National Patient Information Reporting System: National Data Warehouse

NDW HL7 Standards Format

Data Transmission Guide

Version 3.0

April 2008

Department of Health and Human Services

Indian Health Service

Office of Information Technology (OIT)

Contents

Version Control

Version	Date	Notes
Beta 3	April 2004	Initial Documatron version
Beta 4	June 2004	Reorganize Transmission section; Appendix B, D, F, add website location to information
2.0	August 2004	Production Version
2.1	November 2004	Page 2, Vocabulary and Definitions: additional information for ACK and ADT.
2.2	November 2004	Updates to trigger events.
2.3	May 2005	Corrections to A08, A31 messages: pages 6, 7, 8, 9; Updates to Appendix C
2.4	August 2005	Reorder IHS HL7 Specification section; move Glossary to last appendix (F). Add instructions to locate online docs referred to in Appendix B, D. Add segment, message terminators to Delimiters (p 3)
2.5	December 2006	Update Filename convention (p 10) FY07 Deliverable 1.12.2
3.0	April 2008	Added “HL7 Data Export File Requirements” section summary; updated “NDW Required HL7 Components” with expanded list of data elements; updated Appendix C - Reference Tables. FY08 Bridge Contract D1.7.2, accepted by COTR 10APR08

Overview

The Indian Health Service (IHS) uses a generic interface with the Health Level 7 (HL7) protocol standard, which the National Data Warehouse (NDW) uses for exchanging health care data. The interface is based on the HL7 Standard, as specified in this guide. Anyone wishing to interface with the NDW should become familiar with the HL7 Standard.

This guide includes the following sections:

- Health Level 7 – General Description and Vocabulary
- IHS HL7 Specification (Based on HL7 Standard Version 2.4)
- IHS HL7 Transmission Protocol
- Reference Table Information

This guide is intended for use by the person(s) responsible for transmitting their facility's medical information to the NDW according to the IHS HL7 Standard.

It is assumed that the user of this guide has already acquired the knowledge and tools needed to prepare and submit data using HL7 Standards. There are many publicly and commercially available print/internet resources and software products available to navigate through the world of HL7 messaging. For additional information about organizations and standards that relate to the HL7 Standard, see Appendix F – Glossary.

This guide will assist the person(s) responsible for locating and mapping your data to the list of requested data elements (Appendix D - Data Elements) and ultimately, to the HL7 messages for transmission to the NDW. For certain data, this includes mapping to specific reference values, as described in Appendix C – Reference Tables.

This guide is subject to modification and/or revision to incorporate changes, improvements and enhancements, or to support additional functionality of later versions of the HL7 standard/protocol.

Health Level 7

HL7 General Description

Health Level 7 (HL7) is the generally accepted standard for the exchange of certain specified types of medical information between applications. The standard dictates the content and format of the data to be exchanged.

HL7 is both the name of the standards developing organization and the collection of protocols that organization has developed and published. For more information, refer to the HL7 website: www.hl7.org.

HL7 Vocabulary and Definitions

As with any standard, there is a unique vocabulary for HL7. Some of the basics are included here. Since many of the definitions are intertwined, the list is presented here in alphabetical order for ease of reference. Some definitions may include other terms that are not defined until further down the list.

ACK

ACK is the abbreviation for Acknowledgement and is the outbound message supported by the NDW. If HL7 messages are streamed, ACK messages are sent to the sending facility's system to acknowledge receipt *per message*.

Since the NDW receives HL7 messages in batches, an ACK message is sent to the sending facility's system to acknowledge receipt of the *entire message batch*. An ACK message may also be sent to Area and/or Site personnel on request.

ADT

ADT is an acronym for Admission, Discharge, and Transmission and is used within the HL7 Patient Administration transaction set to transmit new or updated information about patients. An ADT message type is the only inbound message type supported by the NDW.

Batch Header

The Batch Header is a special message that provides information for all of the messages between the Batch Header and the Batch Trailer. The Batch Header has two segments:

- The standard Segment ID, BHS, which is always the first segment
- The IHS-specific header information Segment ID, ZHS, which follows the BHS segment

Together, these two segments provide administrative information needed to interpret the file.

Note: Delimiters are set for Batch Header Segments independently from delimiters for Message Header Segments.

Batch Trailer

The Batch Trailer is a special message to indicate the end of the file. The Batch Trailer has two segments:

- The standard Segment ID, BTS, which is always the last segment
- The IHS-specific header information Segment ID, ZTS, which precedes the BTS segment

Together, these two segments provide administrative information needed at the end of the message batch.

Component

A Component is a distinct piece of data. If the element is a compound element (i.e., the element has more than one component), the Component Separator is used between each component.

In a message segment, a component is the part of the message that can be mapped directly to a specific field in the receiving database. In other types of segments, it can give distinct information used to manage the data.

Data Type

A Data Type places restrictions on the contents of an element. While everything is transmitted in ASCII and, therefore, is a character string, a data type is indicated for each element so that it can be appropriately formatted.

For example, the date data type is expected in CCYYMMDD format. If the string forwarded is “20030411”, it will be transformed to the appropriate date (4/11/2003 or 11APR2003, or however the receiving system formats dates). However, if the string is sent in another format, for example, 4-11-2003), there is uncertainty as to how this would be interpreted.

Delimiters

HL7 allows the designation of delimiters to separate segments, elements, and components; as well as to indicate repeating data and an escape. HL7 recommends the following standard set of delimiters:

Delimiter	Delimiter Name
|	Element Separator
^	Component Separator
~	Repetition Separator
\	Escape Character
&	Sub-Component Separator

The Element Separator (|) is the primary delimiter for the message segments and is always the fourth character in the Message Header Segment. The other delimiters immediately follow the Element Separator in the order shown in the table.

Additionally, HL7 file formatting requires the following two delimiters:

Delimiter		Delimiter Name
Carriage Return <CR>	(ASCII hex0d)	Segment Terminator
Line Feed <LF>	(ASCII hex0a)	Message Terminator

The Segment Terminator occurs at the end of the segment. The Message Terminator occurs at the end of the message.

Element

An Element, also known as a data field, is a character string that is separated by the Element Separator. The string may have more than one component. For example, the element may be Patient Name, and the components could be Last, First, Middle. Each element is assigned a data type.

Message

A Message is a set of Message Segments that contain the pertinent data for one patient registration or encounter.

Message Header Segment

The Message Header Segment (Segment ID, MSH) provides the information related to the whole message and is primarily administrative. This includes facility information, delimiters used in the message segments, application information, HL7 standard version, and the type of event contained in the message. This is the first segment in a message, containing the message type and the event that caused the event.

Message Segment

A Message Segment is a group of Elements, also known as data fields, that have been defined as logically belonging to the same category (e.g., Patient Identification or Patient Visit). Some have been established by the HL7 Standard 2.4. Others, known as "Z" segments, allow users, like IHS, to gather information not contained in the HL7 Standard.

Each segment has a three-character Segment ID, the elements, administrative information (if applicable to that segment type) and designated delimiters between each element.

The sequence of segments for a given event is significant. Each segment is designated as required or optional.

Trigger Event

A Trigger Event is the real world event, for example, a patient visit, that initiates an exchange of messages. It is the occurrence of the patient visit that causes the creation of the HL7 message.

When the trigger event occurs, messages are created and written to a holding file. On a prearranged schedule, the messages in the holding file are transmitted as a "batch.

IHS HL7 Specification

The Indian Health Serve (IHS) HL7 specification for transmitting health care data is based on HL7 Standard Version 2.4. The health care data can include, but are not necessarily limited to, patient demographics, immunizations, diagnoses, and other types of medical information.

The following sections describe the trigger events and the resulting messages that are sent from the information system of a facility to the NDW.

Trigger Events

The HL7 Standard supports over 40 trigger events. Currently, the NDW uses the following two Admission, Discharge, and Transfer (ADT) related trigger events:

- **A08 – Update Patient Information**

  This ADT related trigger event creates messages containing changes to patient visit, or *encounter*, information.

- **A31 – Update Person Information**

  This ADT related trigger event creates messages containing changes to patient identification, or *registration*, information.

It is not intended that messages will be streamed individually to the NDW at the time of the A08 or A31 trigger event. For purposes of transmitting data to the NDW, facilities will use the A08 and A31 events to trigger a queuing of the information needed to generate messages. Then, on an agreed-upon schedule, an additional event will retrieve the data from the facility's system, generate a batch of messages, including a batch header and trailer, and transmit that set of messages. For more information, see "Data Transmission" on page 13.

Note: To ensure that the NDW does not receive any visits for unknown patients, A31 event-triggered messages compiled for a particular patient should precede any A08-event-triggered messages for the same patient.

Message Specification

The following sections describe the IHS HL7 message specification.

Message Definition

Each trigger event creates a message with a defined order of segments. Batch Header and Trailer segments surround the inbound supported messages, as follows:

BHS – Batch Header Segment

ZHS – IHS Batch Header Segment

A31 and/or A08 Trigger Event Message Segments

ZTS – IHS Batch Trailer Segment

BTS – Batch Trailer Segment

Message Syntax

The message generated when the trigger event occurs uses the following HL7 abstract message syntax:

- Segments in each message must be in the order defined for the trigger event.
- Braces {…} indicate that the enclosed group of segments may repeat.
- Brackets […] indicate that the enclosed group of segments is optional.
- Brackets and braces {[…]} indicate that the enclosed group of segments is optional and may repeat.
- An indented segment ID indicates that the indented segment is an extension of the preceding primary segment.

Segment Attribute Specifications

The segment attribute specifications are described in "Appendix B – ADT Segments." Each segment specification is presented in a grid. The following table lists the columns and their contents.

Column Name	Description
Seq	**Sequence** specifies the ordinal position of the data field within the segment.

Column Name	Description
Comp	**Component** specifies the ordinal position of the component within the sequence.
Len	**Maximum Length** specifies the maximum number of characters that NDW supports for one occurrence of a component. To accommodate the specific needs of the NDW, the maximum length listed may differ from the HL7 Standard maximum length.
DT	**Data Type** specifies the restrictions on the contents of the data field, generally described by the HL7 Standard. See "Appendix A – Data Types" for the specific data types used by the NDW. To accommodate the specific needs of the NDW, the data types listed may differ from the HL7 Standard data types.
Rep	**Repetition** specifies the number of field repetitions supported by the NDW, where: Y = Indefinite or site-determined number of repetitions <*integer*> = Number of repetitions as specified by <*integer*> <blank> = No repetitions
Element Name	**Element Name** specifies the descriptive name for the data field. In a few cases, this may be different than the original HL7 Standard description.
Sup	**Supported** indicates whether the field is supported in NDW where: Y = Supported (checkmark indicates Y) <blank> = Not supported
Description	The information in this column provides a more detailed description of the field, such as additional information on content and format of the element components.

A number of the segments contain components to be filled by reference values. In these cases, the ADT Segments **Description** column contains the word "LOOKUP" and the name of the lookup table. See "Appendix C – Reference Tables" for important information on using reference tables to transmit data to the NDW.

For samples of messages produced using these specifications, see "Appendix E - Message Samples."

A08 – ADT Update Patient Information Message Definition

These are the inbound supported message segments in the order defined for A 08 trigger events, which contain information related to a patient visit/encounter.

An indented segment indicates that the segment is an extension to the immediately preceding primary segment. For example, ZRB and ZP2 are extensions of the primary segment PID; all indented segments under the primary segment PV1 are extensions of PV1.

{ } indicate a segment may be repeated; for example, the {PR1} segment.

[ ] indicate a segment is optional; for example, the [ZDP] segment.

{[ ]} indicate an optional segment that may be repeated; for example the {[ZMD]} and {OBX]} segments.

Segment	Description
MSH	Message Header
EVN	Event Type
PID	Patient Identification
ZRB	IHS Base Registration
ZP2	IHS Patient Information
PV1	Patient Visit
ZV1	IHS Patient Visit
ZEN	IHS Encounter
{ZVP}	IHS Patient Provider
{DG1}	Diagnosis
ZDX	IHS Diagnosis
{PR1}	Procedure
ZPR	IHS Procedure
[ZPN]	IHS PHN
{[ZDN]}	IHS Dental
[ZDP]	IHS Dental Op
{[ZIM]}	IHS Immunization
{[ZMD]}	IHS Medication
{[OBX]}	Health Factors
{[OBX]}	Measurements
{[OBX]}	Exams
{[OBX]}	CPT
{[OBX]}	Labs
{[OBX]}	Patient Education
{[OBX]}	Skin Tests

Note: Any registration-specific information in A08 event-triggered messages is for cross-reference purposes only and is not used to update registration data in the NDW.

To view an example of an A08 message, see "Appendix E - Message Samples."

A31 – ADT Update Person Information Message Definition

These are the inbound supported message segments in the order defined for A 31 trigger events, which contain information related to a patient identification/registration.

An indented segment indicates that the segment is an extension to the immediately preceding primary segment. For example, ZRB, ZP2, and ZRD are extensions of the primary segment PID.

{[ ]} indicate an optional segment that may be repeated; for example, the {[ZRL]} segment.

{ } indicate a segment may be repeated; for example, the {IN1} segment.

Segment	Description
MSH	Message Header
EVN	Event Type
PID	Patient Identification
ZRB	IHS Base Registration
ZP2	IHS Patient Information
ZRD	IHS Demographic State
{[ZRL]}	IHS Alias
{ZRC}	IHS Chart
{IN1}	Insurance
ZIN	IHS Insurance Eligibility

To view an example of A31 messages, see "Appendix E - Message Samples."

HL7 Data Export File Requirements

The **initial** HL7 data export file includes all encounters, from 10/01/2000 forward (if available), and all registrations associated with these encounters.

NPIRS can accept the initial encounters in a single file, or broken into separate files by year or other methods.

For subsequent **incremental** data exports, include all new and/or modified encounters and registrations, where the begin date is the day following the previous export end date (export end date + 1) and the end date is the creation date of the next data export file.

NDW Required HL7 Components

The following table lists the required HL7 components, where "required" is defined as critical to processing and loading the data into the NDW database, and producing the standard User Population and Workload verification reports.

Trigger Event		Element Name	Notes
A31	A08		
	X	ADA Code (1)	Required for Dental encounter
	X	Admission Service	Required for Direct Inpatient
	X	Authorizing Facility	Required for Contract Health Services
X	X	Beneficiary Classification Code	Required for Registration
X		Blood Quantum Code	
X	X	Chart Facility Code	
X	X	Chart Number	
	X	Clinic Code	Direct Outpatient, Direct Dental
X	X	Community of Residence Code	Required for Registration
X	X	Date of Birth	Required for Registration and Dental encounter
X	X	Date of Last Update	
	X	Diagnosis Code (1)	Primary
	X	Discharge Date	Required for Inpatient
X		First Name	
X	X	Gender	Required for Registration
X		Last Name	
	X	Location of Encounter	
	X	Provider Discipline Code (1)	Direct Outpatient, Direct Dental
	X	Service / Admission Date	
	X	Service Category Code	
	X	Service Type Code	
X	X	Social Security Number and Pseudo SSN Flag	Composite field
X	X	Tribe Code	Required for Registration

Trigger Event		Element Name	Notes
A31	A08		
	X	Unique Encounter Code	
X	X	Unique Registration Code	
	X	Vendor Type Code	Required for Contract Health Services

For a complete alphabetical listing of the data elements, with corresponding descriptions and HL7 Segment IDs, see Appendix D - Data Elements.

File Name Convention

The following file naming convention is used to identify HL7 data files:

XXXXXXXXZZZZZZYYYYMMDDhhmmss.**BDW**

where

X = 8-character site name
Z = 6-character ASUFAC
YYYY = 4-character year of file creation
MM = 2-character month of file creation
DD = 2-character day of file creation
hh = 2 character hour of file creation
mm = 2-character minutes of file creation
ss = 2 character seconds of file creation
BDW = extension for all HL7 data export files

Example: *sitename*18221120061205154008.BDW

The site name and ASUFAC quickly identifies the exporting site. The date/time enables the NDW to identify a unique file, if more than one file is exported from the same site on the same day.

Data Transmission

Currently, the preferred method for data transmission to the NDW is to send batch messages via FTP (File Transfer Protocol), where data is transmitted computer-to-computer using a target IP address. This method is only available to those Sites (or via the Area) that are a secure part of the IHS network. (A site should contact their network support to determine their current network connectivity.)

An NDW support person will work with each facility to set up a data transfer method. For more information on data transmissions to the NDW, visit our website at:

www.ndw.ihs.gov

Or, email the NPIRS Helpdesk for guidance at

NPIRSHD@ihs.gov

Appendix A – Data Types

This appendix lists the general attributes of the data types used by the NDW. This list is limited to those referenced in this guide.

Data Type Category/ Data type	Data Type Name	Format	Notes/Format
AD	Address	Demographics	<street address (ST)> ^ < other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ <address type (ID)> ^ <other geographic designation (ST)>
BL	Boolean	Alphanumeric	Used where there are only two values, usually Boolean/Flag values “Y” (yes) or “N” (no). May also use other values, such as “A” (active) or “I” (inactive). The data element description will specify its valid Boolean values.
CE	Coded element	Code Values	<identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>
CM	Composite	Generic	Variable number and nature of other components as defined for the element. (No new CMs are allowed after HL7 Version 2.2. Hence there are no new CMs in Version 2.3.)
CP	Composite price	Specialty / Chapter Specific	In Version 2.3, replaces the MO data type. <price (MO)> ^ <price type (ID)> ^ <from value (NM)> ^ <to value (NM)> ^ <range units (CE)> ^ <range type (ID)>
CX	Extended composite ID with check digit	Code Values	This data type is used for certain fields that commonly contain check digits (e.g. internal agency identifier indicating a specific person, such as a patient or client). DW1 does not support check digit functionality; therefore, only the 1st component is supported. Components: <ID (ST)> ^ <check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ < assigning authority (HD))> ^ <identifier type code (IS)> ^ < assigning facility (HD)
DLN	Driver's license number	Master Files	<license number (ST)> ^ <issuing state, province, country (IS)> ^ <expiration date (DT)
DT	Date	Date/Time	CCYYMMDD

Data Type Category/ Data type	Data Type Name	Format	Notes/Format
HD	Hierarchic designator	Identifier	Designed to be a more powerful application identifier. A single component HD (using only the first component value) is the same as the IS data type. If the first component for the HD data type is present, the second and third components are optional. If the third component is present, then the second must also be present (in this case the first is optional). Components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)> Used only as part of EI and other data types.
ID	Coded values for HL7 tables	Identifier	
IS	Coded value for user-defined tables	Identifier	
NM	Numeric	Numerical	
PL	Person location	Identifier	<point of care (IS)> ^ <room (IS)> ^ <bed (IS)> ^ <facility (HD)> ^ < location status (IS)> ^ <person location type (IS)> ^ <building (IS)> ^ <floor (IS)> ^ <location description (ST)>
PT	Processing type	Identifier	<processing ID (ID)> ^ <processing mode (ID)>
SI	Sequence ID	Numerical	
ST	String	Alphanumeric	
TM	Time	Date/Time	HHMM
TS	Time stamp	Date/Time	CCYYMMDDHHMM
VID	Version ID		
XAD	Extended address	Demographics	In Version 2.3, replaces the AD data type. <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic designation (ST)> ^ <county/parish code (IS)> ^ <census tract (IS)>
XCN	Extended composite ID number and name	Code Values	In Version 2.3, use instead of the CN data type. <ID number (ST)> ^ <family name (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <source table (IS)> ^ <assigning authority (HD)> ^ <name type code (ID)> ^ <identifier check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ <identifier type code (IS)> ^ <assigning facility (HD)>

Data Type Category/ Data type	Data Type Name	Format	Notes/Format
XON	Extended composite name and ID number for organizations	Demographics	<organization name (ST)>^ <organization name type code (IS)> ^ <ID number (NM)> ^ <check digit (NM)> ^ <code identifying the check digit scheme employed (ID)> ^ <assigning authority (HD)> ^ <identifier type code (IS)> ^ <assigning facility ID (HD)>
XPN	Extended person name	Demographics	In Version 2.3, replaces the PN data type. <family name (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <name type code (ID) >
XTN	Extended tele-communications number	Demographics	In Version 2.3, replaces the TN data type. [NNN] [(999)]999-9999 [X99999] [B99999] [C any text] ^<telecommunication use code (ID)> ^ <telecommunication equipment type (ID)>^ <email address (ST)> ^ <country code (NM)> ^ <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>

Appendix B – ADT Segments

This appendix contains a complete listing of the A08 and A31 ADT (Admission, Discharge, and Transfer) segments specified by the IHS (based on HL7 Standard 2.4).

For ease of use, the segments are listed in alphabetical order. However, please note that the actual messages must be transmitted in a very specific order or they will not be processed correctly. For precise segment order for a specific message type, see the "Message Specification" section on page 7.

Each segment specification is presented in a grid, as describe in the "Segment Attribute Specifications" section on page 7.

The components of each segment are listed by **Seq**uence and **Comp**onent position, **Len**gth and **D**ata **T**ype, number of **Rep**etitions supported, **Element Name**, NDW-**Sup**ported checkbox, and **Description**.

Note that the **Comp**onent column number indicates whether there are multiple components. If there are, the export must include the component separator ("^" character) to separate them.

To download the most recent version of the **ADT Segments** report:

1. CLICK HERE

   OR

   a. Go to the IHS National Data Warehouse website:

   www.ndw.ihs.gov

   b. In the left panel, click the question "**How do we export our data?**"

   c. In the right panel, locate and click the link, **IHS's NDW/NPIRS Data Transmission Guide Using HL7 Standards Format**.

2. Click the link, **ADT Segments – Appendix B**.

Appendix C – Reference Tables

Within the segment grid, a field may have a description indicating that the data is to be provided from a "LOOKUP" table. Some of the lookup values will be provided for implementation with your facility's system. Other code sets are nationally accepted code sets. In the following description of National Lookup Tables, suggestions to review and obtain this information are provided.

In cases where IHS or NPIRS does not maintain or control the lookups or code sets, or tables are not available on the web site or in this guide, email the NPIRS Helpdesk for guidance at

NPIRSHD@ihs.gov

National Lookup Tables

National Lookup tables are those code sets that are generally accepted in the medical information community. As such, there are entities that have been deemed to have the authority over creating and updating the code sets. Some links are provided as possible sources for the code sets.

Note: Links to non-IHS organizations in this document are provided solely as a service and do not constitute an endorsement of these organizations or their programs by IHS or the Federal Government and none should be inferred. The IHS is not responsible for the content of the individual organization's web pages.

NDW will use these code sets as updated by the appropriate authorities. The following code sets fall into this category:

ADA/CDT Codes

The American Dental Association (ADA) is the source for ADA diagnosis/procedure codes, also know as CDT codes. HIPAA requires use of the current version of CDT-4 for electronic transmission dental information. For more information go to

http://www.ada.org

HCPCS/CPT Codes

Healthcare Common Procedure Coding System (HCPCS) is a medical code set created in 1983 by the Center for Medicare and Medicaid Services (CMS), and is used to identify health care procedures, equipment, and supplies. It was primarily designed for claims submission. There are three levels:

Level I contains AMA-maintained Common Procedure Terminology (CPT) codes.

Level II contains items and services not included in the CPT medical code set, and is maintained by the Centers for Medicaid and Medicare Services (CMS), Blue Cross Blue Shield Association (BCBSA), and Health Insurance Association of America (HIAA).

Level III contains codes assigned by Medicaid agencies for additional items not included in Level I or Level II.

NOTE Level III Local codes have been eliminated as of 12-31-2003, replaced by S or C code sections of HCPCS Level II.

Your facility may already be set up to update HCPCS and CPT codes. If needed, the following sites can be used as a starting point or a source of clarification on these code sets:

- For HCPCS codes, go to http://www.cms.hhs.gov/hcpcsreleasecodesets/anhcpcs/list.asp
- For CPT codes, go to http://www.ama-assn.org/ama/pub/category/3113.html.

ICD9 Codes

The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) is a code set used to code and classify morbidity data from inpatient and outpatient records and physician offices. The National Center for Health Statistics maintains the ICD 9 code system along with coordination from the Centers for Medicare and Medicaid Services.

The US adopted the WHO (World Health Organization) ICD9 code system in 1979. The US added the ICD9 V diagnosis code for health maintenance and ICD9 E diagnosis code for trauma. ICD-9-CM uses ICD9 code procedures for inpatient billing and ICD9 medical diagnosis codes.

Many online sources of information exist, including

http://www.cdc.gov/nchs/icd9.htm

LOINC

Logical Observation Identifiers Names and Codes (LOINC®) are universal identifiers for laboratory and other clinical observations. For more information, go to

http://www.loinc.org/.

Note that there is a link to download the current version of the LOINC in a variety of formats.

The database and supporting documentation are maintained by the Regenstrief Institute (http://www.regenstrief.org).

NDW supports the use of LOINC for capturing lab observations, but realizes that not all facilities have introduced LOINC into their systems. If LOINC are being used in your facility, you are encouraged to send all lab observations using those codes.

If your facility does not currently use LOINC, there are eight lab observations for which the IHS needs data at a national level. For that reason, the LOINC for those observations are included here:

LOINC_CD	LOINC_NM
2085-9	HDL Cholesterol
19762-4	Pap Smear
2089-1	LDL Cholesterol
2335-8	Fecal Occult Blood
2345-7	Glucose
2571-8	Triglycerides
2857-1	Prostate Specific Antigen
4548-4	HgbA1C

Please incorporate mapping from your facility's local taxonomy to the appropriate LOINC_CD noted above for these lab tests.

If your facility incorporates LOINC, submissions for additional lab observations may start at any time.

X12 Provider Taxonomy Codes

X12 is an ANSI-accredited group that defines electronic data interchange standards. For the NDW, the Provider taxonomy codes are the only X12 code sets used. There are three levels:

ANSI ASC X12 Health Care Provider Taxonomy, Level 1 - Type

ANSI ASC X12 Health Care Provider Taxonomy, Level 2 - Classification

ANSI ASC X12 Health Care Provider Taxonomy, Level 3 - Specialization

UB-92

Uniform Bill-92 (UB-92) is a standard for electronic claims submission. CMS uses the standard for Medicaid and Medicare claims, and other health insurance organizations have adopted the standard. For NDW, the standard is used only as a reference for "Insured's Relationship to Patient" in the HL7 IN1 segment. For more information, go to http://www.hipaanet.com/hisb_ub92.htm.

IHS-Specific Lookup Tables

The Standard Code Book (SCB) tables contain approved code sets from the Indian Health Service (IHS) Standard Code Book. For access to the online IHS SCB tables, go to

http://www.ihs.gov/CIO/scb/

Standard code sets (SCS) approved by the Division of Information Resources (DIR) that are used are also listed at this website under DIR SCS tables.

IHS-specific code sets will be provided to facilities. If the facility is not currently using these code sets for data entry, it will be the facility's responsibility to translate the relevant data into a code to be submitted to the NDW.

Additionally, the IHS Standard Code Book web site includes links to industry standard code sets, including HL7 Immunization CVX and MVX codes, VA Drug Class codes, and X23 Provider Class, Specialty, and Type codes.

To access these codes, go to http://www.ihs.gov/CIO/scb/, and click the **Industry SCS Access Tables** menu option on the left pane.

Appendix D - Data Elements

This appendix contains an alphabetical listing of the elements that the IHS would like to have transmitted from the facilities to the NDW. Each data element listed includes a description and its corresponding ADT segment location.

Cross-referencing the HL7 element of a data element listed in this appendix with the ADT segment grids (Appendix B) will provide more detailed information about that element.

To download the most recent version of the **Data Elements** report:

1. CLICK HERE ***OR***
   a. Go to the IHS National Data Warehouse website:

      www.ndw.ihs.gov

   b. In the left panel, click the question "**How do we export our data?**"

   c. In the right panel, locate and click the link, **IHS's NDW/NPIRS Data Transmission Guide Using HL7 Standards Format**.
2. Click the link, **Data Elements – Appendix D**.

Appendix E - Message Samples

This appendix contains sample A08 and A31 messages, including header (BHS, ZHS) and trailer (ZTS, BTS) segments. The information contained in these sample messages is fictitious and was created for illustration purposes only.

For purposes of transmitting data to the NDW, facilities will use the A08 and A31 events to trigger a queuing of the information needed to generate messages. Then, on an agreed-upon schedule, an additional event will retrieve the data from the facility's system, generate a batch of messages, including a batch header and trailer, and transmit that set of messages.

Note: To ensure that the NDW does not receive any visits for unknown patients, A31 event-triggered messages compiled for a particular patient should precede any A08-event-triggered messages for the same patient.

A08 Patient Information Message Sample

The following example shows sample information for a single encounter message (A08 trigger event).

```
BHS|^~\&|RPMS|999999|DW1|IHS|20040227085810-0700||1|TEST HOSP|9999991
ZHS|20040227|20040227|1
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227090237-0700||ADT^A31|IHS-2|P|2.4|||AL|ER|
EVN|A31|20040227090237-0700|
PID|||1695200000000002^2|999999203|FLINTSTONE^WILMA^M.||19040526|F|||BOX 111^^ANYTOWN^NM^87100|||||||123121234|
ZRB|||A|
ZP2|19830625|||||||||V||||084||1|01|19880209|||1122333|||||||||||C|
ZRD|||A||FLINTSTONE,WILMA M.|
ZRC|||A||2|999999|203|I
ZRC|||A||2|999912|203|
ZRC|||A||2|999921|203|
IN1||||MCD^MEDICAID|||||||19821001|||NM^|RUBBLE^BARNEY^|||||||||||||||||||||||||||||||4C||121212345
ZIN|||A||2|
IN1||||MCR^MEDICARE|||||||19690801||||RUBBLE^BARNEY^|SELF|||||||||||||||||||||||||||A||123412001^D
ZIN|||A||2|
IN1||||MCR^MEDICARE|||||||19691101||||RUBBLE^BARNEY^|SELF|||||||||||||||||||||||||||B||123412001^D
ZIN|||A||2|
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227090237-0700||ADT^A31|IHS-3|P|2.4|||AL|ER|
EVN|A31|20040227090237-0700|
PID|||1695200000000001^1|999999140|SIMPSON^MAGGIE^M||19020322|F|||P.O.BOX #1234^^ANYTOWN^NM^87100|||||||4837201901|||||||||19960309|
ZRB|||A|
ZP2|19830622|||||||||V||||084||1|01|19880209|||0401012|||||||||SIMPSON^HOMER^|||C|SIMPSON^MARGE
ZRD|||A||SIMPSON,MAGGIE M|
ZRL|||A||1|MOUSE^MINNIE
ZRL|||A||1|MOUSE^MINNEE
ZRL|||A||1|MOUSE^MINN
ZRC|||A||1|999999|140|I
ZRC|||A||1|808131|140|
IN1||||MCD^MEDICAID|||||||19950501|||NM^|MOUSE^MINN^|||||||||||||||||||||||||||||||4C||987654321
ZIN|||A||1|
IN1||||MCR^MEDICARE|||||||19671201||||MOUSE^MINNIE^|SELF|||||||||||||||||||||||||||A||980000019^D
ZIN|||A||1|
IN1||||MCR^MEDICARE|||||||19680901||||MOUSE^MINNIE^|SELF|||||||||||||||||||||||||||B||980000019^D
ZIN|||A||1|
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227100411-0700||ADT^A31|IHS-78635|P|2.4|||AL|ER|
EVN|A31|20040227100411-0700||
PID|||1695200000079541^79541|999999999021|WONKA^WILLIE^||19880514|M|||PO 456^^SOMEPLACE^NM^87110|||||||555553214|
ZRB|||A||
ZP2|20040126|||||||||||||084||1|01|19880514|||3517434|||||||||||D|
ZRD|||A||WONKA,WILLIE|||
ZRC|||A||79541|999999|999021|
ZTS|||||78636
BTS|78634|TEST HOSP|1
BHS|^~\&|RPMS|999999|DW1|IHS|20040227085810-0700||1|TEST HOSP|9999991
ZHS|20040227|20040227|1
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040205081549-0700||ADT^A08|IHS-4|P|2.4|||AL|ER|
EVN|A08|20040205081549-0700|
PID|||123456987456321^7364|99999950901|SIMPSON^HOMER^J.||19040913|M|||BOX 222^^ANYTOWN^NM^87100|||||||999999999|
ZP2|19850402|||||||||V||||084||2|01|19880209|||1212123|||||||||||C|SIMPSON^MARGE
PV1|||999999|1|||112ABC|||H|||||||||123456987456321|||||||||||||||O|||||||20021101|
ZV1|20021103||30|200211030000000|||||||||||||||||||||||||20040205081549||||0158|5|I|A|
ZEN|Y|N|N|Y|19940411|||N|Y|30|N||N||N|153|N||N||N||N|N|55
ZVP|1|218|PDS|
ZVP|2|101|EAS|
DG1|1||959.01|
ZDX|||2||E968.8|K
DG1|2||959.09|
ZDX|||2||E968.9|K
PR1|1||38.99||20021101|
PR1|2||87.22||20021101|
PR1|3||99.18||20021101|
ZPR|||||||90780|
PR1|4||99.29||20021101|
ZPR|||||||90784|
PR1|5||57.94||20021101|
ZPR|||||||53670|
ZPN|1|
OBX|1|MSR|04||154/101|
OBX|2|CPT|90780|
OBX|3|CPT|90784|
OBX|4|CPT|53670|
OBX|5|CPT|J2550||1|
OBX|6|CPT|A4215||1|
OBX|7|CPT|A9900||1|
OBX|8|CPT|72050|
OBX|9|LAB|2345-7^GLUCOSE||153|mg/dL|70^105|
ZTS|||||78636
BTS|78634|TEST HOSP|1
```

A31 Person Information message Sample

The following example shows sample information for a batch of registration messages (A31 trigger event).

```
BHS|^~\&|RPMS|999999|DW1|IHS|20040227085810-0700||1|TEST HOSP|9999991
ZHS|20040227|20040227|1
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227090237-0700||ADT^A31|IHS-2|P|2.4|||AL|ER|
EVN|A31|20040227090237-0700|
PID|||169520000000002^2|999999203|FLINTSTONE^WILMA^M.||19040526|F|||BOX 111^^ANYTOWN^NM^87100|||||||1231212341
ZRB|||A|
ZP2|19830625|||||||||V||||084||1|01|19880209|||1122333|||||||||||C|
ZRD|||A||FLINTSTONE,WILMA M.|
ZRC|||A||2|999999|203|I
ZRC|||A||2|999912|203|
ZRC|||A||2|999921|203|
IN1||||MCD^MEDICAID|||||||19821001|||NM^|RUBBLE^BARNEY^|||||||||||||||||||||||||||||4C||121212345
ZIN|||A||2|
IN1||||MCR^MEDICARE|||||||19690801||||RUBBLE^BARNEY^|SELF|||||||||||||||||||||||||||A||123412001^D
ZIN|||A||2|
IN1||||MCR^MEDICARE|||||||19691101||||RUBBLE^BARNEY^|SELF|||||||||||||||||||||||||||B||123412001^D
ZIN|||A||2|
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227090237-0700||ADT^A31|IHS-3|P|2.4|||AL|ER|
EVN|A31|20040227090237-0700|
PID|||1695200000000001^1|999999140|SIMPSON^MAGGIE^M||19020322|F|||P.O.BOX #1234^^ANYTOWN^NM^87100|||||||4837201901|||||||||19960309|
ZRB|||A|
ZP2|19830622|||||||||V||||084||1|01|19880209|||0401012|||||||SIMPSON^HOMER^|||C|SIMPSON^MARGE
ZRD|||A||SIMPSON,MAGGIE M|
ZRL|||A||1|MOUSE^MINNIE
ZRL|||A||1|MOUSE^MINNEE
ZRL|||A||1|MOUSE^MINN
ZRC|||A||1|999999|140|I
ZRC|||A||1|808131|140|
IN1||||MCD^MEDICAID|||||||19950501|||NM^|MOUSE^MINN^|||||||||||||||||||||||||||||4C||987654321
ZIN|||A||1|
IN1||||MCR^MEDICARE|||||||19671201||||MOUSE^MINNIE^|SELF|||||||||||||||||||||||||||A||980000019^D
ZIN|||A||1|
IN1||||MCR^MEDICARE|||||||19680901||||MOUSE^MINNIE^|SELF|||||||||||||||||||||||||||B||980000019^D
ZIN|||A||1|
MSH|^~\&|RPMS|CIMARRON|DW1|IHS|20040227100411-0700||ADT^A31|IHS-78635|P|2.4|||AL|ER|
EVN|A31|20040227100411-0700||
PID|||169520000079541^79541|999999999021|WONKA^WILLIE^||19880514|M|||PO 456^^SOMEPLACE^NM^87110|||||||5555532141
ZRB|||A||
ZP2|20040126|||||||||||||084||1|01|19880514|||3517434|||||||||||D|
ZRD|||A||WONKA,WILLIE|||
ZRC|||A||79541|999999|999021|
ZTS|||||78636
BTS|78634|TEST HOSP|1
```

Appendix F – Glossary

This appendix contains a glossary explaining terms found in this document, but it is not a legal document. The limited purpose of this glossary is to provide definitions of some of the terms and acronyms used throughout this guide. The definitions are not intended to be detailed.

For convenience, links are provided for either the organization mentioned or the source of the glossary definition. Links are valid at the time of this writing, but IHS/NDW cannot guarantee their continued viability. Many of the links have a glossary as well, if research is your goal. Links to non-IHS organizations in this document are provided solely as a service. These links do not constitute an endorsement of these organizations or their programs by IHS or the Federal Government, and none should be inferred. The IHS is not responsible for the content of the individual organization web pages found at these links.

Term	Description
A08	Update patient information trigger event, primarily used for patient visit/encounter information.
A31	Update person information trigger event, primarily used for patient identification/registration information.
ACK	This is an inbound message as defined by the HL7 Standard used to acknowledge messages. There is an ACK specification for each message type, such as A08 and A31.
ADT	Admission, Discharge and Transmission. This is an outbound message as defined by the HL7 Standard. There are various types of messages, such as A08 and A31.
ANSI	American National Standards Institute, an association that administers and coordinates the U.S. voluntary standardization and conformity assessment system. http://www.ansi.org/
BCBSA	Blue Cross Blue Shield Association, an association of independent Blue Cross Blue Shield companies. http://www.bcbs.com/
CDC	Centers for Disease Control and Prevention, an agency of the Department of Health & Human Services. http://www.cdc.gov/

Term	Description
CMS	Centers for Medicare & Medicaid Services, formerly known as HCFA. CMS is an agency of the Department of Health & Human Services. The restructuring from HCFA to CMS was effective July 1, 2001. http://cms.hhs.gov/
CVX	Vaccines administered (parenteral, unless otherwise specified), the HL7 Standard Code Set as maintained by the CDC's National Immunization Program (NIP). http://www.cdc.gov/nip/webutil/about/default.htm
FTP	File Transfer Protocol.
HCFA	Health Care Financing Administration. HCFA was restructured to become CMS. (http://cms.hhs.gov/)
HHS	Department of Health & Human Services, the United State's government's principal agency for providing essential human services. (http://www.hhs.gov/)
HIAA	Health Insurance Association of America (HIAA). HIAA describes itself as "a member driven trade association that shapes and influences state and federal public policy through advocacy, research, and the timely accumulation, analysis, and dissemination of critical information to its members. (http://www.hiaa.org/)
HIPAA	Health Insurance Portability and Accountability Act of 1996. http://www.hhs.gov/ocr/hipaa/. See also, http://www.ihs.gov/AdminMngrResources/HIPAA
HL7	Health Level Seven is both the name of the standards developing organization and the collection of protocols that organization has developed and published. http://www.hl7.org

Term	Description
IE	Commonly refers to either Integration Engine or Interface Engine, which are the two broad categories of middleware software used to perform integration functions so that individual sending applications do not need to incorporate integration/interface functions to accommodate sending data to the IHS DW. An Integration Engine is a software system designed to simplify the integration of application data and services. The purpose is to store the defined messages, normalize the data, and publish the data in the normalized format. An Interface Engine is a software system designed to simplify the creation of application interfaces between application systems. The purpose is to store and forward messages.
ISO	International Organization for Standardization, the world's largest developer of standards, principally the development of technical standards. The HL7 standard also follows the ISO's OSI model protocols governing communication between two systems. http://www.iso.ch/iso/en/ISOOnline.openerpage
MVX	Manufacturers of vaccines, the HL7 Standard Code Set as maintained by the CDC's National Immunization Program (NIP). http://www.cdc.gov/nip/webutil/about/default.htm
NIP	National Immunization Program, a part of the Centers for Disease Control and Prevention, located in Atlanta, Georgia. NIP provides leadership for the planning, coordination, and conduct of immunization activities nationwide.
OCR	Office of Civil Rights. OCR is an office within HHS that, among other duties, is responsible for implementation of the HIPAA Privacy Rule. http://www.hhs.gov/ocr/
Privacy Rule	The "Standards Of Privacy Of Individually Identifiable Health Information," a part of HIPAA dealing with national standards for the protection of certain health information. (http://www.hhs.gov/ocr/privacysummary.pdf)
TCP/IP	Transmission Control Protocol / Internet Protocol, a stream-oriented data transmission using length-encoding as the method for bounding messages.
TCP/IP Using MLP	Transmission Control Protocol / Internet Protocol using Minimal Layer Protocol, the most common method used to transmit HL7 messages.

Term	Description
UB-92	HCFA (now CMS) Uniform Bill-92, a uniform institutional claim format used since 1993. There are standard codes associated with information required by the format. http://www.hipaanet.com/hisb_ub92.htm. See, also, http://www.nubc.org/.
X12	"An ANSI-accredited group that defines EDI standards for many American industries, including health care insurance. Most of the electronic transaction standards mandated or proposed under HIPAA are X12 standards." Source: http://cms.hhs.gov/glossary/. See also, http://www.x12.org/
X12 Standard	"The term currently used for any X12 standard that has been approved since the most recent release of X12 American National Standards. Since a full set of X12 American National Standards is only released about once every five years, it is the X12 standards that are most likely to be in active use. These standards were previously called Draft Standards for Trial Use." Source: http://cms.hhs.gov/glossary/