

# Additional Information Specification 0006: **Medications Attachment**

(This specification replaces  
*Additional Information Message 0006:*  
*Medications Attachment*  
May 2004)

Release 3.0  
Based on HL7 CDA Standard Release 2.0,  
with supporting LOINC<sup>®</sup> Tables

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## 1 Introduction

This publication provides the defined data items and their corresponding LOINC®<sup>1</sup> code values specific to a medications attachment for the following applications.

- Those codes that identify the attachment or attachment components used in transactions such as those defined by the ASC X12 277 *Health Care Claim Request for Additional Information* and the ASC X12 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.<sup>2,3</sup>
- Those codes used in HL7 Clinical Document Architecture (CDA) documents designed for inclusion in the BIN segment of the 275 transaction as described in the *HL7 Additional Information Specification Implementation Guide*<sup>4</sup>

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

Section 2 of this document describes how to use the HL7 CDA Standard to construct a medications attachment. Section 3 includes the value table of LOINC codes specific to the components of a medications attachment.

Section 4 presents coding examples, with a narrative scenario, 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.

**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.

This Medications Attachment is used to convey information about drugs and biologics currently being used, administered at the time of care, or prescribed at discharge. This attachment is not intended to be used for Drug Prior Authorization. See AIS CDAR1AIS0010R010 for information on how to convey Drug Prior Authorization supporting data.

When this attachment is used for a HIPAA transaction, please refer to the “definition” sub-section of the Claims Attachment Final Rule in the Federal Register for the HIPAA regulated standard definition of Medications.

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<sup>1</sup> LOINC® is a registered trademark of Regenstrief Institute and the LOINC Committee. The LOINC database and LOINC Users' Guide are copyright 1998-2004 Regenstrief Institute and the LOINC Committee and the LOINC database codes and names are available at no cost from <http://www.LOINC.org>. Email: [LOINC@regenstrief.org](mailto:LOINC@regenstrief.org)

<sup>2</sup>Information on this and other X12/HIPAA-related implementation guides is available from the Washington Publishing Company, <http://www.wpc-edi.com/>

<sup>3</sup> Within this Health Level Seven document, references to the transaction defined by these X12 implementation guides will be abbreviated by calling them 275, 277 and 278.

<sup>4</sup> Health Level Seven, Inc. 3300 Washtenaw Ave., Suite 227, Ann Arbor, MI 48104-4250. (<http://www.hl7.org>)

## 1.2 LOINC Codes and Structure

LOINC codes are used for several purposes:

- In the 277 transaction set, LOINC codes identify the attachment type or attachment components being requested to support a claim or encounter.
- In the HL7 CDA document, 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.
- LOINC modifier codes may be used in the 277 transaction to further define the specificity of a request.

For further information on the relationship and use of LOINC Codes with the X12 Transactions, and HL7 CDA Documents, see section 1.5 in the *HL7 Additional Information Specification Implementation Guide*.

## 1.3 Revision History

<i>Date</i>	<i>Purpose</i>
Sept 30, 1998	Initial release as separate document.
Dec 2001	Revised title and date; reconciled HL7 ballot responses.
August 2003	CDA Ballot
December 2003	Version 2.0 Publication
December 2003	Release 2.1 Ballot
May 2004	Release 2.1 Publication (referenced by 9-25-2005 HIPAA NPRM)
November 2006	Release 3.0 Draft Changes for CDA R2 Migration
March 2007	Second Informative Ballot for CDA R2 migration

## 1.4 Privacy Concerns in Examples

The names of natural persons that appear in the examples of this book 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. These are as follows:

- 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. The HDV is not required to have structured or coded answers. The only LOINC value used in a HDV CDA document is the LOINC for the *Attachment Type Identifier*. HL7 provides a non-normative style sheet for this purpose. There are two further alternatives within the human-decision variant.

1.5.1 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

1.5.2 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 **Error! Reference source not found.** Additional CDA structures (document sections, entries, et cetera), 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 medications defines a “send-me-what-you-have” attachment. It asks for information on current, administered and discharged medications that have been captured in the course of the care process. **It is not asking for any additional data capture efforts.** For example, if the request for data is to supply a list of all current medications, it is **not** asking the provider to obtain a list of current medications it has not already captured, but to report those that were captured during the course of the care.

In any attachment component answer part it may sometimes be impossible to send a required answer and necessary to send, instead, a reason why the information is not available using a “No Information” indicator. In the human decision variant the sender shall supplement the natural language explanation of why the information is not available. In the computer-decision variant the sender shall supplement the natural language explanation of why the information is not available with appropriate use of the @nullFlavor attribute value, as described in “No Information” Indicator under the Representation of Data Types section of the *HL7 Additional Information Specification Implementation Guide*.

## 1.7 Usage Scenarios

By definition, all transmissions of medication information for a claims attachment are intended to support adjudication of the claim. Separate LOINC codes exist to request information about:

- **current medications**—these are medications and biologics that the patient is taking prior to or contemporaneously with the encounters that comprise the claim, but were not first prescribed or administered as part of the treatments associated with the claim
- **medications administered**—medications and biologics given to the patient by a provider during the encounter covered by the associated claim
- **discharge medications**—therapeutic medications and biologics that the provider prescribes, or advises the patient to take, for use after release or discharge from the encounter covered by the claim. Despite the use of the word “discharge”, this category includes the medications prescribed during a single clinic visit if that visit is the subject of the claim, and in some contexts might also be called release orders.

These could be medications the patient already has at home or medications that the patient is to obtain from a pharmacy or to purchase over the counter. In summary, these are the medications that the provider wants the patient to take after the encounter.

The pattern of information that the provider will have varies depending on the use case, as described below.

**Current medications.** Generally, a provider learns this by asking the patient or an agent about the patient's current medications. The information received is frequently incomplete because the person providing this information is not a trained healthcare professional. The goal is simply to obtain whatever information can be captured, so a narrative form is used and there is little specified as to the required content. However, it is conceivable that some of the current medication information may come from prescriptions that have been recorded in an electronic medical record system prior to the current encounter, so an option also exists for the sender to send this information in a structured, coded format.

**Medications administered.** Medications that are administered during the course of an encounter have differing information patterns according to the manner of administration:

- The medication may be administered in a discrete dose—an injection, tablet, lozenge, a set of puffs on an inhaler, 15 ml of a liquid, etc.
- The medication may be administered as a continuous process over an identified period of time, with a specific rate of administration of medication per unit time, as with medications given intravenously.
- The medication may be self-administered in a series of discrete doses over a period of time.

**Discharge medications.** Where a prescription is required for the medication, the information usually includes a refill authorization (possibly zero) and instructions with respect to substitution when the prescription is filled. Over-the-counter medications may or may not be included. If, as part of the release from the encounter, the patient has been instructed to continue taking medication for which he/she has a supply, these could also be part of the discharge medications.



## 2 Sending Medications Attachments Using HL7 CDA

This section defines how to use CDA documents to pass medication information using CDA attachments.

### 2.1 Special Considerations for the Drug Codes

No existing, non-proprietary code set is ideal for sending drug information in attachments. Two code sets that can be used are National Drug Codes (NDC) and RxNorm.

Codes from the NDC identify not only the medication, but also information about the manufacturer, strength, form, and packaging. The same medication in the same form may have different codes depending upon manufacturer and a given medication can have dozens of manufacturers. Further, each manufacturer will use different codes depending on the size and number of tablets or amount of fluid in a wholesale package, etc.

The codes in the NDC often, but not always, imply the route of administration. In some cases the labeled route of administration and the ordered route of administration may differ, as when a medication labeled for IM injection is included in an IV bag. For simplified programming, the LOINC codes support sending the dosage and route information separately in all cases, even when the message identifies the medication using an NDC code.

Frequently a single NDC code describes a product that includes a mixture of active ingredients in differing strengths. For example, NDC code 00135-0108-42 describes a liquid product, Novahistine DH, in which each 5 ml of the liquid contains 10 mg codeine phosphate, 2 mg chlorpheniramine maleate, and 30 mg pseudoephedrine hydrochloride.

Because of their “excessive” specificity, the NDC codes are almost never known by the patient. So for all practical purposes they can not serve as the identifier for current medications. They have limited applicability to discharge medications as well because when physicians prescribe medications they will usually not know which of many alternative NDC codes the pharmacies will dispense to the patient. For example, if a physician writes for Ampicillin, he can not know what the NDC code will be, even if he/she specifies the pill size and brand, because the NDC code varies with package size and brand.

In some cases, the NDC code works well for dispensed medications. This will be especially true in the case of community pharmacies, but most hospital billing systems currently use J-codes, so use of the NDC code presents challenge for discharge medications in many cases.

RxNorm is a nomenclature for clinical drugs produced by the National Library of Medicine. It provides standard names for clinical drugs and for dose forms as administered to a patient (active ingredient + strength + dose form). It provides links from clinical drugs, both branded and generic, to their active ingredients, drug components (active ingredient + strength), and related brand names. NDCs for specific drug products (there are often many NDC codes for a single product) are linked to that product in RxNorm. Additionally, RxNorm links its names to many of the drug vocabularies commonly used in pharmacy management and drug interaction software, including those of. By providing links between these vocabularies, RxNorm can mediate messages between systems not using the same software and vocabulary. The RxNorm clinical

drug name does not refer to the size of the package, the form in which the product was manufactured, or its form when it arrived at the dispensary.

RxNorm is organized around normalized names for clinical drugs. These names contain information on ingredients, strengths, and dose forms. Within RxNorm, generic and branded normalized forms are related to each other and to the names of their individual components by a well-defined set of named relationships. A standardized nomenclature that relates itself to terms from other sources can serve as a means for determining when names from different source vocabularies are synonymous. The goal of RxNorm is to allow various systems using different drug nomenclature to share data efficiently.

RxNorm is intended to cover the names of all prescription medications approved for use in the United States and many nonprescription formulations that exist in the United States, including the devices that administer the medications. Prescription medications from other countries may be included as opportunities allow, a principal consideration being that there be an authoritative source of information about these drugs. OTC medications will be added and covered, as well. Radiopharmaceuticals, because of the decay in strength over time and the requirement that they be ordered and prepared especially for a given time of administration, are listed only as ingredients. More information about RxNorm can be found at National Library of Medicine: Unified Medical Language System [www.nlm.nih.gov/research/umls/rxnorm/index.html](http://www.nlm.nih.gov/research/umls/rxnorm/index.html)

Other HIPAA transactions allow the use of J-codes from HCPCS as alternative drug codes. While NDC codes are too specific, J-codes are not sufficiently specific. There are only a few hundred such codes.

This specification is written in a manner to work as well as possible with whatever codes may be defined in regulations or, in non-regulated applications. In particular the coding system for identifying drugs is not specified herein. This specification requires that the print name of a selected drug always be sent, whether or not a code identifying the drug is sent. Use of the Full Drug Name is recommended. Furthermore, the specification allows the coded version of the drug identifier to be excluded in the computer-decision variant, although if the specification is specified for a HIPAA transaction the regulation which specifies it could override the specification and mandate the use of a particular code set to identify codes.

Where used, the NDC code can be used to determine a unit of administration, which is distinct from the package count. Where the medication is dispensed in discrete units (tablets, puffs on an inhaler, etc.), one of those units is the unit of administration. Where the medication is a liquid, ointment, or other amorphous substance, the NDC code specifies a measurement that is the denominator in one or more ratios that characterize the strength of the active ingredients. (In the Novahistine DH example, above, the unit of administration is 1 ml. This does not imply that an order would necessarily be given for 1 ml of the medication; it implies that the dosage will be described in terms of the number of ml of the liquid, which includes active ingredients.)

Claims attachment messages that specify a dosage amount, specify it in terms of the number of units of administration. Note that the item of most interest is how much of the medication or biologic is taken by the patient so this approach allows consistent treatment for medications that have a single ingredient and for combinations.

In the human-decision variant the textual information that describes the medication must give the information necessary for a reviewer to determine the form, the nature of the medication e.g., the generic or brand name, strength and unit of administration when known. (For example, "Ampicillin 250 mg tablets" rather than just "Ampicillin".) However, when the text names a product that is offered in only one strength, it is not necessary to describe the strength of the

ingredients. (For example, an order for Novahistine DH would be adequately described as “Novahistine DH liquid”, but an order for Tylenol with 60 mg codeine would require “Tylenol w/ codeine tablet, 300 mg-60 mg”, because other strengths are available.)

Trading partners can use this specification to create attachment documents in the computer-decision variant by agreeing on an appropriate proprietary code set (such as one of those mentioned in the NCPDP specifications (First DataBank, Micromedex/Medical Economics, Multum and Medi-Span).

## **2.2 Reporting the “Give” Amount**

Certain LOINC codes identify attachment component answer parts that describe the total quantity of a medication that was or will be given. This amount is recorded in the <doseQuantity> element of the <substanceAdministration> element. When the medication is in a discrete form (e.g., lozenges) the value of that element describes the number of those items to be given and no units are required.

If the medication is in an amorphous form (e.g., an ointment, liquid, or other measurable form), the numeric value contains the quantity that constitutes a dose and must be accompanied by the units for that quantity. For example, an order for Novahistine DH might have a “give” amount 5 and specify the units as milliliters.

When administration of the medication is continuous, the “give” amount is still described in terms of the total number of units administered, however, the rate of administration per unit time should also be recorded. For example, if reporting Penicillin G Potassium 2000000 u/50 ml, administered continuously for 5 hours at 10ml/h, the “give” quantity would be 50 with units of ml, and the rateQuantity would be 10 with units of ml/h.

## **2.3 Complex Medication Regimens and the HL7 GTS Datatype**

Where a structured message describes a prescription for a complex regimen or a planned use of a medication, the required information pattern can be very involved. Many sending systems and receiving systems do not have the functional depth to generate or interpret such messages. This is particularly burdensome on receiving systems because, under HIPAA regulations there cannot be trading partner agreements that would exclude the use of specific options.

The LOINC codes herein and the restrictions on the use of the HL7 General Timing Specification data type combine to limit the complexity of medication regimens that can be described in a structured manner in an attachment document. Regimens that are more complex shall be sent only using a narrative description.

## **2.4 Reporting the Administration of Medication Mixtures**

When a system prepares a report of medications administered in the computer-decision variant, it can describe most mixtures by including a separate table row for each medication, including the date and time of administration in the appropriate column, even though the medications were administered together in an IV.

## **2.5 Using the CDA for Medication Reports**

### **2.5.1 Human-Decision Variant, XML Body**

When the provider sends a medication report using the CDA in the human-decision variant with an XML body, the information shall be presented in the following way:

- Each subject identifier code (see Section 3.1) included in the report shall be sent as a <section> element.
- Each such section shall contain a <title> element containing the textual version of the subject identifier code.
- Within a section, each reported medication shall be indicated using a natural language expression in the <content> of a paragraph.

The sender should group all medication reports for the same subject identifier code in a single section. If, however, there is a requirement to repeat subject identifier codes in multiple section headings this is permitted.

See Section 4.1.1 for an example in the human-decision variant.

### **2.5.2 Computer-Decision Variant**

When a sender and receiver have agreed on a coding system for identifying pharmaceuticals it may be possible to use the computer-decision variant for discharge and administered medications. If so, the sender shall create the CDA document following the instructions in this section.

- Each subject identifier code (see Section 3.1) included in the report shall be sent as a <section> element.
- Each such section shall contain a <title> element containing the textual version of the subject identifier code. The <title> shall contain a <code> element with the LOINC value for the subject identifier code.

See Section 4.1.2 for an example in the computer-decision variant.

### 3 LOINC Codes

#### 3.1 LOINC Report Subject Identifier Codes

Table 3.1 defines the LOINC codes used to request a complete attachment data set specific to a given medications service. The use of any of these codes in the 277 request in the STC segment represents an explicit request for the complete set of data elements relevant to the requested medications service.

The set of data components for each medications attachment, identified by individual LOINC codes, is defined in Section 3.3.

The codes in the first column of the table below shall be used as report subject identifiers in 277 requests for more information and unsolicited 275 transactions. For each report subject identifier, either of the codes in the second column shall appear in the <document\_type\_cd> element of the header. The LOINC code for a subject identifier that is labeled "narrative" shall be used for a CDA attachment in the human-decision variant, and the LOINC code that is labeled "composite" shall be used for a CDA attachment in the computer-decision variant.

It is possible that a single attachment document will contain more than one of three categories of reported medication, corresponding to the Report Subject ID Codes. In this case the <code> element shall contain the LOINC Report Subject ID 34483-8.

##### Use of the LOINC Report Subject Identifier Codes

- **Solicited Model** - The use of LOINC code 34483-8 in the 277 request in the STC segment represents an explicit request for the complete set of components relevant to current, discharge and administered medications. If only a single Report Subject Identifier is needed (discharge, current or administered), then the Single Report Subject Identifier is sent in the 277 request.
- **Unsolicited Model** – The 275 Medications attachment uses one of the LOINC codes in the first column of table 3.1 to identify whether the attachment includes a single Report Subject Identifier (discharge, current or administered) or the complete set (LOINC code 34483-8). The required data elements must be included in accordance with cardinality for the Report Subject Identifier sent.

**Table 3.1 - Report Subject Identifier Codes**

<b>LOINC Report Subject ID code</b>	<b>LOINC Report Response Codes</b>	<b>Report Subject or Response Specified</b>
<b>34483-8</b>		<b>CURRENT, DISCHARGE, OR ADMINISTERED MEDICATIONS</b>
<b>LOINC TBD</b>		<b>PATIENT BODY WEIGHT (COMPOSITE)</b> – used with all medications reports
<b>19013-2</b>		<b>MEDICATIONS CURRENT REPORT</b>
	19009-0	MEDICATION CURRENT (NARRATIVE) (REPORTED)
	18605-6	MEDICATION CURRENT (COMPOSITE) (REPORTED)
<b>19014-0</b>		<b>MEDICATIONS DISCHARGE REPORT</b>
	19010-8	MEDICATION DISCHARGE (NARRATIVE)
	18617-1	MEDICATION DISCHARGE (COMPOSITE)
<b>19015-7</b>		<b>MEDICATIONS ADMINISTERED REPORT</b>
	19011-6	MEDICATION ADMINISTERED (NARRATIVE)
	18610-6	MEDICATION ADMINISTERED (COMPOSITE)

### 3.2 Scope Modification Codes

The HL7 publication *LOINC Modifier Codes (for use with ASC X12 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.

### 3.3 LOINC Codes for Report Components

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

#### Value Table Layout

##### LOINC Code

Component – the LOINC code in **bold** identifies the question or the information being requested

Answer – the LOINC code for the answer part.

If there is a single answer part for a LOINC, the LOINC code is the same as the LOINC component and is on the same line as the Component. If there are multiple answer parts, the LOINC codes are in the next row in the table.

##### Description and Value – LOINC description and explanation

For the computer decision variant (CDV), the xpath statement is shown.

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 optionally be placed in the CDA header, or they may be included in the CDA body.

Entry Type – CDA Release 2 type. This column describes the type of entry used in the CDA document to record the information.

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

Cardinality (Card)

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 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 – References to code tables or numeric units. See section 5 for specifics.

#### Use of the component level LOINCs

- Solicited Model – The use of any of the component level LOINC codes in the 277 request in the STC segment represents an explicit request for the associated answer part(s) for that component. The LOINC used in the 277 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 medications attachment must use the complete attachment data set, using this LOINC code and including the required data elements in accordance with cardinality.

For HIPAA covered claims attachment transactions, this AIS explicitly defines all components/questions and their corresponding answer part(s) that can be required by a health plan to support a claim or encounter. Requirement of any component(s) or answer part(s) outside of this specification would constitute non-compliance with the standard. If additions or modifications to the content (components or answer parts) of this specification are needed, a request must be submitted to the HL7 Attachments Special Interest Group (ASIG). Requests for new or modified content will be considered for inclusion in a future version of this specification.

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

**Table 3.3 - Codes for Report Subject Parts**

LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
<b>LOINC TBD</b>	<b>PATIENT BODY WEIGHT (COMPOSITE)</b> Used with all medication report types (current, administered, or discharge)  <b>Must choose one response.</b> Weight will be reported in units of either kilograms (KG) or pounds (LB).	<b>OBS</b>		<b>0,1</b>	
3141-9	<b>BODY WEIGHT (MEASURED) or</b>  The xpath statement is expressed as: /ClinicalDocument//section[@code=' xxxxx- x ' and @codeSystem=\$LOINC]/entry/observation[@code=' 3141-9' and @codeSystem=\$LOINC]/value/@value		PQ	0,1	[lb_av] or kg from UCUM
3142-7	<b>BODY WEIGHT (STATED) or</b>  The xpath statement is expressed as: /ClinicalDocument//section[@code=' xxxxx- x ' and @codeSystem=\$LOINC]/entry/observation[@code=' 3142-7' and @codeSystem=\$LOINC]/value/@value		PQ	0,1	[lb_av] or kg from UCUM
8335-2	<b>BODY WEIGHT (ESTIMATED)</b>  The xpath statement is expressed as: /ClinicalDocument//section[@code=' xxxxx- x ' and @codeSystem=\$LOINC]/entry/observation[@code=' 8335-2' and @codeSystem=\$LOINC]/value/@value		PQ	0,1	[lb_av] or kg from UCUM



LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
<b>19009-0</b> 19009-0	<b>MEDICATION CURRENT (NARRATIVE) (REPORTED)</b> The best description available from the patient or other source of one current therapeutic medication, completely described in a single block of text.  Examples: Vasotec 10 mg QD or blood pressure medication	<b>Section</b>	<b>ED</b>	<b>1,n</b>	

LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
18605-6 18605-6	<p><b>MEDICATION CURRENT (COMPOSITE) (REPORTED)</b></p> <p><b>Current therapeutic medication.</b> Information about medications reported by the patient is recorded in an &lt;substanceAdministration&gt; element in the appropriate section. <b>Repeat the components as needed</b> to report all medications reported.</p> <p>This information can be found using the following XPath expression: /ClinicalDocument//section[code/@code="18605-6" and code/@codeSystem=\$LOINC]//substanceAdministration[code/@code="18605-6" and code/@codeSystem=\$LOINC]</p> <p>Medications use a single LOINC answer part code that contains multiple components of medication information.</p> <p><b>MEDICATION CURRENT, NAME + IDENTIFIER</b> Always send free-text name. Use of the full drug name is recommended. Include NDC, RxNorm SBD or SCD or other code when specified by regulation or trading partner agreement. If the code is not available, just the name of the medication can be used.</p> <p>Information about the medication administered is stored in the &lt;manufacturedMaterial&gt; &gt; or &lt;manufacturedLabeledDrug&gt; element of the &lt;manufacturedProduct&gt; element of the &lt;consumable&gt; element describing the medication administered. The &lt;manufacturedMaterial&gt; or &lt;manufacturedLabeledDrug&gt; element records the name of the medication in the &lt;name&gt; element, and a code describing the medication in the &lt;code&gt; element.</p> <p>/ClinicalDocument//section[code/@code="18605-6" and code/@codeSystem=\$LOINC]//substanceAdministration[code/@code="18605-6" and code/@codeSystem=\$LOINC]/manufacturedProduct/*[classCode='MMAT']</p> <p>The code can be found here: /ClinicalDocument//section[code/@code="18605-6" and code/@codeSystem=\$LOINC]//substanceAdministration[code/@code="18605-6" and code/@codeSystem=\$LOINC]/manufacturedProduct/*[classCode='MMAT']code/code</p> <p>The name of the substance can be found here: /ClinicalDocument//section[code/@code="18605-6" and code/@codeSystem=\$LOINC]//substanceAdministration[code/@code="18605-6" and code/@codeSystem=\$LOINC]/manufacturedProduct/*[classCode='MMAT']name</p> <p><b>MEDICATION CURRENT, DOSE</b></p>	SBADM		0,n	
		SBADM	MMAT	1,1	NDC RxNorm SCD RxNorm SBD
		SBADM	CD	0,1	
		SBADM	EN	1,1	
		SBADM	PQ	1,1	UCUM
Page 14 March 2007	The amount of medication given in each dose. This amount is expressed in terms of the administration units associated with the NDC or RxNorm code or text description.	Health Level	Seven, Inc.	All rights reserved. Release 3.0	Draft Standard

LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
<b>19010-8</b> 19010-8	<b>MEDICATION DISCHARGE (NARRATIVE)</b> Medications the patient takes after the conclusion of the encounter; medications prescribed or that the patient was advised to purchase over the counter. This LOINC code is used to send each medication as a single block of text that includes the name of the medication, strength, form, dosage, route, timing, dispensed amount and number of refills. If the prescription is for a brand name, state whether substitution or another brand name or a generic is permitted.  Examples: diazepam 5 mg tablets, 1 tab PO Q6H PRN for back pain, 15 tablets, no refills  Levoxyl 0.1 mg tablets, 1 tab PO QD, 30 tablets, 3 refills. Do not substitute.  (The punctuation in the examples is not required.)	<b>Section</b>	<b>ED</b>	<b>1,n</b>	

LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
18617-1 18617-1	<p><b>MEDICATION DISCHARGE, REPORTED (COMPOSITE)</b></p> <p>Medications the patient takes after the conclusion of the encounter; medications prescribed or that the patient was advised to take following the encounter. This LOINC code is used to send each medication in a structured form.</p> <p>In rare cases, prescriptions may call for heterogeneous doses or for continuous administration over a period of time. A pattern of heterogeneous doses may be sent as multiple prescriptions (e.g., one prescription for one tablet every other day and another for two tablets every other day).</p> <p>Alternatively, such prescriptions may be sent as a single block of text using LOINC code 19010-8.</p> <p>There are two answer part LOINC codes, each including multiple data elements.</p> <p>Information about each medication is recorded in an &lt;substanceAdministration&gt; element in the appropriate section. <b>Repeat the components as needed</b> to report all medications reported.</p> <p>This information can be found using the following XPath expression:  <code>/ClinicalDocument//section[code/@code="18617-1" and code/@codeSystem="SLOINC"]//substanceAdministration[code/@code="18617-1" and code/@codeSystem="SLOINC"]</code></p> <p>The amount dispensed, number of refills and substitution instructions are recorded using a supply element</p> <p><b>MEDICATION DISCHARGE (REPORTED)</b>  Medications use this LOINC answer part code for multiple components of medication information; name, identifier, dose, rate, timing and route. The entry type is substanceAdministration.</p> <p><b>MEDICATION DISCHARGE, NAME + IDENTIFIER</b>  Always send free-text name. Use of the full drug name is recommended. Include NDC, RxNorm SBD or SCD or other code when specified by regulation or trading partner agreement. If the code is not available, just the name of the medication can be used.</p> <p>Information about the medication administered is stored in the &lt;manufacturedMaterial&gt; element of the &lt;manufacturedProduct&gt; element of the &lt;consumable&gt; element describing the medication administered. The &lt;manufacturedLabeledDrug&gt; element records the name of the medication in the &lt;name&gt; element, and a</p>	SBADM		0,n	
	<p><b>MEDICATION DISCHARGE, NAME + IDENTIFIER</b>  Always send free-text name. Use of the full drug name is recommended. Include NDC, RxNorm SBD or SCD or other code when specified by regulation or trading partner agreement. If the code is not available, just the name of the medication can be used.</p> <p>Information about the medication administered is stored in the &lt;manufacturedMaterial&gt; element of the &lt;manufacturedProduct&gt; element of the &lt;consumable&gt; element describing the medication administered. The &lt;manufacturedLabeledDrug&gt; element records the name of the medication in the &lt;name&gt; element, and a</p>	SBADM	MMAT	1,1	
Page 16 March 2007	<p>Copyright © 1998-2007 Health Level Seven, Inc. All rights reserved. Release 3.0 Draft Standard</p>				

LOINC code	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
Component Answer					
29304-3	<p><b>MEDICATION DISCHARGE, MEDICATION, DISPENSED</b></p> <p>Describes the dispensation of the medication. Data elements include the amount dispensed, units for that amount and the number of refills prescribed; all using the supply entry type.</p> <p><b>MEDICATION DISCHARGE, AMOUNT DISPENSED</b></p> <p>The amount dispensed and units for the amount. This must be in simple units that reflect the actual quantity of the substance to be dispensed. It does not include compound units. Not for use for over-the-counter medications.</p> <p><u>/Clinical Document//section[ code/@code="18617-1 " and code/@codeSystem=LOINC]//supply[ code/@code="29304-3" and code/@codeSystem=LOINC]/quantity/@value</u></p> <p><b>MEDICATION DISCHARGE, REFILLS</b></p> <p>Number of refills prescribed. Not for use for over-the-counter medications.</p> <p><u>/Clinical Document//section[ code/@code="18617-1 " and code/@codeSystem=LOINC]//supply[ code/@code="29304-3" and code/@codeSystem=LOINC]/quantity/@value /repeatNumber/@value</u></p> <p><b>MEDICATION DISCHARGE, SUBSTITUTION INSTRUCTION</b></p> <p>Not used for over-the-counter medications.</p> <p>G Allow generic substitutions N Substitutions are NOT authorized. TE Allow therapeutic substitutions F All formulary substitutions</p> <p><u>/Clinical Document//section[ code/@code="18617-1" and code/@codeSystem=LOINC]//entry/supply[ code/@code="29304-3" and code/@codeSystem=LOINC]/entryRelationship[@typeCode=COMP]/act/code[ @codeSystem=2.16.840.1.113883.5.10701/@code</u></p>	SPLY	PQ	1,1	
			INT	0,1	
			CD	0,1	
19011-6 19011-6	<p><b>MEDICATION ADMINISTERED (NARRATIVE)</b></p> <p>Medications administered during the encounter, sent as a single block of text that includes the name of the medication, strength, form, dosage, route and administration regimen. Time administration may be included in the text.</p> <p>Examples: IV D5W &lt; 1/2 NS 100 cc/hr +f 20 meq KCl/L, 2.5 hours Tylenol #3 tablet, 1 tablet PO</p>	Section	ED	1,n	

LOINC code Component Answer	Description and Value	Entry Type	Data Type	Card	Response Code / Numeric Units
18610-6 18610-6	<p><b>MEDICATION ADMINISTERED (COMPOSITE)</b></p> <p>Medications administered in the course of the encounter. In some cases, the administration may have involved multiple, heterogeneous doses. A pattern of heterogeneous doses may be sent as multiple items (e.g., one item for one tablet Q2H and another for two tablets Q2H, where the start times are offset by 1 hour).</p> <p>In some cases, medications may be administered continuously for a period of time. Continuously administered medications may be reported here by sending the total amount administered.</p> <p>Alternatively, complex regimens or continuous administration regimens may be sent as a single block of text using LOINC code 19011-6.</p> <p>Information about medications is recorded in an &lt;substanceAdministration&gt; element in the appropriate section. <b>Repeat the components as needed</b> to report all medications reported.</p> <p>This information can be found using the following XPath expression:  <code>/ClinicalDocument//section[code/@code="18610-6" and code/@codeSystem="SLOINC"]//substanceAdministration[code/@code="18610-6" and code/@codeSystem="SLOINC"]</code></p> <p>Medications uses a single LOINC answer part code that contains multiple components of medication information.</p>	SBADM		0,n	
	<p><b>MEDICATION ADMINISTERED, NAME + IDENTIFIER</b></p> <p>Always send free-text name. Use of the full drug name is recommended. Include NDC, RxNorm SBD or SCD or other code when specified by regulation or trading partner agreement. If the code is not available, just the name of the medication can be used.</p> <p>Information about the medication administered is stored in the &lt;manufacturedMaterial&gt; element of the &lt;manufacturedProduct&gt; element of the &lt;consumable&gt; element describing the medication administered. The &lt;manufacturedMaterial&gt; element records the name of the medication in the &lt;name&gt; element, and a code describing the medication in the &lt;code&gt; element.</p> <p><code>/ClinicalDocument//section[code/@code="18610-6" and code/@codeSystem="SLOINC"]//substanceAdministration[code/@code="18610-6" and code/@codeSystem="SLOINC"]//manufacturedProduct/*[classCode="MMAT"]</code></p>	SBADM	MMAT	1,1	NDC RxNorm SCD RxNorm SBD
Page 18 March 2007	<p>The code can be found here:</p>	SBADM	CD	0,1	

## 4 Coding Examples

### 4.1 Scenario

A CDA attachment was created on November 25, 2006.

The patient name is Patient H. Sample. The medical record ID of the patient for the sending institution is 6910828. The billing account number within the sending institution that is associated with the claim is 773789090. The encounter took place on July 17, 2006.

The attachment contains the current and discharge medications for a clinic visit.

The provider is George F. Carson, MD.

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

The current medications were:

- unspecified blood pressure medicine, 1 brown tablet per day.

The discharge medications are:

- prescription: diazepam 5 mg tablets, 1 tablet per day by mouth as needed up to four times a day for back pain, 15 tablets, no refills
- over-the-counter: Aleve, 1 tablet by mouth as needed up to twice a day for back pain.

The claim associated with this 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 Coding Example (*Human-Decision Variant*)

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

Figure 1 shows how a popular Web browser would render this example.

**Figure 1. Human-decision variant rendered using HL7 Style Sheet**

Medication Report	
<b>Patient:</b> Sample Patient	MRN: 6910828
<b>Birthdate:</b> September 24, 1932	<b>Sex:</b> Male
<b>Consultant:</b> George Carson , MD	<b>Created On:</b> November 25, 2006
<b>Current Medications</b>	
unspecified blood pressure medicine, 1 brown tablet per day.	
<b>Medications on Discharge</b>	
diazepam 5 mg tablets, 1 tab PO Q6H PRN for back pain, 15 tablets, no refills, do not substitute.	
Aleve 1 tab PO Q12H PRN for back pain	

#### **4.1.2 Structured Coding Example**

In the computer-decision variant the information is sent twice, once for display and again in a manner suitable for computer extraction. This example follows the same scenario as the prior example.

A CDV example file of a CDA document that will be included within the 275 response can be found in the **medcdv.xml** file included with the supplemental files available with these documents. The file includes comments that explain the various sections of the CDA structure and contents.

This example would also be rendered as shown above in Figure 1.



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

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 placeholders 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 - representing the assigner of the CDA document instance ID
- 2.16.840.1.113883.19.2744.1.2 - representing 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 - representing 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 - representing the assigner of the visit/encounter
- 2.16.840.1.113883.19.2744.1.5 - representing the assigner of the attachment control number

### 5.2 NDC: National Drug Code

The National Drug Code (NDC), administered by the FDA, provides a unique code for each distinct drug, dose form, manufacturer, and package. (Available from the National Drug Code Director, Federal Drug listing Branch HFN-315, 5600 Fishers Lane, Rockville, MD 20857 ).

The OID for this table is 2.16.840.1.113883.6.69.

### 5.3 RxNorm SCD & RxNorm SBD

RxNorm provides standard names for clinical drugs (active ingredient + strength + dose form) and for dose forms as administered to a patient. It provides links from clinical drugs, both branded and generic, to their active ingredients, drug components (active ingredient + strength), and related brand names. NDCs (National Drug Codes) for specific drug products (where there are often many NDC codes for a single product) are linked to that product in RxNorm. RxNorm links its names to many of the drug vocabularies commonly used in pharmacy management and drug interaction software, including those of First Databank, Micromedex, MediSpan, and Multum. By providing

links between these vocabularies, RxNorm can mediate messages between systems not using the same software and vocabulary.

RxNorm is one of a suite of designated standards for use in U.S. Federal Government systems for the electronic exchange of clinical health information. More information about RxNorm can be found at National Library of Medicine: Unified Medical Language System at [www.nlm.nih.gov/research/umls/rxnorm/index.html](http://www.nlm.nih.gov/research/umls/rxnorm/index.html)

The OID for this table is 2.16.840.1.113883.6.88

## 5.4 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.

Due to its length the table is included in the *HL7 Additional Information Specification Implementation Guide* rather than in this Additional Information Specification.

Any use of UCUM is fixed by HL7 data types; therefore, an OID is not needed.

## 5.5 HL7 RouteOfAdministration

HL7 codes for routes of administration, called RouteCode.

The OID for this table is 2.16.840.1.113883.5.112.

**Table 5.5 – RouteOfAdministration**

Description	Code	Description	Code
Chew, oral	CHEW	Infusion, intravenous	IV
Diffusion, extracorporeal	EXTCORPDIF	Infusion, intravenous catheter	IVC
Diffusion, hemodialysis	HEMODIFF	Infusion, intravenous catheter, continuous	IVCC
Diffusion, transdermal	TRNSDERMD	Infusion, intravenous catheter, intermittent	IVCI
Dissolve, oral	DISSOLVE	Infusion, intravenous catheter, pca pump	PCA
Dissolve, sublingual	SL	Infusion, subcutaneous	SQINFUS
Douche, vaginal	DOUCHE	Inhalation, intermittent positive pressure breathing (ippb)	IPPB
Electro-osmosis	ELECTOSMOS	Inhalation, nasal	NASINHL
Enema, rectal	ENEMA	Inhalation, nasal cannula	NASINHLC
Enema, rectal retention	RETENEMA	Inhalation, nasal cannula	NP
Flush, intravenous catheter	IVFLUSH	Inhalation, nebulization	NEB
Gargle	GARGLE	Inhalation, nebulization, nasal	NASNEB
Immersion (soak)	SOAK	Inhalation, nebulization, oral	ORNEB
Implantation, intradermal	IDIMPLNT	Inhalation, oral intermittent flow	ORIFINHL
Implantation, intravitreal	IVITIMPLNT	Inhalation, oral rebreather mask	REBREATH
Implantation, subcutaneous	SQIMPLNT	Inhalation, respiratory	ORINHL
Infusion, epidural	EPI	Inhalation, tracheostomy	TRACH
Infusion, intraarterial catheter	IA	Inhalation, ventilator	VENT
Infusion, intracardiac	IC	Inhalation, ventimask	VENTMASK
Infusion, intracoronary	ICOR		
Infusion, intraosseous, continuous	IOSSC		
Infusion, intrathecal	IT		
Infusion, intravascular	IVASCINFUS		

Description	Code
Injection, amniotic fluid	AMNINJ
Injection, biliary tract	BILINJ
Injection, cervical	CERVINJ
Injection, endosinusal	ENDOSININJ
Injection, epidural	EPIDURINJ
Injection, epidural, push	EPIINJ
Injection, epidural, slow push	EPINJSP
Injection, extra-amniotic	EXTRAMNINJ
Injection, extracorporeal	EXTCORPINJ
Injection, for cholangiography	CHOLINJ
Injection, gastric button	GBINJ
Injection, gingival	GINGINJ
Injection, hemodialysis port	HEMOPORT
Injection, insulin pump	IPUMPINJ
Injection, interameningeal	INTERMENINJ
Injection, interstitial	INTERSTITINJ
Injection, intra-abdominal	IABDINJ
Injection, intraarterial	IAINJ
Injection, intraarterial, push	IAINJP
Injection, intraarterial, slow push	IAINJSP
Injection, intraarticular	IARTINJ
Injection, intrabursal	IBURSINJ
Injection, intracardiac	ICARDINJ
Injection, intracardiac, push	ICARINJP
Injection, intracardiac, rapid push	ICARDINJRP
Injection, intracardiac, slow push	ICARDINJSP
Injection, intracartilaginous	ICARTINJ
Injection, intracaudal	ICAUDINJ
Injection, intracavernous	ICAVINJ
Injection, intracavitary	ICAVITINJ
Injection, intracerebral	ICEREBINJ
Injection, intracervical (uterus)	IUINJC
Injection, intracisternal	ICISTERNINJ
Injection, intracoronary	ICORONINJ
Injection, intracoronary, push	ICORONINJP
Injection, intracorporeus cavernosum	ICORPCAVINJ
Injection, intradermal	IDINJ
Injection, intradiscal	IDISCINJ
Injection, intraductal	IDUCTINJ
Injection, intradural	IDURINJ
Injection, intraepidermal	IEPIDINJ
Injection, intraepithelial	IEPITHINJ
Injection, intralesional	ILESINJ
Injection, intraluminal	ILUMINJ
Injection, intralymphatic	ILYMPJINJ
Injection, intramedullary	IMEDULINJ
Injection, intramuscular	IM
Injection, intramuscular, deep	IMD
Injection, intramuscular, z track	IMZ
Injection, intraocular	IOINJ
Injection, intraosseous	IOSSINJ
Injection, intraovarian	IOVARINJ
Injection, intrapericardial	IPCARDINJ
Injection, intraperitoneal	IPERINJ
Injection, intrapleural	IPLRINJ
Injection, intraprostatic	IPOSTINJ
Injection, intrapulmonary	IPINJ
Injection, intraspinal	ISINJ
Injection, intrasternal	ISTERINJ
Injection, intrasynovial	ISYNINJ
Injection, intratendinous	ITENDINJ
Injection, intratesticular	ITESTINJ
Injection, intrathecal	ITINJ
Injection, intrathoracic	ITHORINJ
Injection, intratubular	ITUBINJ
Injection, intratumor	ITUMINJ

Description	Code
Injection, intratympanic	ITYMPINJ
Injection, intraureteral, retrograde	IURETINJ
Injection, intrauterine	IUINJ
Injection, intravascular	IVASCINJ
Injection, intravenous	IVINJ
Injection, intravenous, bolus	IVINJBOL
Injection, intravenous, push	IVPUSH
Injection, intravenous, rapid push	IVRPUSH
Injection, intravenous, slow push	IVSPUSH
Injection, intraventricular (heart)	IVENTINJ
Injection, intravesicle	IVESINJ
Injection, intravitreal	IVITINJ
Injection, paranasal sinuses	PNSINJ
Injection, parenteral	PARENTINJ
Injection, periarticular	PAINJ
Injection, peridural	PDURINJ
Injection, perineural	PNINJ
Injection, periodontal	PDONTINJ
Injection, peritoneal dialysis port	PDPINJ
Injection, retrobulbar	RBINJ
Injection, soft tissue	SOFTISINJ
Injection, subarachnoid	SUBARACHINJ
Injection, subconjunctival	SCINJ
Injection, subcutaneous	SQ
Injection, sublesional	SLESINJ
Injection, submucosal	SUBMUCINJ
Injection, transplacental	TRPLACINJ
Injection, transtracheal	TRTRACHINJ
Injection, ureteral	URETINJ
Injection, urethral	URETHINJ
Injection, urinary bladder	BLADINJ
Insertion, cervical (uterine)	CERVINS
Insertion, intraocular, surgical	IOSURGINJ
Insertion, intrauterine	IU
Insertion, lacrimal puncta	LPINS
Insertion, rectal	PR
Insertion, subcutaneous, surgical	SQSURGINJ
Insertion, urethral	URETHINS
Insertion, vaginal	VAGINSI
Instillation, cecostomy	CECINSTL
Instillation, chest tube	CTINSTL
Instillation, continuous ambulatory peritoneal dialysis port	CAPDINSTL
Instillation, endotracheal tube	ETINSTL
Instillation, enteral	ENTINSTL
Instillation, enteral feeding tube	EFT
Instillation, gastro-jejunostomy tube	GJT
Instillation, gastrostomy tube	GT
Instillation, intrabronchial	IBRONCHINSTIL
Instillation, intraduodenal	IDUODINSTIL
Instillation, intraesophageal	IESOPHINSTIL
Instillation, intragastric	IGASTINSTIL
Instillation, intraileal	IILEALINJ
Instillation, intraocular	IOINSTL
Instillation, intrasinal	ISININSTIL
Instillation, intratracheal	ITRACHINSTIL
Instillation, intrauterine	IUINSTL
Instillation, jejunostomy tube	JTINSTL
Instillation, laryngeal	LARYNGINSTIL
Instillation, nasal	NASALINSTIL
Instillation, nasogastric	NASOGASINSTIL
Instillation, nasogastric tube	NGT
Instillation, nasotracheal tube	NTT
Instillation, orogastric tube	OGT
Instillation, orojejunum tube	OJJ
Instillation, otic	OT

Description	Code
Instillation, paranasal sinuses	PNSINSTL
Instillation, peritoneal dialysis port	PDPINSTL
Instillation, rectal	RECINSTL
Instillation, rectal tube	RECTINSTL
Instillation, sinus, unspecified	SININSTIL
Instillation, soft tissue	SOFTISINSTIL
Instillation, tracheostomy	TRACHINSTL
Instillation, transtympanic	TRTYMPINSTIL
instillation, urethral	URETHINSTL
Instillation, urinary catheter	BLADINSTL
Insufflation	INSUF
Irrigation, genitourinary	GUIRR
Irrigation, intragastric	IGASTIRR
Irrigation, intralesional	ILESIRR
Irrigation, intraocular	IOIRR
Irrigation, rectal	RECIRR
Irrigation, urinary bladder	BLADIRR
Irrigation, urinary bladder, continuous	BLADIRRC
Irrigation, urinary bladder, tidal	BLADIRRT
Lavage, intragastric	IGASTLAV
Mucosal absorption, intraduodenal	IDOUDMAB
Mucosal absorption, intratracheal	ITRACHMAB
Mucosal absorption, submucosal	SMUCMAB
Nebulization, endotracheal tube	ETNEB
Occlusive dressing technique	OCDRESTA
Rinse, dental	DENRINSE
Rinse, oral	ORRINSE
Shampoo	SHAMPOO
Subconjunctival	SUBCONJTA
Suck, oromucosal	SUCK
Suppository, urethral	URETHSUP
Swallow, oral	PO
Swish and spit out, oromucosal	SWISHSPIT
Swish and swallow, oromucosal	SWISHSWAL
Topical	TOPICAL
Topical absorption, transtympanic	TTYMPTABSORP
Topical application, buccal	BUC
Topical application, cervical	CERV

Description	Code
Topical application, dental	DEN
Topical application, gingival	GIN
Topical application, hair	HAIR
Topical application, intracorneal	ICORNTA
Topical application, intracoronaral (dental)	ICORONTA
Topical application, intraesophageal	IESOPHTA
Topical application, intraileal	IILEALTA
Topical application, intralesional	ILTOP
Topical application, intraluminal	ILUMTA
Topical application, intraocular	IOTOP
Topical application, iontophoresis	IONTO
Topical application, laryngeal	LARYNGTA
Topical application, mucous membrane	MUC
Topical application, nail	NAIL
Topical application, nasal	NASAL
Topical application, ophthalmic	OPHTALTA
Topical application, oral	ORALTA
Topical application, oromucosal	ORMUC
Topical application, oropharyngeal	OROPHARTA
Topical application, perianal	PERIANAL
Topical application, perineal	PERINEAL
Topical application, periodontal	PDONTTA
Topical application, rectal	RECTAL
Topical application, scalp	SCALP
Topical application, skin	SKIN
Topical application, soaked dressing	DRESS
Topical application, swab	SWAB
Topical application, transmucosal	TMUCTA
Topical application, vaginal	VAGINS
Transdermal	TRNSDERM
Translingual	TRNSLING

## 5.6 ActSubstanceAdminSubstitutionCode

HL7 vocabulary table describing whether substitution is permitted when a prescription is filled, ActSubstanceAdminSubstitutionCode is a subset of the ActCode vocabulary.

The OID for this table is 2.16.840.1.113883.5.4.

**Table 5.6 - ActSubstanceAdminSubstitutionCode**

Code	Medication Substitution Specification.
G	Generic - Substitution occurred or is permitted with another product in the same generic ingredient
N	None – No substitution occurred or is allowed.
TE	Therapeutic substitutions - Substitution occurred or is allowed with another product having the same therapeutic objective
F	Formulary - This substitution must be performed based on formulary guidelines. Substitution occurred or is permitted with another product that may potentially have different ingredients, but having the same biological effect.

## 5.7 NPI: National Provider Identifier

On January 23, 2004, the Secretary of HHS published a final rule (Federal Register volume 69, page 3434) which establishes the standard for a unique health identifier for health care providers for use in the health care system, and announces the adoption of the National Provider Identifier (NPI) as that standard. It also establishes the implementation specifications for obtaining and using the standard unique health identifier for health care providers.

For more information contact the US Department of Health and Human Services, Centers for Medicare and Medicaid Services (CMS), 7500 Security Blvd., Baltimore, MD 21244.

The HHS Administration web site address is <http://aspe.hhs.gov/admnsimp/>.

The OID for this identifier space is 2.16.840.1.113883.4.6.

## 5.8 Other Provider Identifiers

Other provider identifiers, such as those assigned by health care organizations may be used. See section 3.7.4 on Instance Identifier Data Type (II) in the *HL7 Additional Information Specification Implementation Guide* for more information.

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