Appendix E Glossary

A

Abstract Message

The basic level of definition within HL7 is that of the abstract message associated with a particular trigger event. The abstract message definition includes the data fields that will be sent within a message, the valid response messages, and the treatment of application level errors or the failure of the underlying communications system. An HL7 abstract message is defined in terms of HL7 segments and fields, as described in Section 2.4.8.

Abstract Syntax Notation One (ASN.1)

ASN.1 is a data definition language which allows formal definitions of information structures to be expressed in a manner which is independent of any implementation constraints. It may be used to create complex hierarchical structures from basic primitive types.

ACK

General Acknowledgment message. The ACK message is used to respond to a message where there has been an error that precludes application processing or where the application does not define a special message type for the response.

Acknowledgment - Application Level

The appropriate application on the receiving system receives the transaction and processes it successfully. The receiving system returns an application-dependent response to the initiator.

Acknowledgment - Accept Level

The receiving system commits the message to safe storage in a manner that releases the sending system from any obligation to resend the message. A response is returned to the initiator indicating successful receipt and secure storage of the information.

ACR/NEMA

American College of Radiology and the National Electrical Manufacturers Association. The American College of Radiology formed a relationship with the National Electronic Manufacturers' Association in 1982 to develop a

	standard for Digital Imaging and Communications in Medicine (DICOM). The purpose of the standard was to promote a generic digital image communication format; facilitate the development and expansion of picturing archiving and communication systems (PACS); allow the creation of diagnostic information databases for remote access; and help assure the useability of new equipment with existing systems. The current standard (Version 3.0) defines image data as well as patient, study and visit information necessary to provide the context for the images. Approval of this document as an American National Standard may be pursued in the future by NEMA, which is accredited by ANSI.
AD	Address data type. The street or mailing address of a person or institution.
ADT	Admission, Discharge and Transfer (ADT) message.
Admission, Discharge and Transfer (ADT) Transaction Set	Provides for transmitting new or updated demographic and visit information about patients. Generally information will be entered into an ADT system and passed to the nursing, ancillary and financial systems either in the form of an unsolicited update or in response to a record-oriented query.
ANSI	American National Standards Institute. Founded in 1918, ANSI itself does not develop standards. ANSI's roles include serving as the coordinator for U.S. voluntary standards efforts, acting as the approval body to recognize documents developed by other national organizations as American National Standards, acting as the U.S. representative in international and regional standards efforts, and serving as a clearinghouse for national and international standards development information.
ANSI HISPP	See HISPP.
Application Layer	Layer 7 of the OSI Model. Responsible for information transfer between two network applications. This involves such functions as security checks, identification of the two participants, availability checks, negotiating exchange mechanisms and most importantly initiating the exchanges themselves. See OSI Model.
ASC X3	Accredited Standards Committee X12. ASC X3 develops generic standards for information technology, is administered by the Computer and Business Equipment Manufacturers Association (CBEMA), and is accredited to submit its documents to ANSI for approval as American National Standards.
ASC X12	Accredited Standards Committee X12. ASC X12 develops standards for electronic data interchange, is administered by the Data Interchange Standards Association (DISA), and is accredited to submit its documents to ANSI for

approval as American National Standards. X12 has developed a number of message standards for purchase order data, invoice data, and other commonly used business documents. The Insurance Subcommittee (X12N) has developed a group of documents related to providing medical insurance claims transmission, including enrollment/maintenance (834), disability insurance claim (837), and claim payment/advice (835). None of these documents are currently approved as American National Standards, although some are currently considered draft standards for trial use. X12 intends to pursue approval of them as American National Standards in the future,

Assessment A type of observations/result or observations/result set performed by a health care provider on the patient. An assessment represents a collection of data about the patient to evaluate a patient's current and ongoing condition. An assessment can be subjective or objective; initial or ongoing; clinical or non-clinical; formal or informal. Examples of assessment components include height and weight, body systems, I&O, and activities of daily living. Standards (e.g., Gordon's Functional Health Pattern) and rules are used to prepare an assessment.

ASTM American Society for Testing and Materials. ASTM was founded in 1898 and chartered in 1902 as a scientific and technical organization for the development of standards on characteristics and performance of materials. The charter was broadened in 1971 to include products, systems and services, as well as materials. ASTM is the largest non-government source of standards in the U.S., comprised of over 140 committees and over 3,000 standards.

ASTM Committee E31 ASTM Committee E31 on Computerized Systems is the committee which is responsible for the development of the medical information standards. E31 has 12 subcommittees in the healthcare area. In 1984, the AAMSI task force became subcommittee E31.11 and published E1238, Standard Specification for Transferring Clinical Observations Between Independent Systems, and is used by most of the referral clinical laboratories. Related data interchange standards include E1394 (Standard Specification for Transferring Information Between Clinical Instruments), and E1467 (Specification for Transferring Digital Neurophysiological Data Between Independent Computer Systems). Subcommittee E31.13 focuses on clinical laboratory result reporting standards. ASTM E31 is not currently accredited by ANSI.

B

BAR Add/Change Billing Account message. The BAR message supports data sent from some application (usually a registration or ADT system) to the patient accounting system to establish an account for a patient's billing/accounts receivable record. Many of the segments associated with this message are optional. This optionality allows those systems needing these fields to set up

transactions which fulfill their requirements yet satisfy the HL7 requirements.

C

CE — Coded Element data type. This data type transmits codes and the text associated with the code. This type has six components, as follows: identifier, text, name of coding system, alternate identifier, alternate text, and name of alternate coding system.

CEN — The Comite Europeen de Normalisation (CEN) is the European Economic Community's (EEC) standards development organization (analogous to ANSI in the U.S.). Technical Committee 251 (TC 251) is CEN's committee to develop standards in Medical Informatics. CEN also sponsors TC 224 (Machine-readable cards, related device interfaces and operations).

CF — Coded Element with Formatted Values data type. This data type transmits codes and the formatted text associated with the code.

CK — Composite with Check Digits data type. A composite consisting of four components: an ID number, a check digit, a code showing the check digit scheme employed, and an assigning facility ID.

CM — Composite data type. A field that is a combination of other meaningful data fields. Each portion is called a component.

CN — Composite Number and Name data type. A field identifying a person both as a coded value and with a text name. The first component is the coded ID according to a site-specific table. The second through the sixth components are the person's name as a PN field. The seventh component specifies the source table used for the first component.

Component Separator — The component separator is used to separate adjacent components of some data fields. Its use is described in the descriptions of the relevant data fields. The character that represents the component separator is specified for each message as the first character in the Encoding Characters data field of the MSH segment. Absent other considerations it is recommended that all sending applications use `^' as the component separator. However, all applications are required to accept whatever character is included in the Message Header and use it to parse the message.

Computer-Based Patient Record Institute, Inc. (CPRI) — CPRI is an organization committed to initiating and coordinating urgently needed activities to facilitate and promote the routine use of computer-based patient records. CPRI was incorporated in January 1992 in response to the Institute of Medicine's Patient Record Study Committee report.

CQ Composite Quantity with Units data type. The first component is a quantity and the second is the units in which the quantity is expressed.

D

Data Fields The chapters listed above contain segment definition tables. These tables list and describe the data fields in the segment and characteristics of their usage. Appendix A, the data dictionary, provides an alphabetical listing of data elements, listings of recommended coded values, and a cross reference from data elements to segments.

Data Type HL7 provides a special set of HL7 data types. These are defined in Chapter 2.

Deferred Processing In this mode the responding system sends an acknowledgment to the initiating system that means the message has been placed in some type of secure environment and the receiving system commits to processing it within a "reasonable" amount of time, if (a) the message contains the necessary information, and (b) nothing causes the message's request for action to be canceled before the responding system processes the request. Both of these conditions are checked at the time of processing, not at the time of the first acknowledgment.

DFT Detail Financial Transaction message. The DFT message is used to describe a financial transaction transmitted between systems.

Diet A diet consists of the diet codes, supplements, and preferences effective at a given time. These three specifications govern which foods a patient will receive. Diets generally do not have a stated ending time to ensure that the patient always receives food.

Diet Code A diet code defines which foods a patient may receive; a patient must have at least one diet code to receive food.

Dietary Orders An order for a patient diet. A patient may have only one effective diet order at a time.

DICOM Digital Imaging and Communications in Medicine. Draft standard in development by ACR/NEMA for exchange of radiological images. Version 3 of DICOM defines image data as well as patient, study and visit information necessary to provide the context for the images. This version incorporates an object-oriented data model and adds support for ISO Standard

communications.

DSR Display Response message.

DT Date data type. Always in the format YYYYMMDD.

E

EDIFACT The **E**lectronic **D**ata **I**nterchange **F**or **A**dministration, **C**ommerce and **T**ransport (EDIFACT) is a set of internationally agreed standards, directories, and guidelines for the electronic interchange of structured data related to trade in goods and services between independent computerized information systems.

The basic EDIFACT (ISO 9735) syntax standard was formally adopted in September 1987.

Encoding Rules To determine the exact representation of an abstract message, one applies the HL7 encoding rules defined in Chapter 2 to the abstract definition from the relevant transaction definition chapter. This level corresponds most closely to ISO layers 5 and 6. In effect, the encoding rules support an established session for each message and its reply.

Escape Character In text fields (Type TX or FT) another special character is allowed, the escape character. Any character allowed in a TX or FT field may serve as the escape character. The single character that represents the escape character is specified differently for each message as the third character in the Encoding Characters data field of the MSH segment. This field is optional. Applications that do not need to use an escape character may omit this character. Absent other considerations it is recommended that all sending applications use '\' as the escape character. However, all applications are required to accept whatever character is included in this field and use it to parse text fields within the message.

EUCLIDES EUCLIDES, an acronym derived from **EU**ropean **CLI**nical **D**ata **E**xchange **S**tandard, provides a standard for clinical laboratory data exchange between independent and heterogeneous medical information systems. EUCLIDES is supported by the Commission of the European Communities (CEC DGXIII) within the framework of the Advanced Informatics in Medicine (AIM) Program.

F

Field An HL7 field is a string of characters defined by one of the HL7 data types.

Field Separator The HL7 field separator separates two adjacent data fields within an HL7 segment. It also separates the segment ID from the first data field in the segment. The value that represents the field separator may be defined differently for each message. Whatever character is the fourth character of the MSH segment serves as the field separator for all segments in the message. Absent other considerations, it is recommended that all sending applications use "|" as the field separator. However, all receiving applications are required to accept whatever character is included in this position and use it to parse the message.

Filler The application responding to, i.e., performing, a request for services (orders) or producing an observation. The fill can also originate requests for services (new orders), add additional services to existing orders, replace existing orders, put an order on hold, discontinue an order, release a held order, or cancel existing orders. Referred to as Producer in ASTM terminology.

FT Formatted Text data type. This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is to be displayed, FT supports width-independent and device-independent text display.

H

HISPP Healthcare Informatics Standards Planning Panel. HISPP was formed in early 1992. HISPP is charged with coordinating the work of the standards groups for healthcare data interchange and healthcare informatics (e.g., HL7), and other relevant standards groups (e.g., ASC X12) toward achieving the evolution of a unified set of non-redundant, non-conflicting standards that are compatible with ISO and non-ISO communications environments. HISPP also interacts with and provides input to CEN/TC251 in a coordinated fashion and explores avenues of international standards development (e.g., ISO).

HL7 Health Level Seven (HL7) is an application protocol for electronic data exchange in health care environments. The HL7 protocol is a collection of standard formats which specify the implementation of interfaces between computer applications from different vendors. This communication protocol allows healthcare institutions to exchange key sets of data amount different application systems. Flexibility is built into the protocol to allow compatibility for specialized data sets that have facility-specific needs.

HL7 Batch Protocol Protocol utilized to transmit a batch of HL7 messages. The protocol uses FHS, BHS, BTS and FTS segments to delineate the batch.

I

ID Coded Value data type. The value of such a field follows the formatting rules for a ST field except that it is drawn from a table of legal values. Examples of ID fields include religion and sex.

IEEE Institute of Electrical and Electronics Engineers. IEEE is accredited by ANSI to submit its documents for approval as American National Standards. IEEE subcommittee P1073 develops standards for healthcare informatics: MEDIX (P1157) and MIB (P1073).

IEEE MEDIX IEEE P1157 Medical Data Interchange (MEDIX) Committee. MEDIX was organized in 1987 to draft a standard for the exchange of data between hospital computer systems. The MEDIX committee, is committed to developing a standard set of hospital system interface transactions based on the ISO standards for all seven layers of the OSI reference model. The committee proposes to use the ASN.1 standard to specify message content as well as encode standard messages. IEEE is also developing the standard medical information bus (MIB; IEEE P1073) for communicating among critical care devices and computers.

IEEE MIB IEEE Medical Information Bus Committee. IEEE subcommittee (P1073) to develop standards for communications between patient monitoring devices and computer systems.

ISO International Standards Organization. A voluntary, non-treaty organization established in 1949 to promote international standards. Developers of the ISO Reference Model for Open Systems Interconnection (OSI Model), a standard approach to network design which introduces modularity by dividing the complex set of functions into more manageable, self-contained, functional slices (layers).

L

Level Seven Level Seven refers to the highest level of International Standards Organizations (ISO) communications model for Open Systems Interconnection (OSI)—the application level. Issues within the application level include definition of the data to be exchanged, the timing of the interchange, and communication of certain errors to the application.

	The seventh level supports such functions as security checks, identification of the participants, availability checks, negotiating exchange mechanisms and, most importantly, structuring the data exchanges themselves.
Local-Area Network (LAN)	A user-owned, user-operated, high-volume data transmission facility connecting a number of communicating devices (e.g., computers, terminals, word processor, printers, and mass storage units) within a single building or campus of buildings.

M

Master Files	A set of common reference files used by one or more application systems. These common reference files need to be synchronized across the various applications at a given site. The Master Files Notification transactions provide a way of maintaining this synchronization.
Master Files Notification transactions	The Master Files Notification transactions support the distribution of changes to various master files between systems in either on-line or batch modes, and allow the use of either original or enhanced acknowledgment modes, as well as providing for a delayed application acknowledgment mode.
MCF	Delayed Acknowledgment message. This message remains in the specification only for reasons of backwards compatibility. It is used as a part of the protocol which creates a generic form of an asynchronous application level acknowledgment.
MEDIX	See IEEE MEDIX
Message	A message is the atomic unit of data transferred between systems. It is comprised of a group of segments in a defined sequence. Each message has a message type that defines its purpose. For example, the ADT Message type is used to transmit portions of a patient's ADT data from one system to another. A three character code contained within each message identifies its type.
Message Delimiters	In constructing a message certain characters are used. These include the Segment Terminator, the Field Separator, the Component Separator, the Sub-Component Separator, Repetition Character, and the Escape Character.
Message Type	Each message has a message type that defines its purpose. For example, the ADT Message Type is used to transmit portions of a patient's ADT data from one system to another. A 3-character code contained within each message identifies its type.

MFD Master Files Delayed Application Acknowledgment message.

MFN Master Files Change Notification message.

MFQ Master Files Query message allows a system to query for a particular record in a particular master file.

MIB See IEEE MIB

MO Money data type. The first component is a quantity and the second is the denomination in which quantity is expressed.

MSDS Message Standards Developers Subcommittee of the ANSI HISPP.

N

NCPDP National Council for Prescription Drug Programs. The Standardization Committee within the NCPDP developed a standard format for the electronic submission of third party drug claims. The standard was developed to accommodate the eligibility verification process at the point-of-sale and to provide a consistent format for electronic claims processing. The standard is used primarily by pharmacy providers, insurance carriers, third-party administrators and other responsible parties. The NCPDP communication standard is used by more than 60% of the nation's prescription volume.

NM Numeric data type. A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point.

NMD Network Management Data message. One system creates an unsolicited update (UU) Network Management Data message (NMD) to transmit network management information to another system.

NMQ Network Management Query message. One system needs network information from another system. The NMQ is used by one system to make system-level requests for information or action to another system.

O

Observation An observation is a measurement of a single variable or a single value derived logically and/or algebraically from other measured or derived values. A test

	result, a diastolic blood pressure, and a single chest x-ray impression are examples of observations.
OBX	Observation/result message. OBX is intended to cover all types of patient specific observation reports except pharmacy.
ODS	(New with Version 2.2) Dietary orders, supplements and preferences segment.
ODT	(New with Version 2.2) Diet tray instructions segment.
Order	An order is a request for a service from one application to a second application. The second application may in some cases be the same, i.e., an application is allowed to place orders with itself. Usually orders are associated with a particular patient.
Order Detail Segment	One of several segments that can carry order information. Examples are OBR and RXO.
Order Group	See Placer Order Group.
ORM	General Order message. The function of this message is to initiate the transmission of information about an order. This includes placing new orders, cancellation of existing orders, discontinuation, holding, etc. ORM messages can originate also with a placer, filler or an interested third party.
ORR	General Order Response message. The function of this message is to respond to an ORM message.
ORU	Unsolicited Transmission of an Observation. For each patient order (OBR segment) more results may be transmitted depending upon the number of observations generated by the order.
OSI Model	Open Systems Interconnection Model. A standard approach to network design developed by the International Standards Organization (ISO) that introduces modularity by dividing the complex set of functions into more manageable, self-contained, functional slices. The seven layers, from the innermost layer, are: 1. Physical Layer - concerned with the mechanical and electrical means by which devices are physically connected and data is transmitted. 2. Link Layer - concerned with moving data reliably across the physical data link. 3. Network Layer - provides the means to establish, maintain and terminate connections between systems; concerned with information switching and routing.

4. Transport Layer - concerned with end-to-end data integrity and quality of service.
5. Session Layer - standardizes the task of setting up and terminating a session; it coordinates interaction between end application processes.
6. Presentation Layer - relates to the character set and data code used, and to the way data is displayed on a screen or printer.
7. Application Layer - concerned with the higher-level functions that provide support to the application or system activities.

P

Patient Accounting Message Set

The Patient Accounting message set provides for the entry and manipulation of charge, payment, adjustment, demographic, insurance, and other related patient billing and accounts receivable information. The specification includes all the data defined in the National Uniform Billing Data Element Specifications (UB-82 and UB-92).

Pharmacy Order Messages

A series of messages used to convey pharmacy order information. Messages include ORM (general order; proposed as RDO), RDE (pharmacy encoded order), RDS (pharmacy dispensing information), RGV (pharmacy give) and RAS (pharmacy administration).

Placer

The application (system or individual) originating a request for services (order).

Placer Order Group

A list of associated orders coming from a single location regarding a single patient;usually representing a single session by an ordering provider. A group is established when the placer supplies a placer group number with the original order.

PN

Person Name data type. A name includes multiple free text components: family name, given name, middle initial or name, suffix, prefix, and degree.

Preferences

(related to Dietary Orders) Preferences consist of likes, dislikes, substitutions, and complementary foods. Preferences are diet orders, effectively from the patient, but transmitted from the ward. They are subject to change. Preferences are independent of the diet order and do not change when the order changes.

Protocol

A set of procedures for establishing and controlling data transmission.

Protocol Conversion

The process of translating the protocol native to an end-user device (e.g., a terminal) into a different protocol (e.g., ASCII to BSC), enabling that device

	to communicate with another device (e.g., a computer) with which it would otherwise be incompatible. Protocol conversion

Q

QRY	Query message.

R

RAS	Pharmacy Administration message.
RDE	Pharmacy Encoded Order message.
RDO	Pharmacy Prescription message.
RDS	Pharmacy Dispense message. The RDS message may be created by the Pharmacy application for each instance of dispensing drugs to fill an existing order(s).
Repetition Separator	The repetition separator is used in some data fields to separate multiple occurrences of a field. It is used only where specifically authorized in the descriptions of the relevant data fields. The character that represents the repetition separator is specified for each message as the second character in the Encoding Characters data field of the MSH segment. Absent other considerations it is recommended that all sending applications use "~" as the repetition separator. However, all applications are required to accept whatever character is included in the Message Header and use it to parse the message.
RGV	Pharmacy Give message. The RGV message can communicate drug administration instructions and/or dispensing information.
RP	Reference Pointer data type. This data type transmits information about data stored on another system.
RQD	One of several segments related to supply orders. Contains the detail for each requisitioned item. It is required for all stock orders. It is assumed that this is enough information for the application receiving the message to identify the item.

RQ1 One of several segments related to supply orders. Contains additional information of detail for each requisitioned item. It is required for all non-stock orders (and is paired with the RQD in this case).

RS-232C A technical specification published by the Electronic Industries Association (EIA) that establishes mechanical and electrical interface requirements among computers, terminals and communications lines.

S

Segment Terminator The segment terminator is the last character of every segment. It is always the ASCII CR character (hex 0D).

Segment An HL7 segment is a logical grouping of data fields. Segments of a message may be required or optional. They may occur only once in a message or they may be allowed to repeat. Each segment is identified by a unique three character code known as the Segment ID.

Sequence Number Protocol An extension to the basic HL7 message protocol used for certain types of data transactions between systems where the issue of keeping the data bases synchronized is critical. Although the sequence number protocol is limited to the use of sequence numbers on a single transaction stream between two applications, this sequencing protocol is sufficiently robust to allow the design of HL7-compatible store-and-forward applications.

SI Sequence data type. A positive integer in the form of a NM field.

ST String data type. String Data is left justified with trailing blanks optional. Any printable ASCII characters are allowed.

Subcomponent Separator The subcomponent separator is used to separate adjacent subcomponents of some data fields. Its use is described in the descriptions of the relevant data fields. The character that represents the subcomponent separator is specified for each message as the fourth character in the Encoding Characters data field of the MSH segment. Absent other considerations it is recommended that all sending applications use "&" as the subcomponent separator. However, all applications are required to accept whatever character is included in the Message Header and use it to parse the message.

Supplements Supplements provide a mechanism for giving any additional desired foods to a patient. Supplements are foods given to a patient regardless of their diet codes. These foods are part of the patient's diet without being restricted by

any other part of the order.

Supply Orders — Supply Orders are used to order medical and surgical supplies, both stock and non-stock. Stock Orders are supplies stocked in the hospital in designated areas, such as the warehouse, central supply, nursing floors, or operating room. Nonstock Orders are supplies are not stocked anywhere in the hospital that must be ordered from an industry distributor or manufacturer. A supply order may or may not be associated with a patient.

Supply Order Segment — One of several segments that can carry supply order information. Supply order segments include RQD (stock orders) and RQ1 (non-stock orders)

T

TC 251 — Technical Committee 251. Established by the European Committee for Standardization (CEN), TC 251 focuses on the development of standards for healthcare informatics. A major goal of this committee is to develop standards for communication among independent medical information systems so that clinical and management date produced by one computer system could be transmitted to another system.

TC 224 — Technical Committee 224. Established by the European Committee for Standardization (CEN), TC 224 focuses on the development of standards for machine-readable cards, related device interfaces and operations.

TCP/IP — Transaction Control Protocol/Internet Protocol. A set of protocols for Layers 3 (Network) and 4 (Transfer) of the OSI network model. TCP/IP has been developed over a period of 15 years under the auspices of the Department of Defense. It is a de facto standard, particularly as higher-level layers over ethernet. Although it builds upon the OSI model, TCP/IP is not OSI-compliant.

Test — Observations/results that are done on specimens and those that are standard measurements are typically referred to as tests.

TM — Time data type. Always in the format HHMM[SS[.SSSS]] using a 24 hour clock notation.

TN — Telephone Number data type. For use in the U.S. and conforming countries.

TQ — Timing Quantity data type. Describes when a service should be performed and how frequently.

Trigger Event The event that initiates an exchange of messages is called a trigger event. The HL7 Standard is written from the assumption that an event in the real world of health care creates the need for data to flow among systems. The real-world event is called the trigger event. For example, the trigger event "a patient is admitted" may cause the need for data about that patient to be sent to a number of other systems. There is a one-to-many relationship between message types and trigger event codes. The same trigger event code may not be associated with more than one message type.

TS Time Stamp data type. Contains the exact time of an event, including the date and time.

TX Text data type. String data meant for user display on a terminal or printer.

U

UDM Unsolicited Display Message. The UDM describes a display oriented message. It is the unsolicited version of the generalized Response display message. It is acknowledged by a generic ACK message.

Unsolicited Update When the transfer of information is initiated by the application system that deals with the triggering event, the transaction is termed an unsolicited update.

W

WEDI Workgroup for Electronic Data Interchange.

X

X12 See ASC X12.

Z

Z Segment All message type and trigger event codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard.