure and removal of #18 are contraindicated. Therefore, treatment will consist of periodontal scaling and root planing of all teeth with oral sedation and local anesthesia.

4.2.1 Scenario 2 Coded Example (Human-Decision Variant, HDV)

The HDV XML example file of a CDA document that will be included within the 275 response can be found in the periohdv2.xml file included with the supplemental files available with this specification document. The file includes comments that explain the various sections of the CDA structure and contents.

Figure 4.2-3 and figure 4.2-4 below contain screen images of this CDA document as rendered in a commonly used Web browser using the current HL7-supplied XSL style sheet.
Figure 4.2-3 Rendered Scenario 2 HDV Periodontal Attachment
4.2.2 Scenario 2 Coded Example (Computer-Decision Variant, CDV)

The CDV XML example file of a CDA document that will be included within the 275 response can be found in the `perioddv2.xml` file included with the supplemental files available with this specification document. The file includes comments that explain the various sections of the CDA structure and contents.

Figure 4.2-5 below contains a screen shots of this CDA document as rendered in a commonly used Web browser using the current HL7-supplied XSL style sheet.
Figure 4.2-5 Rendered Scenario 2 CDV Periodontal Attachment
5 **Response Code Sets**

This section describes response codes that may be used in the computer-decision variant when the value table indicates a coded data type (CD) or to represent units when the attachment component is of the physical quantity (PQ) data type. The entry in the value table that refers to these code sets is used in the subsection titles.

ISO object identifiers (OIDs) uniquely identify the organization responsible for issuing a code or entity identifier. The OID can be used to find more information regarding a coded data value or an identifier for a person, organization, or other entity. For more information, see the section on ISO Object Identifiers in the *HL7 Additional Information Specification Implementation Guide*.

The values for some code sets appear directly in this document. In other cases, the section cites another document as the source.

5.1 **Placeholder OIDs Used in Examples**

Some of the OIDs used in the narrative and examples of this specification are placeholder or demonstration ones. They will need to be changed upon site-specific implementation. The “HL7 Example” OID root is used for this purpose. The placeholder OIDs in this specification are:

Site-specific OIDs – these **must** change during implementation of the specification:

- 2.16.840.1.113883.19.2744.1.1 Represents the assigner of the CDA document instance ID
- 2.16.840.1.113883.19.2744.1.2 Represents the assigner of the patient identifier (may be appended with .1, .2, .3, etc. if an example shows multiple patient identifiers assigned by different assigners)
- 2.16.840.1.113883.19.2744.1.3 Represents the assigner of the doctor/provider identifier (may be appended with .1, .2, .3, etc. if an example shows multiple provider identifiers assigned by different assigners)
- 2.16.840.1.113883.19.2744.1.4 Represents the assigner of the visit/encounter
- 2.16.840.1.113883.19.2744.1.5 Represents the assigner of the attachment control number

Note to ballot reviewers: this ballot document also contains a few OID placeholders which we intend to replace with real OIDs before final-publish of the document. These placeholders, of course, should never be used in a real implementation. They begin with: 2.16.840.1.113883.19.2744.11.xxx
5.2 **UCUM: Unified Code for Units of Measure**

The Unified Code for Units of Measure is a code system intended to include all units of measures being contemporarily used in international science, engineering, and business. The purpose is to facilitate unambiguous electronic communication of quantities together with their units. The focus is on electronic communication, as opposed to communication between humans. A typical application of The Unified Code for Units of Measure is electronic data interchange (EDI) protocols, but there is nothing that prevents it from being used in other types of machine communication. Much more information about UCUM is here: [http://aurora.regenstrief.org/ucum](http://aurora.regenstrief.org/ucum)

In this periodontal attachment specification, the UCUM unit for millimeters ("mm") is used for Pocket Depth, Gingival Recession, and Attached Gingiva measurements.

The OID for this code system is: 2.16.840.1.113883.6.8

5.3 **JP: Universal / National Tooth Numbering System**

*(ANSI ASC X12 Code Set Qualifier "JP")*

The Universal/National System numbering system is a dental notation system for associating information to a specific tooth, and is commonly used in the United States. The Universal/National Tooth Numbering System is **required on all periodontal attachments originating from U.S. practices** that are to be processed by U.S.-based plans, with HIPAA compliant transactions, and for use with the ADA Claim Form. (On the ASC X12 837 Dental Claim JP, is referred to as the National Tooth Numbering System. In CDT-7 it is called the Universal/National Tooth Numbering System).

The uppercase letters A through T are used for primary teeth and the numbers 1 - 32 are used for permanent teeth. The tooth designated "1" is the right maxillary third molar and the count continues along the upper teeth to the left side. Then the count begins at the left mandibular third molar, designated number “17”, and continues along the bottom teeth to the right side. Each tooth has a unique number or letter, allowing for use within electronic data interchange (EDI) protocols.

The Universal/National System is published by the American Dental Association (ADA) in the *Current Dental Terminology* and is available from the ADA at:

- Salable Materials
- American Dental Association
- 211 East Chicago Avenue
- Chicago, IL 60611-2678

The OID for this numbering system is: 2.16.840.1.113883.19.2744.11.57

*(Note that this is a placeholder OID, and will be replaced in this specification as soon as we acquire the real OID.)*
5.4 JO: International Standards Organization System
ANSI/ADA/ISO Specification No. 3950
(ANSI ASC X12 Code Set Qualifier "JO")

The FDI World Dental Federation notation, or International Standards Organization System, is widely used by dentists internationally to associate information to a specific tooth. Developed by the Fédération Dentaire Internationale (FDI), it is also known as ISO-3950 notation. The International Standards Organization System is identified as code set “JO” in references found in the ADA Dental Claim form. The International Standards Organization System must not be used with HIPAA compliant transactions or on claims attachments from U.S. based practices destined for U.S. based payers.

The FDI system uses a two-digit numbering system in which the first number represents a tooth's quadrant and the second number represents the number of the tooth from the midline of the face. For permanent teeth, the upper right teeth begin with the number, "1". The upper left teeth begin with the number, "2". The lower left teeth begin with the number, "3". The lower right teeth begin with the number, "4". For primary teeth, the sequence of numbers goes 5, 6, 7, and 8 for the teeth in the upper left, upper right, lower right, and lower left respectively.

The International Standards Organization System was developed by the Fédération Dentaire Internationale (FDI), or FDI Dental Federation and is available at:

FDI Dental Federation
13 Chemin du Levant
L'Avant Centre
F-01210 Fereney-Voltaire, France

or


American Dental Association
211 East Chicago Avenue
Chicago, IL 60611-2678

The OID for this numbering system is: 2.16.840.1.113883.19.2744.11.56

(Note that this is a placeholder OID, and will be replaced in this specification as soon as we acquire the real OID.)
### 5.5 PPP: Periodontal Probing Position

HL7-defined vocabulary using a Subset of SNOMED CT® codes to indicate probing position. Only the SNOMED CT® values listed in table 5.5 below can be used. SNOMED Clinical Terms (SNOMED CT®) is the Systematized Nomenclature of Medicine, a system of standardized medical terminology developed by the College of American Pathologists (CAP).

Periodontal probing position is recorded using a subset of the SNOMED CT vocabulary used to describe tooth surfaces, as shown here:

<table>
<thead>
<tr>
<th>Code</th>
<th>Periodontal Probing Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>245665006</td>
<td>Disto-Facial (buccal)</td>
</tr>
<tr>
<td>261062005</td>
<td>Mid-Facial (buccal)</td>
</tr>
<tr>
<td>245662009</td>
<td>Mesio-Facial (buccal)</td>
</tr>
<tr>
<td>245664005</td>
<td>Mesio-Lingual (palatal)</td>
</tr>
<tr>
<td>261121002</td>
<td>Mid-Lingual (palatal)</td>
</tr>
<tr>
<td>245668008</td>
<td>Disto-Lingual (palatal)</td>
</tr>
</tbody>
</table>

The OID for this vocabulary is: 2.16.840.1.113883.6.96

### 5.6 Glickman: Glickman Classification System

The Glickman Classification of furcation involvement was first described in 1958. The codes in this system (the Roman Numerals I, II, III, and IV) represent increasingly severe loss of the supporting bone and tissue of a tooth. For example, "I" indicates 1/3 loss of supporting bone, "II" indicates greater loss, codes "III" and "IV" indicate there is no connection to the interdental bone, if it exists at all.

Allowable values for this periodontal attachment specification are: "I", "II", "III", and "IV".

The OID for this vocabulary is: 2.16.840.1.113883.19.2744.11.454

(Note that this is a placeholder OID, and will be replaced in this specification as soon as we acquire the real OID.)

### 5.7 Miller: Miller Classification of Tooth Mobility

The Miller Classification encodes the mobility (degree of movement) on a scale from 0.0 (firm) to 3.0 (very loose), in half-step increments. Thus, the allowable values for this periodontal attachment specification are: "0.0", "0.5", "1.0", "1.5", "2.0", "2.5", and "3.0".

The OID for this vocabulary is: 2.16.840.1.113883.19.2744.11.645

(Note that this is a placeholder OID, and will be replaced in this specification as soon as we acquire the real OID.)
Appendix 1 - Methodology

Data elements are defined in the ANS/ADA Specification 1047 Standard Content of an Electronic Periodontal Attachment. These data elements are then mapped into the clinical statement model used by the HL7 Clinical Document Architecture Release 2.0 standard, as shown in diagram below.

Figure A1-1 Periodontal data elements modeled as CDA Clinical Statement