

NAACCR Standards for Cancer Registries, Laboratory Electronic Pathology Reporting Guidelines, Version 5.1

Appendix C. Detailed HL7 Data Type Specifications

This appendix contains the detailed specification of all the HL7 data types that are assigned to fields that are supported for use in Cancer Registry Messaging in this guide. For data types that are not described here for those fields that are Not Supported, please refer to Chapter 2A of the HL7 Standard Version 2.5.1.

Note that a number of the data types in this section are identified new for Version 2.5.1 but are actually replacements for the old CM data types of Version 2.3.1, which have all been removed. As of Version 2.5.1, all of the CM data types were deprecated and replaced with explicit new data types that call out the components, rather than being defined in line with the fields for which they are used.

C.1. CE – coded element

HL7 Component Table – CE – Coded Element

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	

Definition: This data type transmits codes and the text associated with the code.

Maximum Length: 483

Note: retained for backward compatibility only as of version 2.5. Refer to the CNE and CWE data types.

Example:

```
|F-11380^CREATININE^I9^2148-5^CREATININE^LN|
```

Usage Note on the Alternate components (4, 5, 6)

These three components are defined analogously to components 1, 2, and 3 for the alternate or local coding system. If the alternate text component is absent, and the alternate identifier is present, the alternate text will be taken to be the same as the text component. If the alternate coding system component is absent, it will be taken to mean the locally defined system.

Note: The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

C.1.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

C.1.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression.

C.1.3. Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number. Similarly, ISO tables will be named **ISOnnnn**, where **nnnn** is the ISO table number.

C.1.4. Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. See usage note in section introduction.

C.1.5. Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier. See usage note in section introduction.

C.1.6. Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component.

Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values. When an HL7 table is used for a CE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number.

C.2. CF – coded element with formatted values

HL7 Component Table – CF – Coded Element with Formatted Values

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	65536	FT	O		Formatted Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	65536	FT	O		Alternate Formatted Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	

Definition: This data type transmits codes and the formatted text associated with the code. This data type can be used to transmit for the first time the formatted text for the **canned text** portion of a report, for example, a standard radiological description for a normal chest X-ray. The receiving system can store this information and in subsequent messages, only the identifier need be sent. Another potential use of this data type is transmitting master file records that contain formatted text. This data type has six components as follows:

Maximum Length: 65536

The components, primary and alternate, are defined exactly as in the CE data type with the exception of the second and fifth components, which are of the formatted text data type.

Example:

```
OBX||CF|71020^CXR^99CPMC||79989^H\Description:\N\\.sp\\.ti+4\Heart is not enlarged.
There is no evidence of pneumonia, effusion, pneumothorax or any masses.
.sp+3\\H\Impression:\N\\.sp\\.ti+4\negative chest.^99CPMC
```

C.2.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

C.2.2. Formatted Text (FT)

Definition: Name or description of the item in question with the addition of embedded formatting instructions.

C.2.3. Name of Coding System (ID)

Definition: Contains the name of the coding system employed. Refer to HL7 Table 0396.

C.2.4. Alternate Identifier (ST)

Definition: Alternate sequence of characters (the code) that uniquely identifies the item being referenced by the

<text>. This identifier is the equivalent of component one.

C.2.5. Alternate Formatted Text (FT)

Definition: Name or description of the alternate identifier in question with the addition of embedded formatting instructions.

C.2.6. Name of Alternate Coding System (ID)

Definition: Contains the name of the coding system employed for the alternate identifier. Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values.

C.3. CNE – coded with no exceptions

HL7 Component Table – CNE – Coded with No Exceptions

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	R		Identifier	R	

2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	
7	10	ST	C		Coding System Version ID	CWE	
8	10	ST	O		Alternate Coding System Version ID	CWE	
9	199	ST	O		Original Text	RE	

Definition: Specifies a coded element and its associated detail. The CNE data type is used when a required or mandatory coded field is needed. The specified HL7 or externally defined table must be used and may not be extended with local values. Text may not replace the code. A CNE field must have an HL7 defined or external table associated with it. It must be specified in the standard.

Maximum Length: 705

C.3.1. Identifier (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced by the CNE.2. Different coding schemes will have different elements here.

Usage Note: The identifier is required and must be a valid code.

C.3.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression. Its data type is string (ST). This is the corresponding text assigned by the coding system to the identifier.

Usage Note: Text description of code is optional, but its use should be encouraged because it makes messages easier to review for accuracy, especially during interface testing and debugging.

C.3.3. Name of Coding System (ID)

Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes, and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CNE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number. Similarly, ISO tables will be named **ISONnnn**, where **nnnn** is the ISO table number.

Usage Note: The *Coding system* must either be present and have a value from the set of allowed coding systems or if not present it will be interpreted to have the same meaning as if it had been valued with the code meaning “HL7 coding system.” *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values.

C.3.4. Alternate Identifier (ST)

Analogous to “Identifier” in component 1.

Usage Notes: The Alternate Identifier is used to represent the local or user-seen code as described. If present, it obeys the same rules of use and interpretation as described for component 1. If both are present, the identifiers in component 4 and component 1 should have exactly the same meaning, i.e., they should be exact synonyms.

C.3.5. Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier. Analogous to “Text” in component 2. See usage notes in the section introduction for further description.

Usage Notes: If present, component 5 obeys the same rules of use and interpretation as described for component 2.

C.3.6. Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component. Analogous to “Name of Coding System” in component 3. Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values.

Usage Notes: If present, component 6 obeys the same rules of use and interpretation as described for component 3.

C.3.7. Coding System Version ID (ST)

Definition: The version ID for the coding system identified by component 3. It belongs conceptually to components 1–3 and appears here only for reasons of backward compatibility.

Usage Note: If the coding system is any system other than an “HL7 coding system,” version ID must be valued with an actual version ID. If the coding system is “HL7 coding system,” version ID may have an actual value or it may be absent. If version ID is absent, it will be interpreted to have the same value as the HL7 version number in the message header. Text description of code is optional but its use should be encouraged because it makes messages easier to review for accuracy, especially during interface testing and debugging.

C.3.8. Alternate Coding System Version ID (ST)

Definition: The version ID for the coding system identified by component 6. It belongs conceptually to the group of Alternate components and appears here only for reasons of backward compatibility.

Usage Notes: If present, component 8 obeys the same rules of use and interpretation as described for component 7.

C.3.9. Original Text (ST)

The original text that was available to an automated process or a human before a specific code was assigned.

C.4. CNN – composite ID number and name simplified

HL7 Component Table – CNN – Composite ID Number and Name Simplified

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	O		ID Number	RE	
2	50	ST	O		Family Name	R	
3	30	ST	O		Given Name	RE	
4	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
5	20	ST	O		Suffix (e.g., JR or III)	RE	
6	20	ST	O		Prefix (e.g., DR)	RE	
7	5	IS	O	0360	Degree (e.g., MD)	X	
8	4	IS	C	0297	Source Table	C W E	
9	20	IS	C	0363	Assigning Authority – Namespace ID	RE	
10	199	ST	C		Assigning Authority – Universal ID	C W E	
11	6	ID	C	0301	Assigning Authority – Universal ID Type	C W E	

Definition: Specifies a person, using both an identifier and the person’s name

Maximum Length: 406

Note: Restores the original data type CN as was initially implementable in the CM used in sections 4.5.3.32 and 7.4.1.32-(OBR-32) , 4.5.3.33 and 7.4.1.33 – (OBR-33) 4.5.3.34 and 7.4.1.34 – (OBR-34) 4.5.3.35 and 7.4.1.35 – (OBR-35). Components 7 and 8, however, have been promoted to data type IS to be consistent with current practice without violating backward compatibility.

Note that this was formerly the “CN” data type in version 2.3.1; component 9 has been redefined, and components 10 and 11 were added.

C.4.1. ID Number (ST)

Coded ID according to a user-defined table. If the first component is present, either component 8 or 9, or both 10 and 11, must be valued.

C.4.2. Family Name (ST)

This component contains the person’s family name in a string format.

C.4.3. Given Name (ST)

Used to specify a first name.

C.4.4. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.4.5. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.4.6. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.4.7. Degree (IS)

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.4.8. Source Table (IS)

Refer to User-Defined Table 0297 – CN ID source for suggested values. Used to delineate the first component. If component 1 is valued, either component 8, or 9, or both 10 and 11, must be valued.

C.4.9. Assigning Authority – Namespace ID (IS)

See section Assigning Authority (HD) for definition. Refer to User-Defined Table 0363 – Assigning Authority for suggested values. Assigning Authority is normally expressed as an HD data type, but has been flattened to three components here (CNS.9, CNS.10, and CNS.11) in this data type so that it may be fully expressed. Also note that if additional components are added to the HD data type in the future, adjustment will need to be made accordingly to this data type.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern “xy_PHYSICIANLICENSE” where “xy” is the state (two letters) or province code (up to four letters). Note this is used also in User-Defined Table – 0363 Namespace ID.

If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.4.10. Assigning Authority – Universal ID (ST)

See section Assigning Authority (HD) for definition.

If CNN.11 is valued, this component must be valued. If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.4.11. Assigning Authority – Universal ID Type (ID)

See section Assigning Authority (HD) for definition. If this component is a known UID, refer to *HL7-Defined Table 0301 – Universal ID Type* for valid values.

If CNN.10 is valued, this component must be valued. If component 1 is valued, either component 8 or 9, or both 10 and 11, must be valued.

C.5. CQ – composite quantity with units

HL7 Component Table – CQ –Composite Quantity with Units

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
-----	-----	----	-----	-------	----------------	--------------	-----------------

1	16	NM	O		Quantity	R	
2	483	CE	O		Units	RE	

Maximum Length: 500

Note: CQ cannot be legally expressed when embedded within another data type. Its use is constrained to a segment field. Future use of this data type will be avoided because the same data can usually be sent as two separate fields, one with the value, and one with the units as a CE data type.

Examples:

|123.7^kg| kilograms is an ISO unit
 |150^1b&&ANSI+| weight in pounds is a customary U.S. unit defined within ANSI+.

C.5.1. Quantity (NM)

Definition: This component specifies the numeric quantity or amount of an entity.

C.5.2. Units (CE)

Definition: This component species the units in which the quantity is expressed. Field-by-field, default units may be defined within the specifications. When the quantity is measured in the default units, the units need not be transmitted. If the quantity is recorded in units different from the default, the units must be transmitted.

C.6. CWE – coded with exceptions

HL7 Component Table – CWE – Coded with Exceptions

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	ST	O		Identifier	R	
2	199	ST	O		Text	RE	
3	20	ID	O	0396	Name of Coding System	R	
4	20	ST	O		Alternate Identifier	RE	
5	199	ST	O		Alternate Text	RE	
6	20	ID	O	0396	Name of Alternate Coding System	RE	
7	10	ST	C		Coding System Version ID	CWE	
8	10	ST	O		Alternate Coding System Version ID	CWE	
9	199	ST	O		Original Text	RE	

Definition: Specifies a coded element and its associated detail. The CWE data type is used when (1) more than one table may be applicable or (2) the specified HL7 or externally defined table may be extended with local values or (3) when text is in place, the code may be omitted. The CWE data type is similar to the CE data type with the addition of being able to communicate the coding system versions for each coded triplet. It also allows communication of the original text, which was the basis for the coding.

Maximum Length: 705

Usage Notes: This is a field that is generally sent using a code, but where the code may be omitted in exceptional instances or by site agreement. Exceptional instances arise when the coding system being used does not have a code to describe the concept in the text.

Components 1–3 and 7 are used in one of three ways:

Coded: The identifier contains a valid code from a coding system. The coding system must either be present and have a value from the set of allowed coding systems, or if not present, it will be interpreted to have the same meaning as if it had been valued with the code meaning “HL7 coding system.” Refer

to HL7 Table 0396 for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, and health outcomes coding systems. If the coding system is any system other than “HL7 coding system,” version ID must be valued with an actual version ID. If the coding system is “HL7 coding system,” version ID may have an actual value or it may be absent. If version ID is absent, it will be interpreted to have the same value as the HL7 version number in the message header. Text description is optional, but its use should be encouraged to aid in readability of the message during testing and debugging.

Example 1a: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as a CWE value, and the value is taken from SNOMED International.

```
OBX|1|CWE|883-9^ABO Group^LN|1|F-D1250^Type O^SNM3^^^3.4|||N||F
```

Example 1b: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as an CWE value, and the value is taken from a (currently hypothetical) HL7 table.

```
OBX|1|CWE|883-9^ABO Group^LN|1|O^Type O^HL74875^^^2.5.1|||N||F
```

Uncoded: Text is valued, the identifier has no value, and coding system and version ID follow the same rules as discussed for option 1.

Example 2: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as a CWE value, and the value is sent as text because the correct clinical value, “Wesnerian” was not found in the set of allowed values.

```
OBX|1|CWE|883-9^ABO Group^LN|1|^Wesnerian^SNM3^^^3.4|||A||F
```

Data missing: The name of the coding system is “HL7 CWE Status,” version ID is either a real version, or if not present it has the same meaning as the version in the message header, and the identifier takes its value from one of the allowed CWE field statuses. The codes for the allowed CWE field statuses are shown below and will be maintained in a table as part of the HL7 vocabulary. Text description of code is optional.

Example 3: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as an LCE value, and no value can be sent because the test was not done.

```
OBX|1|CWE|883-9^ABO Group^LN|1|NAV^Not Available^HL70353^^^2.5.1|||N||F
```

Component 9:

This is the original text that was available to an automated process or a human before a specific code was assigned. This field is optional.

Components 3–6 and 8:

Components 3–6 and 8 are optional. They are used to represent the local or user seen code. If present, components 3–6 and 8 obey the same rules of use and interpretation as described for components 1–3 and 7 (of the CWE data type). If both are present, the identifiers in component 4 and component 1 should have exactly the same meaning; i.e., they should be exact synonyms.

Example 4: OBX segment where the observation identifier is a LOINC code and the observation value is being sent as an CWE value, and the value is taken from SNOMED International. The user-seen fields are being used to represent a local coding system (99LAB) used in the sending system.

```
OBX|1|CWE|883-9^ABO Group^LN|1|F-D1250^Type O^SNM3^O^O Type  
Blood^99LAB^3.4^|||||F
```

Summary of CWE usage notes with table of status values for various states without values:

The CWE data type should be used for coded fields that are optional or where it is permissible to send text for items that are not yet a part of the approved value set. In the normal situation, the identifier is valued with the code from the value set. If the value of the field is known, but is not part of the value set, then the value is sent as text, and the identifier has no value. If the field has an unknown status, then third form of the field is used (see **Data missing** above), and the appropriate status for the field is selected from the table of allowed statuses. When no code exists, refer to [HL7-Defined Table 0353 –](#)

[CWE Statuses](#) for valid values.

Where a text modifier might accompany a code, the “field” in the HL7 message would be of data type CWE and would be allowed to repeat. The first instance of the field would be used, as per option 1; i.e., the identifier would have a valid code. The second instance of the repeating field would be used, as per option 2, i.e., the text description would take the value of the free text modifier.

C.6.1. Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

C.6.2. Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., myocardial infarction or X-ray impression.

C.6.3. Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component.

The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Refer to *HL7-Defined Table 0396 – Coding System* in Appendix B for valid values. The table includes ASTM E1238-94, diagnostic, procedure, observation, drug ID, health outcomes and other coding systems.

Some organizations that publish code sets author more than one. The coding system, then, to be unique is a concatenation of the name of the coding authority organization and the name of its code set or table. When an HL7 table is used for a CE data type, the **name of coding system** component is defined as **HL7nnnn** where **nnnn** is the HL7 table number. Similarly, ISO tables will be named **ISONnnn**, where **nnnn** is the ISO table number.

C.6.4. Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. Analogous to “Identifier” in component 1. See usage note in section introduction.

C.6.5. Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier. Analogous to “Text” in component 2. See usage note in section introduction.

C.6.6. Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component. Analogous to “Name of Coding System” above. See usage note in section introduction.

C.6.7. Coding System Version ID (ST)

This is the version ID for the coding system identified by components 1–3. It belongs conceptually to the group of components 1–3 and appears here only for reasons of backward compatibility.

C.6.8. Alternate Coding System Version ID (ST)

This is the version ID for the coding system identified by components 4–6. It belongs conceptually to the group of alternate components (See usage note in section introduction) and appears here only for reasons of backward compatibility.

C.6.9. Original Text (ST)

The original text that was available to an automated process or a human before a specific code was assigned.

C.7. CX – extended composite ID with check digit

HL7 Component Table – CX – Extended Composite ID with Check Digit

SEQ	LEN	DT	OP T	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	R		ID Number	R	
2	1	ST	O		Check Digit	X	
3	3	ID	O	0061	Check Digit Scheme	X	
4	227	HD	O	0363	Assigning Authority	R	
5	5	ID	O	0203	Identifier Type Code	RE	
6	227	HD	O		Assigning Facility	RE	
7	8	DTM	O		Effective Date	RE	
8	8	DTM	O		Expiration Date	RE	
9	705	CWE	O		Assigning Jurisdiction	RE	
10	705	CWE	O		Assigning Agency or Department	RE	

Definition: This data type is used for specifying an identifier with its associated administrative detail.

Maximum Length: 1913

Note: The check digit and check digit scheme are null if ID is alphanumeric.

Example:

|1234567^4^M11^ADT01^MR^Good Health Hospital|

C.7.1. ID Number (ST)

Definition: The value of the identifier itself.

C.7.2. Check Digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

C.7.3. Check Digit Scheme (ID)

Definition: Contains the code identifying the check digit scheme employed. Refer to *HL7-Defined Table 0061 – Check Digit Scheme* for valid values.

The algorithm for calculating a Mod10 check digit is as follows:

Assume you have the identifier 12345. Take the odd digit positions, counting from the right, i.e., 531, multiply this number by 2 to get 1062. Take the even digit positions, starting from the right (i.e., 42),

prepend these to the 1062 to get 421062. Add all of these six digits together to get 15. Subtract this number from the next highest multiple of 10, i.e., 20 minus 15 equals 5. The Mod10 check digit is 5. The Mod10 check digit for 401 is 0; for 9999, it is 4; for 99999999, it is 8.

The algorithm for calculating a Mod11 check digit is as follows:

Terms

- d = digit of number starting from units digit, followed by 10's position, followed by 100's position, etc.
- w = weight of digit position starting with the units position, followed by 10's position, followed by 100's position etc. Values for w = 2, 3, 4, 5, 6, 7, 2, 3, 4, 5, 6, 7, etc. (repeats for each group of 6 digits)
- c = check digit

Calculation

- (Step 1) m = sum of (d * w) for positions 1, 2, etc. starting with units digit for d = digit value starting with units position to highest order
for w = weight value from 2 to 7 for every six positions starting with units digit
- (Step 2) c1 = m mod 11
- (Step 3) if c1 = 0 then reset c1 = 1
- (Step 4) = (11 - c1) mod 10

Example:

If the number is 1234567, then the mod 11 check digit = 4

The calculations are:

$$\begin{aligned}
 M &= (7*2)+(6*3)+(5*4)+(4*5)+(3*6)+(2*7)+(1*2) \\
 &= 14 + 18 + 20 + 20 + 18 + 14 + 2 \\
 &= 106 \\
 c1 &= 106 \text{ mod } 11 \\
 &= 7 \\
 c &= (11-c1) \text{ mod } 10 \\
 &= 4 \text{ mod } 10
 \end{aligned}$$

= 4

Other variants of these check digit algorithms exist and may be used by local bilateral site agreement.

Note: The check digit and code identifying check digit scheme are null if ID is alphanumeric.

C.7.4. Assigning Authority (HD)

The assigning authority is a unique name of the system (or organization or agency or department) that creates the data. Refer to *User-Defined Table 0363 – Assigning Authority* for suggested values.

The reader is referred to the CX.9 and the CX.10 if there is a need to transmit values with semantic meaning for an assigning jurisdiction or assigning department or agency in addition to, or instead of, an assigning authority. However, all three components may be valued. If, in so doing, it is discovered that the values in CX.9 and/or CX.10 conflict with CX.4, the user would look to the Message Profile or other implementation agreement for a statement as to which takes precedence.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.7.5. Identifier Type Code (ID)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the “Assigning Authority” component. Refer to *User-Defined Table 0203 – Identifier Type* for suggested values.

C.7.6. Assigning Facility (HD)

Definition: The place or location identifier where the identifier was first assigned to the patient. This component is not an inherent part of the identifier, but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component), may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.7.7. Effective Date (DTM)

Definition: The first date, if known, on which the identifier is valid and active.

C.7.8. Expiration Date (DTM)

Definition: The last date, if known, on which the identifier is valid and active.

C.7.9. Assigning Jurisdiction (CWE)

Definition: The geopolitical body that assigned the identifier in component 1.

- Refer to *HL7-Defined Table 0399 – Country Code* for valid values if the administrative unit under whose jurisdiction the identifier was issued is a country.
- Refer to *User-Defined Table 0347 – State/Province* for suggested values if the administrative unit under whose jurisdiction the identifier was issued is a state or province. This table is country specific. In the United States, postal codes may be used.
- Refer to *User-Defined Table 0289 – County/Parish* for suggested values if the administrative unit under whose jurisdiction the identifier was issued is a county or parish.

The reader is referred to the CX.4, if there is a need to transmit this information as an OID.

C.7.10. Assigning Agency or Department (CWE)

Definition: The agency or department that assigned the identifier in component 1.

Refer to *User-Defined Table – 0530 Organizations, Agency, Department* for suggested values if the administrative unit under whose jurisdiction the identifier was issued is an organization, agency, or department. This is populated with site-specific assigning authorities. It also should contain national or international codes when CX-5 Identifier Type may be assigned by more than one authority within a governmental or organizational unit. For example, a federal government may have two departments that assign a military identifier, its Veterans Affairs department and its department of defense. It is **not** recommended to include values for such entities as the Social Security Administration, Immigration and Naturalization Service (INS), or Centers for Medicare & Medicaid Services because they are included in the identifier type table. In these cases, the name of the country plus the identifier type yields the correct interpretation of the identifier in component 1. Likewise, entries like department of motor vehicles and licensing boards are **not** recommended for inclusion because the combination of state and identifier type yields the correct interpretation of the identifier in component 1. This approach is not to be confused with the detailed information provided in the chapter 15 segments that have provisions for specifying the precise granting body and issuing body information needed in personnel management messages.

Example 1: <Identifier> plus <Visa> yields a unique identifier.

Example 2: <identifier> plus <state> plus <DLN> yields a unique driver's license number.

Example 3: <identifier> plus <country> plus <INS> yields a unique immigration number. The reader is referred to the CX.4, if there is a need to transmit this information as an OID.

C.8. DLD – discharge to location and date

HL7 Component Table – DLD – Discharge Location and Date

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	R	0113	Discharge Location	R	
2	26	DTM	O		Effective Date	RE	

Definition: Specifies the health care facility to which the patient was discharged and the date.

Maximum Length: 47

Note: Replaces the CM data type used in section 3.4.3.37 PV1-37, as of version 2.5.

C.8.1. Discharge Location (IS)

Definition: Specifies the health care facility to which the patient was discharged. Refer to User-Defined Table 0113 – Discharged to Location for suggested values.

C.8.2. Effective Date (DTM)

Definition: Specifies the date on which the patient was discharged to a health care facility.

C.9. DR – date/time range

HL7 Component Table – DR – Date/Time Range

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	26	DTM	O		Range Start Date/Time	RE	
2	26	DTM	O		Range End Date/Time	RE	

Maximum Length: 53

Note: DR cannot be legally expressed when embedded within another data type. Its use is constrained to a segment field.

C.9.1. Range Start Date/Time (DTM)

Definition: The first component contains the earliest date/time (time stamp) in the specified range.

C.9.2. Range End Date/Time (DTM)

The second component contains the latest date/time in the specified range. Note that the TS (time stamp) data type allows the specification of precision.

C.10. DT – date

HL7 Component Table – DT – Date

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	8	DTM			Date		

Commented [MJ1]: Change to 26?

Definition: Specifies the century and year with optional precision to month and day.

Maximum Length: 8

As of version 2.3, the number of digits populated specifies the precision using the format specification YYYY[MM[DD]]. Thus:

only the first four digits are used to specify a precision of

“year” the first six are used to specify a precision of

“month”

the first eight are used to specify a precision of “day”

Examples:

|19880704|

|199503|

Prior to version 2.3, this data type was specified in the format YYYYMMDD. As of version 2.3, month and days are no longer required. By site-specific agreement, YYYYMMDD may be used where backward compatibility must be maintained.

C.11. DTM – date/time

HL7 Component Table – DTM – Date/Time

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	24	DTM			Date/Time		

Definition: Specifies a point in time using a 24-hour clock notation.

Maximum Length: 24

The number of characters populated (excluding the time zone specification) specifies the precision. Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]

Thus:

- only the first four are used to specify a precision of “year”
- the first six are used to specify a precision of “month”
- the first eight are used to specify a precision of “day”
- the first 10 are used to specify a precision of “hour”
- the first 12 are used to specify a precision of “minute”
- the first 14 are used to specify a precision of “second”
- the first 16 are used to specify a precision of “one tenth of a second”
- the first 19 are used to specify a precision of “one ten thousandths of a second”

Example:

|199904| specifies April 1999.

The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Co-ordinated Universal Time (UTC) (formerly Greenwich Mean Time (GMT)), where +0000 or -0000 both represent UTC (without offset). The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

Note that if the time zone is not included, the time zone defaults to that of the local time zone of the sender. Also note that a DTM or TS valued field with the HHMM part set to “0000” represents midnight of the night extending from the previous day to the day given by the YYYYMMDD part (see example below).

Examples:

Example	Description
19760704010159-0500	1:01:59 on July 4, 1976, in the Eastern Standard Time zone (USA)
19760704010159-0400	1:01:59 on July 4, 1976, in the Eastern Daylight Saving Time zone (USA)
198807050000	Midnight of the night extending from July 4 to July 5, 1988, in the local time zone of the sender.

19880705	Same as prior example, but precision extends only to the day. Could be used for a birthdate, if the time of birth is unknown.
19981004010159+010	1:01:59 on October 4, 1998, in Amsterdam, NL. (Time zone=+0100).

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 p.m. in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

Note: The time zone [+/-ZZZZ], when used, is restricted to legally defined time zones and is represented in HHMM format.

One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.

C.12. ED – encapsulated data

HL7 Component Table – ED – Encapsulated Data

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	227	HD	O		Source Application	RE	
2	9	ID	R	0191	Type of Data	R	
3	18	ID	O	0291	Data Subtype	RE	
4	6	ID	R	0299	Encoding	R	
5	6553 6	TX	R		Data	R	

Definition: This data type transmits encapsulated data from a source system to a destination system. It contains the identity of the source system, the type of data, the encoding method of the data, and the data itself. This data type is similar to the RP (reference pointer) data type except that instead of pointing to the data on another system, it contains the data which is to be sent to that system.

Maximum Length: 65536

C.12.1. Source Application (HD)

A unique name that identifies the system that was the source of the data. Identical format and restrictions as in reference pointer (see the HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer).

C.12.2. Type of Data (ID)

Identical to “type of data” component in the reference pointer (RP) data type. See HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer.

Refer to *HL7-Defined Table 0191 – Type of Referenced Data* for valid values.

C.12.3. Data Subtype (ID)

Identical to "subtype" component in the reference pointer (RP) data type. See Section HL7 Standard version 2.5.1, Chapter 2A, Section 2A.65, RP Reference Pointer.

Refer to *HL7-Defined Table 0291 – Subtype of Referenced Data* for valid values.

C.12.4. Encoding (ID)

The type of encoding used to represent successive octets of binary data as displayable ASCII characters. Refer to *HL7-Defined Table 0299 – Encoding* for valid values.

C.12.5. Data (TX)

Displayable ASCII characters that constitute the data to be sent from source application to destination application. The characters are limited to the legal characters of the ST data type, as defined in Section C32, "ST– string data," and, if encoded binary, are encoded according to the method of Section C12.2, Type of Data (ID).

If the encoding component (see Section C12.4 Encoding (ID)) equals "A" (none), then the data component must be scanned before transmission for HL7 delimiter characters, and any found must be escaped by using the HL7 escape sequences defined in Section 2.7, Use of Escape Sequences in Text Fields. On the receiving application, the data field must be de-escaped after being parsed.

If the encoding component ED.4 does not equal "A," then, after encoding, the (encoded) data must be scanned for HL7 delimiter characters, and any found must be escaped by using the HL7 escape sequences. Only then can the component be added to the HL7 segment/message. On the receiving application, the data field must be

de-escaped after being parsed out of the message before being decoded. This can be expressed as "encode," "escape," "parse," "de-escape," or "decode."

C.13. EI – entity identifier

HL7 Component Table – EI – Entity Identifier

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	199	ST	O		Entity Identifier	R	
2	20	IS	O	0363	Namespace ID	RE	
3	199	ST	C		Universal ID	C W E	
4	6	ID	C	0301	Universal ID Type	C W E	

Definition: The entity identifier defines a given entity within a specified series of identifiers.

Maximum Length: 427

The EI is appropriate for, but not limited to, machine- or software-generated identifiers. The generated identifier goes in the first component. The remaining components, 2 through 4, are known as the assigning authority; they identify the machine/system responsible for generating the identifier in component 1.

The specified series, the assigning authority, is defined by components 2 through 4. The assigning authority is of the hierarchic designator (HD) data type, but it is defined as three separate components in the EI data type, rather than as a single component as would normally be the case. This is to maintain backward compatibility with the EI's use as a component in several existing data fields. Otherwise, components 2 through 4 are as defined in Section C.19, [HD – Hierarchic Designator](#). Hierarchic designators (HD) are unique across a given HL7 implementation.

C.13.1. Entity Identifier (ST)

The first component, <entity identifier>, is usually defined to be unique within the series of identifiers created by the <assigning authority>, defined by a hierarchic designator, represented by components 2 through 4. See Section C.19, HD – Hierarchic Designator.

C.13.2. Namespace ID (IS)

See Section Namespace ID (IS) for definition.

The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the data. Refer to User-Defined Table 0363 – Assigning Authority for suggested values.

Note: When the HD is used as a part of another data type, in this case as part of the EI data type, this table may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use User-Defined Table 0300 – Namespace ID for the first component

C.13.3. Universal ID (ST)

See Section Universal ID (ST) for definition.

C.13.4. Universal ID Type (ID)

Refer to *HL7-Defined Table 0301 – Universal ID Type* for valid values. See Section Universal ID Type (ID),” for definition.

C.14. EIP – entity identifier pair

HL7 Component Table – EIP – Entity Identifier Pair

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	427	EI	O		Placer Assigned Identifier	RE	
2	427	EI	O		Filler Assigned Identifier	R	

Definition: Specifies an identifier assigned to an entity by either the placer or the filler system. If both components are populated, the identifiers must refer to the same entity.

Maximum Length: 855

Note: Replaces the CM data type used in sections 4.5.1.8 – ORC-8, 4.5.3.29 – OBR-29, 7.3.1.29 – OBR-29, as of version 2.5.

C.14.1. Placer Assigned Identifier (EI)

Definition: Specifies an identifier assigned to an entity by the placer system. For example, the component might be used to convey the following:

- placer order number of the parent order
- the specimen identifier as assigned by the placer
- a location identifier assigned (or used by) the placer

C.14.2. Filler Assigned Identifier (EI)

Definition: Specifies an identifier assigned to an entity by the filler system. For example, the component might convey the following:

- filler order number of the parent order
- the specimen identifier as assigned by the filler
- a location identifier assigned (or used by) the filler

C.15. ELD – error location and description

HL7 Component Table – ELD – Error Location and Description

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ST	O		Segment ID	R	
2	2	NM	O		Segment Sequence	R	
3	2	NM	O		Field Position	RE	
4	483	CE	O	0357	Code Identifying Error	R	

Definition: Specifies the segment that contains an error and describes the nature of the error.

Maximum Length: 493

Note: Replaces the CM data type used in 2.16.5.1 ERR-1 as of version 2.5. Retained for backward compatibility only as of version 2.5. Refer to ERR segment.

C.15.1. Segment ID (ST)

Definition: The segment containing the error in another message

C.15.2. Segment sequence (NM)

Definition: Specifies the specific occurrence if the segment specified in component 1 occurs more than once in the message.

C.15.3. Field Position (NM)

Definition: Ordinal position of the data field within the segment. For systems that do not use the HL7 Encoding Rules, the data item number may be used for the third component.

C.15.4. Code Identifying Error (CE)

Definition: A code that describes the nature of the error. Refer to *HL7-Defined Table 0357 – Message Error Condition Codes* for valid values.

C.16. ERL – error location

HL7 Component Table – ERL – Error Location

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ST	R		Segment ID	R	
2	2	NM	R		Segment Sequence	R	
3	2	NM	O		Field Position	RE	
4	2	NM	O		Field Repetition	RE	
5	2	NM	O		Component Number	RE	
6	2	NM	O		Sub-Component Number	RE	

Definition: This data type identifies the segment and its constituent where an error has occurred.

Maximum Length: 18

C.16.1. Segment ID (ST)

Definition: Specifies the 3-letter name for the segment.

C.16.2. Segment Sequence (NM)

Definition: Identifies the segment occurrence within the message.

C.16.3. Field Position (NM)

Definition: Identifies the number of the field within the segment. The first field is assigned a number of 1. The Field number should not be specified when referring to the entire segment.

C.16.4. Field Repetition (NM)

Definition: Identifies the repetition number of the field. The first repetition is counted as 1. If a Field Position is specified, but Field Repetition is not, Field Repetition should be assumed to be 1. If a Field Position is not specified, Field Repetition should not be specified.

C.16.5. Component Number (NM)

Definition: Identifies the number of the component within the field. The first component is assigned a number of 1. Component number should not be specified when referring to the entire field.

C.16.6. Sub-Component Number (NM)

Definition: Identifies the number of the sub-component within the component. The first sub-component is assigned a number of 1. Sub-component number should not be specified when referring to the entire component.

C.17. FN – family name

HL7 Component Table – FN – Family Name

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	50	ST	R		Surname	R	
2	20	ST	O		Own Surname Prefix	RE	
3	50	ST	O		Own Surname	RE	
4	20	ST	O		Surname Prefix From Partner/Spouse	RE	
5	50	ST	O		Surname From Partner/Spouse	RE	

Definition: This data type allows full specification of the surname of a person. Where appropriate, it differentiates the person’s own surname from that of the person’s partner or spouse, in cases where the person’s name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as “van” or “de”) from the surname root.

Maximum Length: 194

Note: Appears ONLY in the PPN, XCN and XPN.

C.17.1. Surname (ST)

The atomic element of the person’s family name. In most Western usage, this is the person’s last name.

C.17.2. Own Surname Prefix (ST)

Internationalization usage for Germanic languages. This component is optional. An example of a <surname prefix> is the “van” in “Ludwig van Beethoven.” Because the <surname prefix> does not sort completely alphabetically, it is reasonable to specify it as a separate sub-component of the PN and extended PN data types (XPN and XCN).

Note: Subcomponents <own surname prefix>, <own surname>, <surname prefix from partner/spouse> and <surname from partner/spouse> decompose complex Germanic names such as “Martha de Mum-van Beethoven.” If these subcomponents are valued, the <surname> subcomponent should still be fully valued for backward compatibility, i.e., ^de Mum-van Beethoven&de&Mum&van&Beethoven^. Also, for clarity, the <last name prefix> has been renamed to <own surname prefix>.

C.17.3. Own Surname (ST)

The portion of the surname (in most Western usage, the last name) that is derived from the person's own surname, as distinguished from any portion that is derived from the surname of the person's partner or spouse. This component is optional.

If the person's surname has legally changed to become (or incorporate) the surname of the person's partner or spouse, this is the person's surname immediately prior to such change. Often this is the person's "maiden name."

C.17.4. Surname Prefix from Partner/Spouse (ST)

Internationalization usage for Germanic languages. This component is optional. An example of a <surname prefix> is the "van" in "Ludwig van Beethoven." Because the <surname prefix> does not sort completely alphabetically, it is reasonable to specify it as a separate sub-component of the PN and extended PN data types (XPN and XCN).

Note: Subcomponents <own surname prefix>, <own surname>, <surname prefix from partner/spouse> and <surname from partner/spouse> decompose complex Germanic names such as "Martha de Mum-van Beethoven." If these subcomponents are valued, the <surname> subcomponent should still be fully valued for backward compatibility, i.e., ^de Mum-van Beethoven&de&Mum&van&Beethoven^. Also, for clarity, the <last name prefix> has been renamed to <own surname prefix>.

C.17.5. Surname from Partner/Spouse (ST)

The portion of the person's surname (in most Western usage, the last name) that is derived from the surname of the person's partner or spouse, as distinguished from the part derived from the person's own surname. This component is optional.

If no portion of the person's surname is derived from the surname of the person's partner or spouse, this component is not valued. Otherwise, if the surname of the partner or spouse has legally changed to become (or incorporate) the person's surname, this is the surname of the partner or spouse immediately prior to such change.

C.18. FT – formatted text data

HL7 Component Table – FT – Formatted Text Data

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	65536				Coded Value for HL7-Defined Tables		

Maximum Length: 65536

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 being used. The actual instructions and their representation are described elsewhere in this chapter. *The FT field is of arbitrary length (up to 64k)* and may contain formatting commands enclosed in escape characters.

Example:

```
| \.sp \(skip one vertical line) |
```

For additional examples of formatting commands see [Section 2.7](#), "Use of Escape Sequences in Text Fields."

To include alternative character sets, use the appropriate escape sequence. See Section 2.15.9.18, "Character set" and Section 2.15.9.20, "Alternate character set handling."

C.19. HD – Hierarchic Designator

HL7 Component Table – HD – Hierarchic Designator

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	O	0300	Namespace ID	RE	
2	199	ST	C		Universal ID	CWE	
3	6	ID	C	0301	Universal ID Type	CWE	

Definition: The basic definition of the HD is that it identifies an (administrative or system or application or other) entity that has responsibility for managing or assigning a defined set of instance identifiers (such as placer or filler number, patient identifiers, provider identifiers, etc.). This entity could be a particular health care application, such as a registration system that assigns patient identifiers; a governmental entity, such as a licensing authority that assigns professional identifiers or drivers' license numbers; or a facility where such identifiers are assigned.

Maximum Length: 227

The HD is designed to be a more powerful and more general replacement for the application identifier of HL7 versions 2.1 and 2.2. It adds two additional components, the <universal ID> and the <universal ID type> to the former application ID (which is renamed more generically to be the namespace ID).

In the case where an HD identifies an entity that assigns/creates instance identifiers, such as a particular patient registration system, it defines an "assigning authority." In the case where an HD identifies a location where instance identifiers are given out (although they may be created by another entity at another location), such as a particular "department of motor vehicles office location," it defines an "assigning facility." These two different uses of the HD appear in many of the extended data types.

The "assigning authority" defined by the HD is similar in its role to the coding system (and version) part of the coded element data types: Both identify a set of more discrete instance identifiers. The difference is that the set of HD-defined discrete instances contains identifiers of "real-world" things, such as patient or clinical orders, while the coded element-defined set of discrete instances contains concept identifiers (codes).

The HD is designed to be used either as a local identifier (with only the <namespace ID> valued) or a publicly assigned identifier, a UID (<universal ID> and <universal ID type> both valued). Syntactically, the HD is a group of two identifiers: a local identifier defined by the first component and a universal identifier defined by the second and third components. HDs that have defined third components (defined UID types) must have a second component that is unique within the series of IDs defined by that component.

Note: The HD is used in fields that in earlier versions of HL7 used the IS data type. Thus, a single component HD (only the first component valued) will look like a simple IS data type for older systems expecting a single component in the place of the HD 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 (although in this case the first is optional). The second and third components must either both be valued (both non-null), or both be not valued (both null).

This means that if all three components of the HD are valued, the entity identified by the first component is the same as the entity identified by components two and three taken together. However, implementers may choose, by site agreement, to specify that if all three components of the HD are valued, the first component defines a member in the set defined by the second and third components.

Example 1: ISO examples with only the 2nd and 3rd components valued:

```
|^1.2.344.24.1.1.3^ISO|
|^1.2.34.4.1.5.1.5.1,1.13143143.131.3131.1^ISO|
```

The syntax of the second component is defined by the ISO standard for object identifiers, not by HL7 (for which the second component is of the ST data type). Thus the periods (“.”) and comma (“,”) in the second component are part of the ISO syntax, but are legal by the definition of the HL7 ST data type.

Example 2: A GUID example

```
|^14344.14144321.4122344.14434.654^GUID|
```

Example 3: An internet example

```
|^falcon.iupui.edu^DNS|
```

Example 4: a RANDOM UID

```
|^40C983F09183B0295822009258A3290582^RANDOM|
```

Local examples:

Example 5: Local use only: a HD that looks like an IS data type

```
|LAB1|  
|RX.PIMS.SystemB.KP.CA.SCA|
```

Note that the syntax of the first component is not defined by HL7, but by the site according to its own needs: The only requirement is that the first component’s structure is allowed by the HL7 string (ST) data type, which is used for values by the IS data type.

Example 6: Local identifier using components 2 and 3 only

```
|^RX.PIMS.SystemB.CA.SCA^M|
```

An alternate way to encode the previous example, illustrating the use of the third component value of “M” (see above HL7-Defined Table 0301 – Universal ID Type) to identify a locally defined identifier set. The second component has the same value as the previous example but is now defined to be a member of a set of allowable values defined by a site for the identifier set “M.”

Example 7: Local identifier with 2nd and 3rd components populated.

```
|PathLab^PL.UCF.UC^L|
```

The “PathLab” application is identified by the namespace component, but it is also identified by the 2nd and 3rd components (i.e., by the locally defined UID system “L”). The two identifiers are equivalent.

This is a more complex HD in which the middle component, which is locally defined, is itself structured. As with the ISO example earlier, the middle component’s structure is not defined by HL7 but by the site according to its own needs: the only requirement is that the middle component’s structure is allowed by the HL7 string (ST) data type.

Example 8: local identifier and universal ID types:

```
|LAB1^1.2.3.3.4.6.7^ISO|
```

A HD with an ISO “object Identifier” as a UID and a locally defined system name. Both the first component and the second and third (taken together) refer to the same entity. This example shows that the local value and the universal ID value may be transmitted with a single HD field.

C.19.1. Namespace ID (IS)

User-Defined Table 0300 – Namespace ID is used as the HL7 identifier for the user-defined table of values for this component.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern “xy_PHYSICIANLICENSE”

where “xy” is the state (two letters) or province code (up to four letters). Note this is used also in User-Defined Table – 0363 Namespace ID.

Note: When the HD is used in a given segment (either as a field or as a component of another data type), this table may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.19.2. Universal ID (ST)

The HD’s second component, <universal ID> (UID), is a string formatted according to the scheme defined by the third component, <universal ID type> (UID type). The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UIDs (defined by the UID type). The UID (second component) must follow the syntactic rules of the particular universal identifier scheme (defined by the third component). Note that these syntactic rules are not defined within HL7 but are defined by the rules of the particular universal identifier scheme (defined by the third component). Conditionality predicate: If the Namespace ID is not valued, then this component must be valued.

C.19.3. Universal ID Type (ID)

The third component governs the interpretation of the second component of the HD. If the third component is a known UID refer to *HL7-Defined Table 0301 – Universal ID Type* for valid values, then the second component is a universal ID of that type. Conditionality predicate: If the Universal ID is valued, then this component must be valued.

C.20. ID – coded value for HL7 defined tables

HL7 Component Table – ID – String Data

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
					Coded Value for HL7-Defined Tables		

Maximum Length: Varies – dependent on length of longest code in code set.

The value of such a field follows the formatting rules for an ST field, except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. An example of an ID field is *OBR-25-result status*. This data type should be used only for HL7 tables. The reverse is not true, because in some circumstances it is more appropriate to use the CNE or CWE data type for HL7 tables.

C.21. IS – coded value for user-defined tables

HL7 Component Table – IS – String Data

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	20				Coded Value for User-Defined Tables		

Maximum Length: 20

The value of such a field follows the formatting rules for a ST field, except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. This data type should be used only for user-defined tables. The reverse is not true, because

in some circumstances, it is more appropriate to use the CWE data type for user-defined tables.

C.22. MSG – message type

HL7 Component Table – MSG – Message Type

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	3	ID	R	0076	Message Code	R	
2	3	ID	R	0003	Trigger Event	R	
3	7	ID	R	0354	Message Structure	R	

Definition: This field contains the message type, trigger event, and the message structure ID for the message.

Maximum Length: 15.

Note: Replaces the CM data type used in 2.16.9.9 MSH-9 as of version 2.5.

C.22.1. Message Code (ID)

Definition: Specifies the message type code.

This table contains values such as ACK, ADT, ORM, ORU etc. See Section 2.5.1 – Messages, for further discussion.

C.22.2. Trigger Event (ID)

Definition: Specifies the trigger event code. Refer to HL7 Table – Event Type for valid values. This table contains values like A01, O01, R01 etc.

See the HL7 Standard version 2.5.1 Section 2.2.1 – Trigger Events for further discussion.

C.22.3. Message Structure (ID)

Definition: Specifies the abstract message structure code. Refer to HL7 Table 0354 – Message Structure in for valid values.

C.23. NDL – name with date and location

HL7 Component Table – NDL – Name with Date and Location

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	406	CNN	O		Name	R	
2	26	DTM	O		Start Date/time	RE	
3	26	DTM	O		End Date/time	RE	
4	20	IS	O	0302	Point of Care	X	
5	20	IS	O	0303	Room	X	
6	20	IS	O	0304	Bed	X	
7	227	HD	O		Facility	X	
8	20	IS	O	0306	Location Status	X	
9	20	IS	O	0305	Patient Location Type	X	
10	20	IS	O	0307	Building	X	
11	20	IS	O	0308	Floor	X	

Definition: Specifies the name of the person performing a service, when the person performed the service and where the person performed the service.

Maximum Length: 835

Note: Replaces the CM data type used in sections 4.5.3.32 and 7.4.1.32-(OBR-32), 4.5.3.33 and 7.4.1.33 – (OBR-33) 4.5.3.34 and 7.4.1.34 – (OBR-34) 4.5.3.35 and 7.4.1.35 – (OBR-35) as of version 2.5.

C.23.1. Name (CNN)

Definition: This component specifies the name of the person performing a service.

C.23.2. Start Date/Time (DTM)

Definition: This component specifies the starting date and time for when the person is performing the service.

C.23.3. End Date/time (DTM)

Definition: This component specifies the ending date and time for when the person is performing the service.

C.23.4. Point of Care (IS)

Definition: This component specifies the code for the point where patient care is administered. It is conditional on NDL 9 Person Location Type (e.g., nursing unit or department or clinic). After floor, it is the most general patient location designation. Refer to User-Defined Table 0302 – Point of Care for suggested values.

C.23.5. Room (IS)

Definition: Patient room. After point of care, it is the most general location designation. Refer to User-Defined Table 0303 – Room for suggested values.

C.23.6. Bed (IS)

Definition: This component specifies the code for the patient's bed. After room, it is the most general location designation. Refer to User-Defined Table 0304 – Bed for suggested values.

C.23.7. Facility (HD)

Definition: This component is subject to site interpretation but generally describes the highest level physical designation of an institution, medical center, or enterprise. It is the most general location designation.

C.23.8. Location Status (IS)

Definition: This component specifies the code for the status or availability of the location. For example, it may convey bed status. Refer to User-Defined Table 0306 – Location Status for suggested values.

C.23.9. Location Type (IS)

Definition: Location type is the categorization of the location defined by facility, building, floor, point of care, room, or bed. Although not a required field, when used, it may be the only populated field. Usually includes values such as nursing unit, department, clinic, SNF, physician's office. Refer to *User-Defined Table 0305 – Person Location Type* for suggested values.

C.23.10. Building (IS)

Definition: This component specifies the code for the building where the person is located. After facility, it is the most general location designation. Refer to User-Defined Table 0307 – Building for suggested values.

C.23.11. Floor (IS)

Definition: This component specifies the code for the floor where the person is located. After building, it is the most general location designation. Refer to User-Defined Table 0308 – Floor for suggested values.

C.24. NM – numeric

HL7 Component Table – NM – Numeric

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	16				Numeric		

Definition: A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.

Maximum Length: 16

Examples:

|999|
|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, “01.20” and “1.2,” are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

C.25. PL – person location

HL7 Component Table – PL– Person Location

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	20	IS	O	0302	Point of Care	RE	
2	20	IS	O	0303	Room	X	
3	20	IS	O	0304	Bed	X	
4	227	HD	O		Facility	RE	
5	20	IS	O	0306	Location Status	RE	
6	20	IS	C	0305	Person Location Type	RE	
7	20	IS	O	0307	Building	X	
8	20	IS	O	0308	Floor	X	
9	199	ST	O		Location Description	RE	
10	427	EI	O		Comprehensive Location Identifier	RE	
11	227	HD	O		Assigning Authority for Location	RE	

Definition: This data type is used to specify a patient location within a health care institution. Which components are valued depends on the needs of the site. For example for a patient treated at home, only the person location type is valued. It is most commonly used for specifying patient locations, but may refer to other types of persons within a health care setting.

Maximum Length: 1230

Note: This data type contains several location identifiers that should be thought of in the following order from the most general to the most specific: facility, building, floor, point of care, room, bed. Additional data about any location defined by these components can be added in the following components: person location type, location description, and location status.

Example: Nursing Unit

A nursing unit at Community Hospital: 4 East, room 136, bed B

4E^136^B^CommunityHospital^^N^^^

Example: Clinic

A clinic at University Hospitals: Internal Medicine Clinic located in the Briones building, 3rd floor.

InternalMedicine^^^UniversityHospitals^^C^Briones^3^

Example: Home

The patient was treated at his home.

^^^^H^^^

C.25.1. Point of Care (IS)

Definition: This component specifies the code for the point where patient care is administered. It is conditional on PL.6 Person Location Type (e.g., nursing unit or department or clinic). After floor, it is the most general patient location designation. Refer to User-Defined Table 0302 – Point of Care for suggested values.

C.25.2. Room (IS)

Definition: This component specifies the code for the patient's room. After point of care, it is the most general person location designation. Refer to User-Defined Table 0303 – Room for suggested values.

C.25.3. Bed (IS)

Definition: This component specifies the code for the patient's bed. After room, it is the most general person location designation. Refer to User-Defined Table 0304 – Bed for suggested values.

C.25.4. Facility (HD)

Definition: This component is subject to site interpretation but generally describes the highest level physical designation of an institution, medical center or enterprise. It is the most general person location designation.

(See Section C.19, HD – Hierarchic Designator for discussion of data type.)

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be redefined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.25.5. Location Status (IS)

Definition: This component specifies the code for the status or availability of the location. For example, it may convey bed status. Refer to User-Defined Table 0306 – Location Status for suggested values.

C.25.6. Person Location Type (IS)

Definition: Person location type is the categorization of the person's location defined by facility, building, floor, point of care, room or bed. Although not a required field, when used, it may be the only populated field. It usually includes values such as nursing unit, department, clinic, SNF, physician's office. Refer to *User-Defined Table 0305 – Person Location Type* for suggested values.

C.25.7. Building (IS)

Definition: This component specifies the code for the building where the person is located. After facility, it is the most general person location designation. Refer to User-Defined Table 0307 – Building for suggested values.

C.25.8. Floor (IS)

Definition: This component specifies the code for the floor where the person is located. After building, it is the most general person location designation. Refer to User-Defined Table 0308 – Floor for suggested values.

C.25.9. Location Description (ST)

Definition: This component describes the location in free text.

C.25.10. Comprehensive Location Identifier (EI)

Definition: The unique identifier that represents the physical location as a whole, without regard for the individual components. This accommodates sites that may have a different method of defining physical units or who may code at a less granular level. For example, point of care, room, and bed may be one indivisible code.

C.25.11. Assigning Authority for Location (HD)

Definition: The entity that creates the data for the individual physical location components. If populated, it should be the authority for all components populated. Refer to User-Defined Table 0363 – Assigning Authority for suggested values for the first sub-component of the HD component, <namespace ID>.

This component makes it possible for codes to be differentiated when the field in which this data type is used repeats.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementors may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.26. PRL – Parent Result Link

HL7 Component Table – PRL – Parent Result Link

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	483	CE	R		Parent Observation Identifier	R	Defined in the OBX-3 of the parent result.
2	20	ST	O		Parent Observation Sub-identifier	RE	Defined in the OBX-4 of the parent result.
3	250	TX	O		Parent Observation Value Descriptor	RE	Taken from the OBX-5 of the parent result.

Definition: Uniquely identifies the parent result’s OBX segment related to the current order, together with the information in OBR-29-parent.

Usage Note: This data type is applied only to OBR-26 – Parent Result where it serves to make information available for other types of linkages (e.g., toxicology). This important information, together with the information in OBR-29-parent, uniquely identifies the parent result’s OBX segment related to this order. The value of this OBX segment in the parent result is the organism or chemical species about which this battery reports. For example, if the current battery is an antimicrobial susceptibility, the parent results identified OBX contains a result that identifies the organism on which the susceptibility was run. This indirect linkage is preferred because the name of the organism in the parent result may undergo several preliminary values prior to finalization.

We emphasize that this field does not take the entire result field from the parent. It is meant only for the text name of the organism or chemical subspecies identified. This field is included only to provide a method for linking back to the parent result for those systems that could not generate unambiguous Observation IDs and sub-IDs.

This field is present only when the parent result is identified by OBR-29-parent and the parent spawns child orders for each of many results. See Chapter 7 for more details about this linkage.

Maximum Length: 755

Note: Replaces the CM data type used in sections 4.5.3.26 – OBR-26 and 7.4.1.26 – OBR-26 as of version 2.5.

C.26.1. Parent Observation Identifier (CE)

Definition: Contains the unique identifier of the parent observation as defined in the OBX-3 of the parent result. The value is the same as the OBX-3 of the parent.

C.26.2. Parent Observation Sub-identifier (ST)

Definition: Contains the sub-ID of the parent result as defined in the OBX-4 of the parent result. The value is the same as the OBX-4 of the parent.

C.26.3. Parent Observation Value Descriptor (TX)

Definition: Contains a descriptor of the parent observation value as specified in the OBX-5 of the parent result.

As an example, the third component may be used to record the name of the microorganism identified by the parent result directly. The organism in this case should be identified exactly as it is in the parent culture.

C.27. PT – processing type

HL7 Component Table – PT – Processing Type

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	1	ID	O	0103	Processing ID	R	
2	1	ID	O	0207	Processing Mode	RE	

Definition: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

Maximum Length: 3

C.27.1. Processing ID (ID)

A value that defines whether the message is part of a production, training, or debugging system. Refer to *HL7- Defined Table 0103 – Processing ID* for valid values.

C.27.2. Processing Mode (ID)

A value that defines whether the message is part of an archival process or an initial load. Refer to *HL7-Defined Table 0207 – Processing Mode* for valid values.

C.28. SAD – street address

HL7 Component Table – SAD – Street Address

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	120	ST	O		Street or Mailing Address	R	
2	50	ST	O		Street Name	RE	
3	12	ST	O		Dwelling Number	RE	

Definition: This data type specifies an entity's street address and associated detail.

Maximum Length: 184

Note: Appears ONLY in the XAD data type

C.28.1. Street or Mailing Address (ST)

Definition: This component specifies the street or mailing address of a person or institution. When referencing an institution, this first component is used to specify the institution name. When used in connection with a person, this component specifies the first line of the address.

C.28.2. Street Name (ST)

C.28.3. Dwelling Number (ST)

C.29. SI – sequence ID

HL7 Component Table – SI – Sequence ID

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
-----	-----	----	-----	-------	----------------	--------------	-----------------

4				Sequence ID
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Definition: A non-negative integer in the form of a NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it appears.

Maximum Length: 4. This allows a number between 0 and 9999 to be specified.

C.30. SN – structured numeric

HL7 Component Table – SN – Structured Numeric

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	2	ST	O		Comparator	RE	
2	15	NM	O		Num1	R	
3	1	ST	O		Separator/Suffix	RE	
4	15	NM	O		Num2	RE	

Definition: The structured numeric data type is used to unambiguously express numeric clinical results along with qualifications. This enables receiving systems to store the numeric database queries. The corresponding sets of values indicated with the <comparator> and <separator/suffix> components are intended to be the authoritative and complete set of values. If additional values are needed for the <comparator> and <separator/suffix> components, they should be submitted to HL7 for inclusion in the Standard.

If <num1> and <num2> are both non-null, then the separator/suffix must be non-null. If the separator is “-”, the data range is inclusive; e.g., <num1> – <num2> defines a range of numbers x, such that: <num1> <=x<= <num2>.

Maximum Length: 36

C.30.1. Comparator (ST)

Defined as greater than, less than, greater than or equal, less than or equal, equal, and not equal, respectively (= “>” or “<” or “>=” or “<=” or “=” or “<>”).

If this component is not valued, it defaults to equal (“=”).

C.30.2. Num1 (NM)

A number.

C.30.3. Separator/Suffix (ST)

“-” or “+” or “/” or “.” or “:”

Examples:

|>^100| (greater than 100)

|^100^^200| (equal to range of 100 through 200)

[^1^:^228] (ratio of 1 to 128, e.g., the results of a serological test)

[^2^+] (categorical response, e.g., occult blood positivity)

C.30.4. Num2 (NM)

A number or null depending on the measurement.

C.31. SPS – specimen source

HL7 Component Table – SPS – Specimen Source

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	705	CWE	O		Specimen Source Name or Code	RE	
2	705	CWE	O	0371	Additives	X	
3	200	TX	O		Specimen Collection Method	RE	
4	705	CWE	O	0163	Body Site	X	
5	705	CWE	O	0495	Site Modifier	X	
6	705	CWE	O		Collection Method Modifier Code	X	
7	705	CWE	O	0369	Specimen Role	X	

Definition: This data type identifies the site where the specimen should be obtained or where the service should be performed.

Maximum Length: 4436 OBR

Note: Replaces the CM data type used in 4.5.3.15 OBR-15, 7.4.1.15 OBR-15, 13.4.3.6 SAC-6 and 13.4.9.3 TCC-3 as of version 2.5. This data type is retained for backward compatibility only as on version 2.5. Specimen Source Name or Code (CWE)

C.31.1. Specimen Source Name or Code (CWE)

Definition: contains the specimen source name or code (as a CWE data type component). (Even in the case of observations whose name implies the source, a source may be required, e.g., blood culture-heart blood.)

A nationally recognized coding system is to be used for this field. Valid coding sources for this field include:

- *HL7-Defined Table 0487 – Specimen Type* (replaces HL7 table 0070 – Specimen source codes). Note that the listed table 0487 in this document includes only the values recommended for cancer reporting.
- SNOMED

C.31.2. Additives (CWE)

Definition: identifies an additive introduced to the specimen before or at the time of collection. Refer to HL7 Table 0371 – Additive in Chapter 7 for valid values. The table's values are taken from NCCLS AUTO4. The value set can be extended with user specific values.

C.31.3. Specimen Collection Method (TX)

Definition: describes the method of collection when that information is a part of the order. When the method of collection is logically an observation result, it should be included as a result segment (i.e., OBX segment).

C.31.4. Body Site (CWE)

Definition: This component specifies the body site from which the specimen was obtained. Refer to HL7 Table 0163 – Body Site for allowed values.

C.31.5. Site Modifier (CWE)

Definition: modifies body site. For example, the site could be antecubital fossa, and the site modifier “right.” Refer to HL7 Table 0495 – Body Site Modifier for allowed values.

C.31.6. Collection Method Modifier Code (CWE)

Definition: Indicates whether the specimen is frozen as part of the collection method. Suggested values are F (Frozen); R (Refrigerated). If the component is blank, the specimen is assumed to be at room temperature.

C.31.7 Specimen Role (CWE)

Definition: Indicates the role of the sample. Refer to User-Defined Table 0369 – Specimen Role for suggested values. Each of these values is normally identifiable by the systems and its components and can influence processing and data management related to the specimen

C.32. ST – string data

HL7 Component Table – ST – String Data

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	199				String Data		

Maximum Length: 199

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined escape characters and defined delimiter characters.

Example:

|almost any data at all|

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: The ST data type is intended for short strings (e.g., less than 200 characters). For longer strings, the TX or FT data types should be used.

Alternate character set note: ST – string data also may be used to express other character sets.

C.33. TM – time

HL7 Component Table – TM –Time

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
	16				Time		

Definition: Specifies the hour of the day with optional minutes, seconds, fraction of second, using a 24-hour clock notation and time zone.

Maximum Length: 16

As of version 2.3, the number of characters populated (excluding the time zone specification) specifies the precision.

Format: HH[MM[SS[.S[S[S[S]]]]]][+/-ZZZZ]

Thus:

the first two are used to specify a precision of

“hour” the first four are used to specify a

precision of “minute” the first six are used to

specify a precision of “second”

the first eight are used to specify a precision of “one tenth of a second”

the first eleven are used to specify a precision of “one ten thousandth of a second”

Example:

|0630| specifies 6:30 AM

The fractional seconds could be sent by a transmitter who requires greater precision than whole seconds. Fractional representations of minutes, hours, or other higher order units of time are not permitted.

Note: The time zone [+/-ZZZZ], when used, is restricted to legally defined time zones and is represented in HHMM format.

The time zone of the sender may be sent optionally as an offset from the coordinated universal time (previously known as Greenwich Mean Time). Where the time zone is not present in a particular TM field but is included as part of the date/time field in the MSH segment, the MSH value will be used as the default time zone. Otherwise, the time is understood to refer to the local time of the sender.

Examples:

Time	Description
0000	midnight
235959+1100	1 second before midnight in a time zone 11 hours ahead of Universal Coordinated Time (i.e., East of Greenwich).
0800	8:00 a.m., local time of the sender.
093544.2312	44.2312 seconds after 9:35 a.m., local time of sender.
13	1:00 p.m. (with a precision of hours), local time of sender.

Prior to version 2.3, this data type was specified in the format HHMM[SS[.SSSS]][+/-ZZZZ]. As of version 2.3, minutes are no longer required. By site-specific agreement, HHMM[SS[.SSSS]][+/-ZZZZ] may be used where backward compatibility must be maintained.

C.34. TS – time stamp

HL7 Component Table – TS – Time Stamp

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	24	DT M	R		Time	R	
2	1	ID	B	0529	Degree of Precision	X	

Definition: Specifies a point in time.

Maximum Length: 26

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]^<degree of precision>

C.34.1. Time (DTM)

Definition: The point in time.

C.34.2. Degree of Precision (ID)

Retained only for purposes of backward compatibility as of version 2.3. Refer to component 1 for the current method of designating degree of precision.

Definition: Indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). Refer to HL7 Table 0529 – Precision for valid value.

Note that the Degree of Precision is either the same as or overrides the precision indicated by the first component. It may not indicate greater precision. In the following example, the second component overrides the first and indicates a lesser precision, April 1999.

|199904011200^L|

Refer to HL7 table 0529 – Precision for valid values.

C.35. TX – text data

HL7 Component Table – TX – Text Data

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
					Text Data		

Definition: String data meant for user display (on a terminal or printer). Such data would not necessarily be left justified because leading spaces may contribute greatly to the clarity of the presentation to the user. Because this type of data is intended for display, it may contain certain escape character sequences designed to control the display. Leading spaces should be included. Trailing spaces should be removed.

Example:

| leading spaces are allowed. |

Because TX data is intended for display purposes, the repeat delimiter, when used with a TX data field, implies a series of repeating lines to be displayed on a printer or terminal. Therefore, the repeat delimiters are regarded as paragraph terminators or hard carriage returns (e.g., they would display as though a CR/LF were inserted in the text (DOS type system) or as though a LF were inserted into the text (UNIX style system)).

A receiving system would word-wrap the text between repeat delimiters to fit it into an arbitrarily sized display window but start any line beginning with a repeat delimiter on a new line.

Maximum Length: 65536

To include alternative character sets, use the appropriate escape sequence.

C.36. VID – version identifier

HL7 Component Table – VID – Version Identifier

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	5	ID	O	0104	Version ID	R	
2	483	CE	O	0399	Internationalization Code	RE	
3	483	CE	O		International Version ID	X	

Maximum Length: 973

C.36.1. Version ID (ID)

Used to identify the HL7 version. Refer to *HL7-Defined Table 0104 – Version ID* in section 2.15.9.12 for valid values.

C.36.2. Internationalization Code (CE)

Used to identify the international affiliate country code. The values to be used are those of ISO 3166 -1:1977. The ISO 3166 table has three separate forms of the country code: HL7 specifies that the 3-character (alphabetic) form be used for the country code.

Refer to *HL7-Defined Table 0399 – Country Code* in section 2.15.9.17 for the 3-character codes as defined by ISO 3166 table.

C.36.3. International Version ID (CE)

This field component identifies international affiliate's version; it is especially important when the international affiliate has more than a single local version associated with a single U.S. version.

C.37. XAD – extended address

HL7 Component Table – XAD – Extended Address

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	184	SAD	O		Street Address	RE	
2	120	ST	O		Other Designation	RE	
3	50	ST	O		City	RE	
4	50	ST	O		State or Province	RE	
5	12	ST	O		Zip or Postal Code	RE	
6	3	ID	O	0399	Country	RE	
7	3	ID	O	0190	Address Type	RE	
8	50	ST	O		Other Geographic Designation	X	
9	20	IS	O	0289	County/Parish Code	RE	
10	20	IS	O	0288	Census Tract	X	
11	1	ID	O	0465	Address Representation Code	X	
12	53	DR	B		Address Validity Range	X	deprecated as of v 2.5
13	26	DTM	O		Effective Date	X	
14	26	DTM	O		Expiration Date	X	

Definition: This data type specifies the address of a person, place or organization plus associated information.

Maximum Length: 631

Note: Replaces the AD data type as of version 2.3.

Example: United States

```
|1000 Hospital Lane^Ste. 123^Ann Arbor ^MI^99999^USA^B^^WA^|
```

This would be formatted for postal purposes as

```
1000 Hospital Lane  
Ste. 123  
Ann Arbor MI 99999
```

Example: Australia

```
|14th Floor^1000 Hospital Lane^Sidney^QLD^9999|
```

This would be formatted for postal purposes using the same rules as for the American example as

```
14th Floor  
1000 Hospital Lane  
Sidney QLD 9999
```

International note: Countries typically have a standard method of formatting addresses. This data type does not specify the formatting usages, only the components of a postal address.

C.37.1. Street Address (SAD)

See Section C.28, SAD – Street Address for a description of components.

C.37.2. Other Designation (ST)

Second line of address. In U.S. usage, it qualifies address. Examples: Suite 555 or Fourth Floor. When referencing an institution, this component specifies the street address.

C.37.3. City (ST)

Definition: This component specifies the city, or district or place where the addressee is located depending upon the national convention for formatting addresses for postal usage.

C.37.4. State or Province (ST)

Definition: This component specifies the state or province where the addressee is located. State or province should be represented by the official postal service codes for that country.

C.37.5. ZIP or Postal Code (ST)

Definition: This component specifies the ZIP or postal code where the addressee is located. ZIP or postal codes should be represented by the official codes for that country. In the United States, the ZIP code takes the form 99999[-9999]; the Canadian postal code takes the form A9A9A9, and the Australian Postcode takes the form 9999.

C.37.6. Country (ID)

Definition: This component specifies the country where the addressee is located. HL7 specifies that the

3-character (alphabetic) form of ISO 3166 be used for the country code. Refer to HL7 Table 0399 – Country Code in Section 2.15.9.17 for valid values.

C.37.7. Address Type (ID)

Definition: This component specifies the kind or type of address. Refer to *HL7-Defined Table 0190 – Address Type* for valid values.

C.37.8. Other Geographic Designation (ST)

Definition: This component specifies any other geographic designation. It includes county, bioregion, SMSA, etc.

C.37.9. County/Parish Code (IS)

A code that represents the county in which the specified address resides. *User-Defined Table 0289 – County/Parish* is used as the HL7 identifier for the user-defined table of values for this component. When this component is used to represent the county (or parish), component 8 <other geographic designation> should not duplicate it (i.e., the use of <other geographic designation> to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Allowable values: codes defined by government.

C.37.10. Census Tract (IS)

A code that represents the census tract in which the specified address resides. *User-Defined Table 0288 – Census Tract* is used as the HL7 identifier for the user-defined table of values for this component. Allowable Values: codes defined by government.

C.37.11. Address Representation Code (ID)

Different <name/address types> and representations of the same name/address should be described by repeating this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: Also note that this new component remains in “alphabetic” representation with each repetition of the fields using these data types (i.e., even though the address may be represented in an ideographic character set, this component will remain represented in an alphabetic character set).

Refer to HL7 table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.37.12. Address Validity Range (DR)

This component cannot be fully expressed. Identified as version 2.4 erratum. Retained for backward compatibility only as of version 2.5. Refer to Effective Date and Expiration Date components.

This component contains the start and end date/times, which define the period in which this address was valid.

C.37.13. Effective Date (DTM)

Definition: The first date, if known, on which the address is valid and active.

C.37.14. Expiration Date (DTM)

Definition: The last date, if known, on which the address is valid and active.

C.38. XCN – extended composite ID number and name for persons

HL7 Component Table – XCN – Extended Composite ID Number and Name for Persons

SEQ	LEN	DT	OP T	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	15	ST	O		ID Number	RE	
2	194	FN	O		Family Name	R	
3	30	ST	O		Given Name	RE	
4	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
5	20	ST	O		Suffix (e.g., JR or III)	RE	
6	20	ST	O		Prefix (e.g., DR)	RE	
7	5	IS	B	0360	Degree (e.g., MD)	X	deprecated as of v 2.5
8	4	IS	C	0297	Source Table	CWE	
9	227	HD	O	0363	Assigning Authority	RE	
10	1	ID	O	0200	Name Type Code	RE	
11	1	ST	O		Identifier Check Digit	X	
12	3	ID	C	0061	Check Digit Scheme	X	
13	5	ID	O	0203	Identifier Type Code	RE	
14	227	HD	O		Assigning Facility	RE	
15	1	ID	O	0465	Name Representation Code	X	
16	483	CE	O	0448	Name Context	X	
17	53	DR	B		Name Validity Range	X	
18	1	ID	O	0444	Name Assembly Order	X	
19	26	DTM	O		Effective Date	X	
20	26	DTM	O		Expiration Date	X	
21	199	ST	O		Professional Suffix	X	
22	705	CWE	O		Assigning Jurisdiction	X	
23	705	CWE	O		Assigning Agency or Department	X	

Maximum Length: 3002

Note: Replaces CN data type as of version 2.3.

This data type is used extensively appearing in the PV1, ORC, RXO, RXE, OBR and SCH segments, as well as others, where there is a need to specify the ID number and name of a person.

Example: Without assigning authority and assigning facility

|1234567^Everyman^Adam^A^III^DR^PHD^ADT01^^L^4^M11^MR|

Examples: With assigning authority and assigning facility

Dr. Harold Hippocrates' provider ID was assigned by the Provider Master and was first issued at Good Health Hospital within the Community Health and Hospitals System. Because IS table values (first component of the HD) were not used for assigning authority and assigning facility, components 2 and 3 of the HD data type are populated and demoted to sub-components as follows:

12188^Hippocrates^Harold^H^IV^Dr^MD^^Provider Master.Community Health and Hospitals&L^L^9^M10^DN^&Good Health Hospital.Community Health and Hospitals&L^A

Ludwig van Beethoven's medical record number was assigned by the Master Patient Index and was first issued at Fairview Hospital within the University Hospitals System.

10535^van Beethoven&van^Ludwig^A^III^Dr^PHD^^MPI.Community Health and Hospitals&L^L^3^M10^MR^& Good Health Hospital.Community Health and Hospitals&L^A

C.38.1. ID Number (ST)

This string refers to the coded ID according to a user-defined table, defined by component 9. If the first component is present, either the source table or the assigning authority must be valued.

C.38.2. Family Name (FN)

This component allows full specification of the surname of a person. Where appropriate, it differentiates the person's own surname from that of the person's partner or spouse, in cases where the person's name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as "van" or "de") from the surname root. See section [C.17 . FN](#) – family name.

C.38.3. Given Name (ST)

First name.

C.38.4. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.38.5. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.38.6. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.38.7. Degree (IS)

Retained for backward compatibility only as of version 2.5. See Professional Suffix component.

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.38.8. Source Table (IS)

User-Defined Table 0297 – CN ID source is used as the HL7 identifier for the user-defined table of values for this component. Used to delineate the first component. Populate if Assigning Authority or Assigning Facility is not populated and ID Number is populated.

C.38.9. Assigning Authority (HD)

The assigning authority is a unique identifier of the system (or organization or agency of department) that creates the data. User-Defined Table 0363 – Assigning Authority is used as the HL7 identifier

for the user- defined table of values for the first sub-component of the HD component, <namespace ID>.

For Cancer Registry reporting, the State or Provincial license number for a Physician should be transmitted. When this is transmitted, the Namespace ID used in HD here, or also in CNN and related data types, should be populated with a string following the pattern “xy_PHYSICIANLICENSE” where “xy” is the state (two letters) or province code (up to four letters). Note this is used also in User-Defined Table – 0363 Namespace ID.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use User-Defined Table 0300 – Namespace ID for the first sub-component.

C.38.10. Name Type Code (ID)

A code that represents the type of name. Refer to *HL7-Defined Table 0200 – Name Type* for valid values.

C.38.11. Identifier Check Digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self- generated check digit in the identifying number, this component should be valued null.

C.38.12. Check Digit Scheme (ID)

Definition: Contains the code identifying the check digit scheme employed. Refer to *HL7-Defined Table 0061 – Check Digit Scheme* for valid values.

C.38.13. Identifier Type Code (IS)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the

<assigning authority> component. Refer to *User-Defined Table 0203 – Identifier Type* for suggested values.

C.38.14. Assigning Facility (HD)

The place or location identifier where the identifier was first assigned to the person. This component is not an inherent part of the identifier, but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.38.15. Name Representation Code (ID)

Different <name/address types> and representations of the same <name/address> should be described by repeating this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types (i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set).

Refer to HL7 Table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.38.16. Name Context (CE)

This component is used to designate the context in which a name is used. The main use case is in Australian health care for indigenous patients who prefer to use different names when attending different health care institutions. Another use case occurs in the United States where health practitioners can be licensed under slightly different names and the reporting of the correct name is vital for administrative purposes. Refer to User- Defined Table 0448 – Name Context for suggested values.

C.38.17. Name Validity Range (DR)

Retained for backward compatibility only as of version 2.5. Refer to XCN.19 Effective Date and XCN.20 Expiration Date instead. This component cannot be fully expressed and has been identified as version 2.4 erratum.

This component contains the start and end date/times that define the period during which this name was valid. See Section 2.A.20 of the HL7 Standard for description of subcomponents of DR.

C.38.18. Name Assembly Order (ID)

A code that represents the preferred display order of the components of this person's name. Refer to HL7 Table 0444 – Name Assembly Order for valid values.

C.38.19. Effective Date (DTM)

Definition: The first date, if known, on which the address is valid and active.

C.38.20. Expiration Date (DTM)

Definition: The last date, if known, on which the address is valid and active.

C.38.21. Professional Suffix (ST)

Definition: Used to specify an abbreviation, or a string of abbreviations denoting qualifications that support the person's profession, (e.g., licenses, certificates, degrees, affiliations with professional

societies, etc.). The Professional Suffix normally follows the Family Name when the Person Name is used for display purposes.

Please note that this component is an unformatted string and is used for display purposes only. Detailed information regarding the contents of Professional Suffix is obtained using appropriate segments in Chapter 15, Personnel Management.

C.38.22. Assigning Jurisdiction (CWE)

Definition: The geopolitical body that assigned the identifier in component 1.

C.38.23. Assigning Agency or Department (CWE)

Definition: The agency or department that assigned the identifier in component 1.

C.39. XON – extended composite name and identification number for organizations

Component Table – XON – Extended Composite Name and Identification Number for Organizations

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	50	ST	O		Organization Name	R	
2	20	IS	O	0204	Organization Name Type Code	RE	
3	4	NM	B		ID Number	X	Use the Organization Identifier component instead
4	1	NM	O		Check Digit	X	
5	3	ID	O	0061	Check Digit Scheme	X	
6	227	HD	O	0363	Assigning Authority	RE	
7	5	ID	O	0203	Identifier Type Code	RE	
8	227	HD	O		Assigning Facility	RE	
9	1	ID	O	0465	Name Representation Code	X	
10	20	ST	O		Organization Identifier	R	

Maximum Length: 567

This data type is used in fields (e.g., PV2-23, NK1-13, and OBR-44) to specify the name and ID number of an organization.

Example 1:

The ID for Good Health Hospital was assigned by the Community Health and Hospitals enterprise’s Hospital Master and was first issued at the Central Offices.

Good Health Hospital^L^716^9^M10^&Hospital Master.Community Health and Hospitals&L^XX^&Central Offices.Community Health and Hospitals&L^A

Example 2:

Good Health Hospital has another ID that was issued by CMS. Assigning Authority, CMS, values only the first HD component, an IS data type and assigning facility is not relevant. This information might be transmitted accordingly:

Good Health Hospital^L^4544^3^M10^CMS^XX^^A

C.39.1. XON-1 Organization Name (ST-50, Required)

Definition: The name of the specified organization.

C.39.2. XON-2 Organization Name Type Code (IS-20, Required or empty)

Definition: A code that represents the type of name, i.e., legal name, display name. Refer to *User-Defined Table 0204 – Organizational Name Type* for suggested values.

C.39.3. XON-3 ID Number (NM-4, Not supported)

This component has been retained for backward compatibility only as of version 2.5. It is recommended to use component 10 Organization identifier that accommodates alphanumeric identifiers.

C.39.4. XON-4 Check Digit (NM-1, Not supported)

Definition: The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.5. XON-5 Check Digit Scheme (ID-3, Not supported)

Definition: Contains the code identifying the check digit scheme employed.

The check digit scheme codes are defined in *HL7-Defined Table 0061 – Check Digit Scheme*. This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.6. XON-6 Assigning Authority (HD, Required or empty)

Definition: The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the data. Assigning authorities are unique across a given HL7 implementation. Refer to *User-Defined Table 0363 – Assigning Authority* for suggested values.

Note: When the HD data type is used in a given segment as a component of a field of another data type, *User-Defined Table 0300 – Namespace ID* (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

By site agreement, implementers may continue to use *User-Defined Table 0300 – Namespace ID* for the first sub-component.

C.39.7. XON-7 Identifier Type Code (ID-5, Required or empty)

Definition: A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the "Assigning authority" component. Refer to *User-Defined Table 0203 – Identifier Type* for suggested values.

C.39.8. XON-8 Assigning Facility ID (HD, Required or empty)

Definition: The place or location identifier where the identifier was first assigned to the person. This component is not an inherent part of the identifier but rather part of the history of the identifier: As part of this data type, its existence is a convenience for certain intercommunicating systems.

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-Defined Table 0300 – Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

C.39.9. XON-9 Name Representation Code (ID-1, Not supported)

Definition: Different <name/address types> and representations of the same <name/address> should be described by repeating of this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types, i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set.

Refer to HL7 Table 0465 – Name/Address Representation Code for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

This component is Not Supported in NAACCR Cancer Registry messaging.

C.39.10. XON-10 Organization Identifier (ST-20, Required)

Definition: This component contains the sequence of characters (the code) that uniquely identifies the item being referenced by XON.1 Organization Name. This component replaces XON.3 ID Number as of version 2.5.

Note: The check digit and code identifying check digit scheme are null if Organization identifier is alphanumeric.

For Cancer Registry reporting, national identifiers or provincial identifiers shall be used for this field. In the United States, this shall be the CLIA identifier if the organization is a laboratory; or the NPI number if it is a hospital or physician office. In Canada, the local jurisdictional authority may mandate the use of certain identifiers for pathology laboratories; please contact the local authority for guidance.

C.40. XPN – extended person name

HL7 Component Table – XPN– Extended Person Name

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	194	FN	O		Family Name	R	
2	30	ST	O		Given Name	RE	

3	30	ST	O		Second and Further Given Names or Initials Thereof	RE	
4	20	ST	O		Suffix (e.g., JR or III)	RE	
5	20	ST	O		Prefix (e.g., DR)	RE	
6	6	IS	B	0360	Degree (e.g., MD)	X	
7	1	ID	O	0200	Name Type Code	RE	
8	1	ID	O	0465	Name Representation Code	X	
9	483	CE	O	0448	Name Context	X	
10	53	DR	B		Name Validity Range	X	
11	1	ID	O	0444	Name Assembly Order	X	
12	26	DTM	O		Effective Date	X	
13	26	DTM	O		Expiration Date	X	
14	199	ST	O		Professional Suffix	X	

Maximum Length: 1103

Note:

Replaces PN data type as of version 2.3.

Internationalization note: In countries using ideographic or syllabic (phonetic) character sets, it is sometimes necessary to send the name in one or both of these formats, as well as an alphabetic format. The switching between the different character sets can be accomplished using a character set such as JIS X 0202 – ISO 2022, which provides an escape sequence for switching among different character sets and among single-byte and multi-byte character representations. When the name field is repeated, the different repetitions of the name may be represented by these different character sets. The details are as follows.

HL7 supports the following standards for Japanese characters:

- JIS X 0201 for ISO-IR 13 (Japanese Katakana)
- JIS X 0201 for ISO-IR 14 (Japanese Romaji)
- JIS X 0208 for ISO-IR 87 (Japanese Kanji, Hiragana and Katakana)
- JIS X 0212 for ISO-IR 159

(supplementary Japanese Kanji) HL7 supports the following standards for European characters:

- ISO 8859 (1-9) for ISO-IR 100, 101, 109, 110, 144, 127, 126, 138 and 148.

Character sets are referenced in HL7 as ASCII, 8859/1, 8859/2, ISO IR14, ISO IR87, and ISO IR159. DICOM uses codes laid out in ISO 2375, of the form “ISO-IR xxx.” HL7 supports this naming as well, to facilitate interoperability.

HL7 uses the Basic G0 Set of the International Reference Version of ISO 646:1990 (ISO IR-6) as the default character repertoire for character strings. This is a single-byte character set, identical to ASCII.

Each repetition of an XPN, XON, XCN, or XAD field is assumed to begin with the default character set. If another character set is to be used, the HL7 defined escape sequence used to announce that character set must be at the beginning of the repetition, and the HL7 defined escape sequence used to start the default character set must be at the end of the repetition. Note also that several character sets may be intermixed within a single repetition as long as the repetition ends with a return to the default character set.

An application must specify which character sets it supports in the field “MSH-18 Character Sets” and which character set handling scheme it supports in the field MSH-20-Alternate character set handling scheme. It is assumed that the sending and receiving applications are aware of how to map character set names (i.e., ISO-IR xxx) to escape sequences.

For example, in many Japanese messages there is a mix of Romaji (i.e., Roman characters), Katakana (phonetic representation of foreign words), Hiragana (phonetic representation of Japanese words), and Kanji (pictographs). Such a message would require that four character sets be specified in the MSH.

References for Internationalization of Name

	Reference	Description
1.	“Understanding Japanese Information Processing” by Ken Lunde, O’Reilly Press	
2.	NEMA PS3.5 – DICOM Part 5: Data Structure and Semantics	
3.	ANSI X3.4:1986	ASCII character set
4.	ISO 646:1990	Information Processing – ISO 7-bit coded character set for information interchange
5.	ISO/IEC 2022:1994	Information Technology – Character code structure and extension techniques
6.	ISO 2375:1986	Data Processing – Procedure for the registration of escape sequences
7.	ISO 6429:1990	Information Processing – Control functions for 7-bit and 8-bit coded character sets
8.	ISO 8859 (1-9)	Information Processing – 8-bit single-byte coded graphic character sets – parts 1-9
9.	ENV 41 503:1990	Information systems interconnection – European graphic character repertoires and their coding
10.	ENV 41 508:1990	Information systems interconnection – East European graphic character repertoires and their coding
11.	JIS X 0201-1976	Code for Information Exchange
12.	JIS X 0212-1990	Code of the supplementary Japanese Graphic Character set for information interchange
13.	JIS X 0208-1990	Code for the Japanese Graphic Character set for information interchange
14.	RFC 1468	Japanese Character Encoding for Internet Messages

Character Repertoires supported by DICOM are defined in Part 5, section 6.1. The DICOM Standard is available free on the Internet at <http://medical.nema.org/>.

Examples of names requiring only one iteration of the field where the XPN is

applied: Example 1: Adam A. Everyman III PhD

```
|Everyman^Adam^A^III^DR^L^^^^^^PHD|
```

Example 2: Ludwig van Beethoven

```
|Beethoven&van^Ludwig^^^^L|
```

Example 3: Hermann Egon Mayer zur alten Schildesche

```
|Mayer^Hermann^Egon^zur alten Schildesche|
```

Example 4: Sister Margot

```
|^Margot^^^Sister^^C|
```

Example 5: Dr Harold Henry Hippocrates, AO, MBBS, ASCTS. A physician who holds an Honorary, an academic degree and a board certificate. Professional suffixes are displayed as concatenated. (AO = Order of Australia (Honorary), MBBS = Bachelor of Medicine and Bachelor of Surgery, ASCTS = Australian Society of Cardiothoracic Surgeons)

```
|Hippocrates^Harold^Henry^Dr^L^^^^^^ AO.MBBS.ASCTS|
```

Example 6: Nancy N. Nightingale, RN, PHN, BSN, MSN. A registered nurse who is a Public Health Nurse with 2 academic degrees, BSN and MSN.

|Nightingale^Nancy^N^^^^^^^^^RN, PHN, BSN, MSN|

Example 7: H. Horrace Helper Jr., RN, CNP. A registered nurse who is a certified nurse practitioner.

|Helper^H^Horrace^Jr^^^^^^^^^ RN, CNP|

Example 8: Mevrouw Irma Jongeneel de Haas. An individual whose birth name (geboortenaam) is de Haas and whose partner's name is Jongeneel.

| Jongeneel-de Haas&de&Haas&&Jongeneel^Irma^^Mevrouw^^L |

Examples of names requiring more than one iteration of the field where the XPN is

applied: Example 9: Herr Prof. Dr. med. Joachim W. Dudeck

|Dudeck^Joachim^W.^.^Dr.med.^.^L^^^^^^ MD ~Dudeck^J.W.^.^Herr Prof.Dr.^.^D|

Example 10: Herr Dr. Otto Graf Lambsdorff mdB a.D. According to German law “Adelstitel” like “Graf” or “Baron” belongs to the family name and therefore must be encoded in the family name field separated by blanks.

|Graf Lambsdorff&Graf&Lambsdorff^Otto^^Dr.^.^L~Graf
Lambsdorff&Graf&Lambsdorff^Otto^^mdB a.D.^Herr Dr.^.^D|

Example 11: Walter Kemper genannt (named) Mölleken

|Kemper^Walter^^^^L~Mölleken^Walter^^^^A|

Example 12: Herr Dr. med. Dr. h.c. Egon Maier

|Maier^Egon^^Dr.med. Dr.h.c.^.^L^^^^^^MD~Maier^Egon^^Herr Dr.med. Dr.h.c.^.^D|

Example 13: Herr Dipl.Ing. Egon Maier

|Maier^Egon^^^^L^^^^^^ DIPL~Maier^Egon^^Herr Dipl.Ing.^.^D|

Example 14: Frau Gerda Müller geb. Maier, verheiratet seit 16.2.2000

|Müller^Gerda^^Frau^^L^^^^^^20000216~Maier^Gerda^^Frau^^M|

Example 15: President Adam A Everyman III, president from 1997 until 2001, aka Sonny Everyman

|Everyman^Adam^A.^III^President^^L~^^Mr.
President^^D^^^^19970816^20010320~Everyman^Sonny^^^^A|

Example 16: Michio Kimura. This example doesn't use title and degrees, but shows the repetition of this name for different purposes.

|Kimura^Michio^^^^L^I~Kimura^Michio^^^^L^P~ Kimura^Michio^^^^L^A|

C.40.1. Family Name (FN)

This component allows full specification of the surname of a person. Where appropriate, it differentiates the person's own surname from that of the person's partner or spouse, in cases where the person's name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as “van” or “de”) from the surname root.

C.40.2. Given Name (ST)

First name.

C.40.3. Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

C.40.4. Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

C.40.5. Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

C.40.6. Degree (IS)

Retained for backward compatibility only as of version 2.5. See Professional Suffix component.

Used to specify an educational degree (e.g., MD). Refer to User-Defined Table 0360 – Degree for suggested values.

C.40.7. Name Type Code (ID)

A code that represents the type of name. Refer to *HL7-Defined Table 0200 – Name Type* for valid values.

Note: The content of Legal Name is country specific. In the United States, the legal name is the same as the current married name.

C.40.8. Name Representation Code (ID)

Different <name/address types> and representations of the same <name/address> should be described by repeating of this field, with different values of the <name/address type> and/or <name/address representation> component.

Note: This new component remains in “alphabetic” representation with each repetition of the field using these data types, i.e., even though the name may be represented in an ideographic character set, this component will remain represented in an alphabetic character set.

Refer to HL7 Table 0465 – Name/Address Representation for valid values.

In general, this component provides an indication of the representation provided by the data item. It does not necessarily specify the character sets used. Thus, even though the representation might provide an indication of what to expect, the sender is still free to encode the contents using whatever character set is desired. This component provides only hints for the receiver, so it can make choices regarding what it has been sent and what it is capable of displaying.

C.40.9. Name Context (CE)

This component is used to designate the context in which a name is used. The main use case is in Australian health care for indigenous patients who prefer to use different names when attending different health care institutions. Another use case occurs in the United States where health practitioners can be licensed under slightly different names and the reporting of the correct name is vital for administrative purposes. Refer to User-Defined Table 0448 – Name Context for suggested values.

C.40.10. Name Validity Range (DR)

This component cannot be fully expressed. Identified as version 2.4 erratum. Retained for backward compatibility only as of version 2.5. Refer to Effective Date and Expiration Date components.

This component contains the start and end date/times, which define the period during which this name was valid. See *Section C.9 DR – Date Range* for description of subcomponents.

C.40.11. Name Assembly Order (ID)

A code that represents the preferred display order of the components of this person's name. Refer to HL7 0444

– Name Assembly Order for valid values.

C.40.12. Effective date (DTM)

Definition: The first date, if known, on which the person's name is valid and active.

C.40.13. Expiration date (DTM)

Definition: The last date, if known, on which the person's name is valid and active.

C.40.14. Professional Suffix (ST)

Definition: Used to specify an abbreviation, or a string of abbreviations denoting qualifications that support the person's profession, (e.g., licenses, certificates, degrees, affiliations with professional societies, etc.). The Professional Suffix normally follows the Family Name when the Person Name is used for display purposes.

Please note that this component is an unformatted string and is used for display purposes only. Detailed information regarding the contents of Professional Suffix is obtained using appropriate segments in the HL7 Standard Version 2.5.1, Chapter 15, Personnel Management.

C41. XTN – Extended Telecommunication Number

HL7 Component Table – XTN – Extended Telecommunication Number

SEQ	LEN	DT	OPT	TBL #	COMPONENT NAME	NAACCR USAGE	NAACCR COMMENTS
1	199	ST	B		Telephone Number	CWE	deprecated as of 2.3
2	3	ID	O	0201	Telecommunication Use Code	RE	
3	8	ID	O	0202	Telecommunication Equipment Type	RE	
4	199	ST	O		Email Address	RE	
5	3	NM	O		Country Code	RE	
6	5	NM	O		Area/City Code	RE	
7	9	NM	O		Local Number	RE	
8	5	NM	O		Extension	RE	
9	199	ST	O		Any Text	RE	
10	4	ST	O		Extension Prefix	RE	
11	6	ST	O		Speed Dial Code	RE	
12	199	ST	C		Unformatted Telephone number	RE	

Maximum Length: 850

Note: Components 5 through 9 reiterate the basic function of the first component in a delimited form that allows the expression of both local and international telephone numbers. As of 2.3, the recommended form for the telephone number is to use the delimited form rather than the unstructured form supported by the first component (which is left in for backward compatibility only).

Note: Replaces TN data type as of version 2.3

Example: A fax number

^ORN^FX^^734^6777777

C.41.1. Telephone Number (ST)

This component has been retained for backward compatibility only as of version 2.3.

Definition: Specifies the telephone number in a predetermined format that includes an optional extension, beeper number and comment.

Format: [NNN] [(999)]999-9999 [X99999] [B99999] [C any text]

Note: Because this component has been deprecated a new data type has not been defined to replace the formatted ST.

Note for reporting to Cancer Registries: This component should not be used unless it is not in any way possible to populate components 6-8 for the phone number.

C.41.1. Telecommunication Use Code (ID)

A code that represents a specific use of a telecommunication number. Refer to *HL7-Defined Table 0201 – Telecommunication Use Code* for valid values.

C.41.2. Telecommunication Equipment Type (ID)

A code that represents the type of telecommunication equipment. Refer to *HL7-Defined Table 0202 – Telecommunication Equipment Type* for valid values.

C.41.3. Email Address (ST)

Internationalization note: To make this data type interoperate with CEN's Telecommunication data attribute group, NAACCR allows use of the second component for email addresses. The presence of an email address is specified by the addition of the value *NET* to the Phone Use Code table, and the type of Internet address is specified with the values *Internet* and *X.400* to the Phone Equipment Type table. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used when encoding an Internet address.

C.41.4. Country Code (NM)

C.41.5. Area/City Code (NM)

C.41.6. Phone Number (NM)

C.41.7. Extension (NM)

C.41.8. Any Text (ST)

Definition: Contains comments with respect to the telephone number.

Example: |~~~~~|Do not use after 5PM|

C.41.9. Extension Prefix (ST)

The characters established within a company's internal telephone system network used as a prefix to the Extension component for internal dialing. Note that the use of Extension Prefix requires that the Extension component be valued and that digits, as well as special characters (e.g., *, #) may be used.

C.41.10. Speed Dial Code (ST)

The characters established within a company's internal telephone system used in place of the (external) telephone number to facilitate calling because its length is shorter than that of the telephone number. Note that digits, as well as special characters (e.g., *, #), may be used.

C.41.11. Unformatted Telephone Number (ST)

Definition: An expression of the telephone number as an unparseable string.

The phone number was entered as free text and sending system does not know how to parse it.

Example: |~~~~~1-800-Dentist|