



# Standard Specification for Transferring Clinical Observations Between Independent Computer Systems<sup>1</sup>

This standard is issued under the fixed designation E 1238; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 *General Approach*—This specification covers the two-way digital transmission of requests for, and results of, tests, diagnostic studies, and care-provider observations between requestors (for example, hospital information systems, clinical workstations, office practice computers) and producers (for example, clinical laboratory systems, radiology systems, EKG machines, nursing care systems). It specifies the logical format and encoding rules for messages needed to interchange any clinical information that can be reported in a textual form. It enables any two systems to establish a link for communicating text to send result or request information in a standard and interpretable form. It deals not only with general information about diagnostic testing, but specific details useful for clinical practice, administration, and research in a comprehensive, but flexible, convention.

1.2 The major topics are found in the following sections:

	Section
Information Requirements in Diagnostic Studies and Clinical Observations	5

Distinction Between the Logical Contents and the Encoding Rules in This Specification	5.1
General Approach	5.2
Maximum Line Length	5.3
Network Protocols and Transmission Media	5.4
Relation to Specifications E 1394 and E 1381E 1394E 1381	5.5
Negotiating Required and Optional Fields in Segments	5.6
Acknowledgment of Messages	5.7
Message General Content Considerations	6
Character Representation	6.1
Standard Character Set	6.1.1
Range and Case Insensitivity	6.1.2
Segment and Field Lengths	6.2
Maximum Line Length	6.3
Delimiters	6.4
Segment Delimiter	6.4.1
Field Delimiter	6.4.2
Repeat (subfield) Delimiter	6.4.3
Component (sub-subfield) Delimiter	6.4.4
Specification of Delimiters	6.4.5
Delimiters for Null Fields	6.4.6
Fields of No Concern to the Receiving System	6.4.7
Changing Fields to Null Values	6.4.8
Segment Types	6.5
Message Header Segment (H)	6.5.1
Patient Identifying Segment (P)	6.5.2
Observation Order Segment (OBR)	6.5.3
Observation Segment (OBX)	6.5.4
Comment Segment (C)	6.5.5
Error Checking Segment (E)	6.5.6
Request Results Segment (Q)	6.5.7
Scientific Segment (S)	6.5.8
Addendum Segment (A)	6.5.9
Field Data Types	6.6

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee E-31 on Healthcare Informatics and is the direct responsibility of Subcommittee E31.13 on Clinical Laboratory Systems.

Current edition approved Aug. 10, 1997. Published March 1998. Originally published as E 1238 – 94. Last previous edition E 1238 – 94.

**NOTICE: This standard has either been superseded and replaced by a new version or withdrawn.  
Please contact ASTM International ([www.astm.org](http://www.astm.org)) for the latest information.**



AD Addresses	6.6.1	Sequence Number	9.10
CE Coded Entry	6.6.2	Observation Requestor Accession or Specimen ID	9.11
CK Composite ID With Check Digit	6.6.7	Observation Producer Accession ID	9.12
CM Composite Miscellaneous	6.6.8	Producer ID for Generated or Exploded Orders	9.13
CNA Provider and User IDs	6.6.9	Observation Battery ID	9.14
CQ Fixed Measurements and Units	6.6.10	Priority	9.15
Reserved for Future Use	6.6.11	Requested Date and Time	9.16
Reserved for Future Use	6.6.12	Observation Date-Time/Specimen Collection Date-Time	9.17
Reserved for Future Use	6.6.13	Collection End Time	9.18
ID String that Represents an ID	6.6.14	Collection Volume	9.19
NM Numeric	6.6.15	Collector ID	9.20
PN Person Name	6.6.16	Action Code	9.21
ST String	6.6.17	Danger Code	9.22
TN Telephone and Beeper Number	6.6.18	Relevant Clinical Information	9.23
TS (Time Stamp)—Previously Date-Time	6.6.19	Date and Time of Specimen Receipt in the Laboratory	9.24
TX Bulk Text	6.6.20	Source of Specimen	9.25
Examples of Messages Using This System	6.7	Ordering Physician	9.26
Rules About Retransmission of Results	6.8	Physician's Telephone Number	9.27
Orders that Spawn Multiple Orders	6.9	Requestor Field 1	9.28
Producer Generated Orders	6.10	Requestor Field 2	9.29
<b>DETAILED STRUCTURE OF EACH SEGMENT TYPE</b>		Producer (Diagnostic Service) Field 1	9.30
Message Header	7	Producer (Diagnostic Service) Field 2	9.31
General Approach	7.1	Date-Time Observations Reported or Order Status Changed	9.32
Segment Type ID	7.2	Producer's Charge	9.33
Delimiter Definition	7.3	Producer's Section ID	9.34
Message Control ID	7.4	Order Result Status (previously report type)	9.35
Security (previously Access Password)	7.5	Link to "Parent" Result	9.36
Sender Name or ID	7.6	Quantity/Timing (previously Frequency)	9.37
Sender Street Address	7.7	Send Copies to (new)	9.38
Message Type (new)	7.8	Link to Parent Order (new)	9.39
Sender Telephone Number	7.9	Transportation Mode (new)	9.40
Characteristics of Sender	7.10	Reason for Study (new)	9.41
Receiver ID	7.11	Principal Interpreter of Study (new)	9.42
Comment or Special Instructions	7.12	Assisting Interpreter of Study (Resident) (new)	9.43
Processing ID	7.13	Observer/Technician (new)	9.44
Version	7.14	Transcriptionist Identity (new)	9.45
Date and Time of Message	7.15	Date-Time Scheduled (new)	9.46
Patient Identifying Segment	8	Observation Segment	10
General Approach	8.1	Background	10.1
Segment Type ID	8.2	Changes	10.2
Transmission Sequence Number	8.3	Each Component of a Narrative Report Is Sent as a Separate OBX	10.3
Requestor (Practice) Assigned Patient ID	8.4	Diagnostic Impressions (IMP)	10.4
Producer (Diagnostic Service) Assigned Patient ID	8.5	Recommendations (REC)	10.5
Alternate Patient ID	8.6	Confirming Procedure (CNP)	10.6
Patient Name	8.7	Procedure Medication (MED)	10.7
Mother's Maiden Name	8.8	Anatomic Site (ANT)	10.8
Birthdate	8.9	Devices (DEV)	10.9
Patient Sex	8.10	Gross or General Description (GDT)	10.10
Patient Race or Ethnic Origin	8.11	Secondary or Microscopic Description (MDT)	10.11
Patient Street Address, City, State, Country, and Zip/Postal Code	8.12	Procedure Comment (TCM)	10.12
Not used	8.13	Addendum Note (ADT)	10.13
Patient Telephone Number	8.14	Diagnosis (problem) Onset Date-Time (IMT)	10.14
Attending Physician ID	8.15	Diagnosis (problem) Resolution Date-Time (RMT)	10.15
Special Field 1	8.16	Comparison study (CMS)	10.16
Special Field 2	8.17	Comparison Date-time (CMT)	10.17
Patient Height	8.18	Comparison Results (CMR)	10.18
Patient Weight	8.19	Comparison Change (CMC)	10.19
Patient's Known or Suspected Diagnosis	8.20	Predicted (PRD)	10.20
Patient Active Medications, or Medications Suspected in Overdose Situations	8.21	Percent of Predicted (PPR)	10.21
Patient's Diet	8.22	After Drug Observed (AFD)	10.22
Practice Field 1	8.23	Predicted Value After Drug (ADP)	10.23
Practice Field 2	8.24	Percent Predicted After Drug (APP)	10.24
Admission Date/Time and Discharge Date/Time	8.25	Expanded AS4 Codes	10.25
Admission Status	8.26	Segment Type ID	10.26
Location	8.27	Sequence Number	10.27
Diagnostic Classification	8.28	Value Type (new)	10.28
Patient Religion	8.29	Observation Identifier	10.29
Marital Status	8.30	Observation SubID	10.30
Isolation Status	8.31	Observation Value	10.31
Language	8.32	Representation	10.32
Confidentiality Status (new)	8.33	Reporting Logically Independent Observations	10.33
Date and Time Registration Changed	8.34	Multiple OBX Segments With The Same Observation ID and Sub ID	10.34
Death date/time	8.35	Coded Values	10.35
Observation Order Segment (OBR)	9	Bacterial Names as Values	10.36
General Approach	9.1	Units of Measure	10.37
Segment Type ID	9.9	ISO and ANSI Customary Units Abbreviations	10.38

**NOTICE: This standard has either been superseded and replaced by a new version or withdrawn.  
Please contact ASTM International ([www.astm.org](http://www.astm.org)) for the latest information.**



Local Codes	10.39	Guarantor Phone Number—Work	17.9
Reference Ranges	10.40	Guarantor Date of Birth	17.10
Upper and Lower Limits	10.40.1	Guarantor Sex	17.11
Physiologic and Therapeutic Range	10.40.2	Guarantor Type	17.12
Abnormal Flags	10.41	Guarantor Relationship to Patient	17.13
Probability (new)	10.42	Guarantor Universal ID Number	17.14
Nature of Abnormal Checking	10.43	Guarantor Date/Time—Begin	17.15
Observation Result Status	10.44	Guarantor Date/Time—End	17.16
Date/Time of Last Change in Normal Values or Units	10.45	Guarantor Priority	17.17
Interpretive Report Segment	10.46	Guarantor's Employer Name	17.18
Error Checking Segment	11	Guarantor's Employer Address	17.19
General Approach	11.1	Guarantor's Employer Telephone Number	17.20
Segment Type ID	11.1.5.1	Guarantor Employee ID Number	17.21
Sequence Number	11.1.5.2	Guarantor Employment Status	17.22
Error Check, Byte Count	11.1.5.3	HL7 Insurance Segment for Billing	18
Check Code	11.1.5.4	Background	18.1
Comment Segment	12	Segment Type ID	18.2
General Approach	12.1	Sequence Number	18.3
Segment Type ID	12.1.1	Insurance Plan ID	18.4
Sequence Number	12.1.2	Insurance Company	18.5
Comment Source	12.1.3	Insurance Company Name	18.6
Comment Text	12.1.4	Insurance Company Address	18.7
Request Results Segment	13	Insurance Company Contact Person	18.8
General Approach	13.1	Insurance Company Phone Number	18.9
Segment Type ID	13.1.1	Group Number	18.10
Sequence Number	13.1.2	Group Name	18.11
Practice (Requester) Assigned Patient ID	13.1.3	Insured's Group Employer ID	18.12
Observation Producer Assigned Patient ID	13.1.4	Insured's Group Employer Name	18.13
Observation Battery ID	13.1.5	Plan Effective Date/Time	18.14
Nature of Request Time Limits	13.1.6	Plan Expiration Date/Time	18.15
Beginning Request Results Date and Time	13.1.7	Authorization Information	18.16
Ending Request Results Date and Time	13.1.8	Plan Type	18.17
Requesting Physician	13.1.9	Name of Insured	18.18
Requesting Physician Telephone Number	13.1.10	Insured's Relationship to Patient	18.19
User Field 1	13.1.11	Insured's Date/Time of Birth	18.20
User Field 2	13.1.12	Insured's Address	18.21
Message Terminator	14	Assignment of Benefits	18.22
General Approach	14.1	Coordination of Benefits	18.23
Segment Type ID	14.1.1	Primary Payer	18.24
Sequence Number	14.1.2	Notice of Admission Code	18.25
Not used (for compatibility with Specification E 1394E 1394)	14.1.3	Notice of Admission Date/Time	18.26
Patient Count (NM)	14.1.4	Report of Eligibility Code	18.27
Line Count (NM)	14.1.5	Report of Eligibility Date/Time	18.28
Batch Number	14.1.6	Release Information Code	18.29
Scientific Segment	15	Preadmit Certification	18.30
General Approach	15.1	Verification Date/Time	18.31
Segment Type ID	15.1.1	Verification By	18.32
Sequence Number	15.1.2	Type of Agreement	18.33
Analytical Method	15.1.3	Billing Status	18.34
Instrumentation	15.1.4	Lifetime Reserve Days	18.35
Reagents	15.1.5	Delay Before Lifetime Reserve Days	18.36
Units of Measure	15.1.6	Company Plan Code	18.37
Quality Control	15.1.7	Policy Number	18.38
Specimen Source	15.1.8	Policy Deductible	18.39
Body Site	15.1.9	Policy Limit—Amount	18.40
Container	15.1.10	Policy Limit—Days	18.41
Specimen ID	15.1.11	Room Rate—Semiprivate	18.42
Analyte	15.1.12	Room Rate—Private	18.43
Result	15.1.13	Insured's Employment Status	18.44
Result Units	15.1.14	Insured's Sex	18.45
Collection Date and Time	15.1.15	Insured's Employer Address	18.46
Result Date and Time	15.1.16	Insured's Telephone Number—Home	18.47
Analytical Preprocessing Steps	15.1.17	Insured's Telephone Number—Work	18.48
Patient Diagnosis	15.1.18	Insured's Universal ID Number	18.49
Patient Birthdate	15.1.19	Test/Observation Master Segments	19
Patient Sex	15.1.20	General Approach	19.1
Patient Race	15.1.21	General Test Observation Master Segment	19.2
HL7 Patient Visit Segment	16	Segment Type ID	19.2.1
HL7 Guarantor Segment	17	Sequence Number	19.2.2
Background	17.1	Producer's Test/Observation ID	19.2.3
Billing Information	17.1.1	Permitted Data Types	19.2.4
Segment Type ID	17.2	Specimen Required	19.2.5
Sequence Number	17.3	Producer ID	19.2.6
Guarantor Number	17.4	Observation Description	19.2.7
Guarantor Name	17.5	Other Test/Observation IDs for the Observation	19.2.8
Guarantor Spouse Name	17.6	Other Names	19.2.9
Guarantor Address	17.7	Preferred Report Name for the Observation	19.2.10
Guarantor Phone Number—Home	17.8	Preferred Short Name or Mnemonic for the Observation	19.2.11