CitiusTech

Introduction to HL7 Data type

June 2013

Agenda

- **Introduction**
- HL7 Tables
- Data Type Groups
- Text and Numeric Data Type
- Money Data Type
- Date and Time Data Type
- Controlled Vocabulary Data Type
- Reference Data Type

Introduction

The data type gives the following attributes:

– Format of information

– Number of sub-elements

Data Types :

- Data types may be either primitive or composite.
- Primitive - data types consist of a series of characters as specified by the data type.
- Composite - data types are made up of a series of components that are themselves assigned to a data type, which may again be either primitive or composite data types.
- In the case of composite data types, the components of a component are called sub-components, and they may only be assigned primitive data types.

Conformant Length (1/3)

Conformance Length

- If populated, the conformance length column specifies the minimum length that applications must be able to store.
- Conformant applications SHALL not truncate a value that is shorter than the length specified.
- The conformance length is also the minimum value that maybe assigned to maximum length in an implementation profile.
- In addition, the conformance length may be followed by a “=” or a “#”.
- The “=” denotes the value may never be truncated, and the “#” denotes that the truncation behaviour defined for the data type applies.
- Applications are not required to implement the truncation pattern, even if it may be applied to an item.
- Applications should declare their adoption of the truncation pattern in their conformance profiles.

Conformant Length (2/3)

Type and Conformant/Field Lengths

- Either normative or/and conformative lengths may be specified on a primitive data type.
- Whether or not normative or conformance lengths are specified on the data type, they may also be specified on the components and/or fields where the data type is used.
- If specified here, they override the length specified for the type (but must be consistent with the information on the type).
- If not specified, then the information specified on the data type itself – if present – applies where the data type is used.
- Minimum and maximum lengths are not assigned for composite data types (data types having more than one component) since it is indeterminate.

Conformant Length (3/3)

ID/DT	LEN	C.LEN	Implication
CX.5	2..5		• CX.5 will include length between 2 to 5 • Truncation is not allowed • The conformance length is 15 – applications must be able to properly handle all values, which includes the range of allowed lengths for this component.
ID	1..	15=	
ED.3		32	• The conformance length is 32: applications must be able to handle mime types up to a length of 32. • Applications can choose to handle more if desired. • Since truncation is not allowed, applications must respond with an error if the length of a mime type exceeds the length it can handle without truncation.
ID	1..	15=	
CWE.1		20=	• If populated, the value must be at least one character. • There is no upper limit to the number of characters that are allowed applications must support codesystem identifiers up to 20 characters long. • Since the identifier is useless if truncated, truncation is not allowed.
ST	1..		

Introduction

HL7 Component Table - AD – Address

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		120#	ST	O		Street Address
2		120#	ST	O		Other Designation
3		50#	ST	O		City
4		50#	ST	O		State or Province
5		12=	ST	O		Zip or Postal Code
6	3..3		ID	O	0399	Country
7	1..3		ID	O	0190	Address Type
8		50#	ST	O		Other Geographic Designation

- Len - defines the maximum and minimum length values for the field.
- C.Len – Conformance Length defines applicable length value which applications should process.
  - # - indicates the field value can be truncated
  - = - indicates the field value cannot be truncated.

Agenda

- Introduction
- **HL7 Tables**
- Data Type Groups
- Text and Numeric Data Type
- Money Data Type
- Date and Time Data Type
- Controlled Vocabulary Data Type
- Reference Data Type

HL7 Tables (1/3)

Tables: there are five types of tables

- HL7-defined Tables
- User-defined Tables
- External Tables
- Local Tables
- Imported Tables

HL7 Tables (2/3)

HL7- defined Tables:

- An HL7 table is a set of values defined and published by HL7.
- They are a part of the HL7 standard because they affect the interpretation of the messages that contain them.
- These values may not be redefined locally; however, the table itself may be extended to accommodate locally defined values.
- Example ID data type (*HL7 table 0003 – Event Type)*

User-defined Tables:

- A user-defined table is a set of values that are locally or site defined.
- Even though these tables are not defined in the Standard, they are given a user defined table number to facilitate implementations.
- HL7 sometimes publishes suggested values that a site may use as a starter set (e.g., table 0001-Administrative Gender).
- Example IS data type

HL7 Tables (3/3)

Local Tables:

- A local table is a table with a non-HL7 assigned table identifier and which contains a set of locally or site defined values.
- It may be locally assigned to local fields in Z segments or to HL7 fields having a CWE data type.

External Tables:

- An external table is a set of coded values defined and published by another standards organization.
- The CF, CNE and CWE data type are used to represent values for these fields.

Imported Tables:

- An Imported table is a set of coded values defined by another standards organization
- Imported tables are published by HL7 on behalf of other organizations.
- Their contents are not subject to approval by HL7
- Table 0292 - Vaccines administered is an example of an Imported table.

Agenda

- Introduction
- HL7 Tables
- **Data Type Groups**
- Text and Numeric Data Type
- Money Data Type
- Date and Time Data Type
- Controlled Vocabulary Data Type
- Reference Data Type

Data Type Groups

Data type can be categorized into three groups

- Text and numeric
- Date and time
- Controlled vocabulary

Agenda

- Introduction
- HL7 Tables
- Data Type Groups
- **Text and Numeric Data Type**
- Money Data Type
- Date and Time Data Type
- Controlled Vocabulary Data Type
- Reference Data Type

Text and Numeric Data Type (1/8)

- **Text**
  - ST (plain string data)
  - TX (long text strings)
  - FT (formatted text)

- **Numeric**
  - NM (numbers)
  - SN (structured numeric)
  - NA (Numeric Array)
  - MA (Multiplexed Array)
  - CQ (Composite Quantity)

Text and Numeric Data Type (2/8)

- **ST**

– Short, left justified (i.e.no leading blank space, trailing blanks optional), <1000 chars

– Examples

  – 1. |Here is an example|,

  – 2. ^http://www.pacs.poupon.edu/wado.jsp^,

  – 3. &2.16.840.1.113883.1.1&

– No Max and Min Length specified for the type.

– May be specified in the context of use. Defaults to 1

- **TX**

– Long, <65536 chars, repetition character as paragraph break. Leading spaces can be included. Trailing spaces should be removed..

– | The patient breathes with difficulty.~ There is history of respiratory illness on both sides of the patient's family.|

Text and Numeric Data Type (3/8)

- **FT**

– Within escape characters (\ \)
– \.ti 5\The patient breathes with difficulty.\.br\\.ti 5\This is some other information.|
– Sending Delimiters in Text?
– Use escape sequence in place of character.
– |^~\& ➔ \F\, \S\, \R\, \E\, \T\

- **Others :**

– \H\ start highlighting
– \N\ normal text (end highlighting)
– \F\ field separator
– \S\ component separator
– \T\ subcomponent separator
– \R\ repetition separator
– \E\ escape character

Text and Numeric Data Type (4/8)

- **NM (numeric)**

HL7 Component Table - NM – Numeric

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	1..16					Numeric

- 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.
- Examples
  - |+0201.20|
  - |-999|
  - |01.20| = |1.2|

Text and Numeric Data Type (5/8)

- **SN (structured numeric)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1	1..2		ST	O		Comparator
2			NM	O		Num1
3	1..1		ST	O		Separator/Suffix
4			NM	O		Num2

– Clinical results and Ranges

Example:

- |^10^-^20|
- |>^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)

If <num1> and <num2> are both non-null, then the separator/suffix must be non-null.

Separators: "-" or "+" or "/" or "." or ":“

Text and Numeric Data Type (6/8)

- **CQ (Composite Quantity)**

– Syntax: <quantity (NM)> ^ <units (CWE)>

Example: |

- |12^kg|
- |150^lb&&ANSI+| weight in pounds is a customary and US unit defined within ANSI+.

Text and Numeric Data Type (7/8)

- **NA (Numeric Array)**

– Used to transmit test/observation results.

– Each component represents a value in vector

Syntax: <value1 (NM)> ^ <value2 (NM)> ^ <value3 (NM)> ^ <value4 (NM)> ^ …

Example: |NM^NM|

Example 1: vector of 8 numbers

- |125^34^-22^-234^569^442^-212^6|

Example 2: 3 x 3 array of numbers

- |1.2^-3.5^5.2~2.0^3.1^-6.2~3.5^7.8^-1.3|

Example 3: 5 x 4 array of numbers with the values in positions (1,1), (2,2), (2,3), (3,3), (3,4), (4,1), (4,2), (4,3), and (4,4) not present -

- |^2^3^4~5^^^8~9^10~~17^18^19^20|

Text and Numeric Data Type (8/8)

- **MA (Multiplexed Array)**

– Used to transmit waveform data over multiple channels.

– ^ →Channel and ~ → time samples

Syntax: <sample 1 from channel 1 (NM)> ^ <sample 1 from channel 2 (NM)> ^ <sample 1 from channel 3 (NM)> ...~<sample 2 from channel 1 (NM)> ^ <sample 2 from channel 2 (NM)> ^ <sample 2 from channel 3 (NM)> ...~

Example 1: 3 channels (identical), 6 time-samples

- |0^0^0~1^1^1~2^2^2~3^3^3~4^4^4~5^5^5|

Example 2: 1 channel, 11 time-samples

- |0~1~2~3~4~5~6~7~8~9~10|

Agenda

- Introduction
- HL7 Tables
- Data Type Groups
- Text and Numeric Data Type
- **Money Data Type**
- Date and Time Data Type
- Controlled Vocabulary Data Type
- Reference Data Type

Money Data Type (1/2)

- **MO (Money)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		=	NM	O		Quantity
2	3..3		ID	O	0913	Denomination

– Example: |Quantity ^ Denomination| → |100^USD|

Money Data Type (2/2)

- **CP (Composite Price)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1			MO	R		Price
2	1..2		ID	O	0205	Price Type
3		=	NM	O		From Value
4		=	NM	O		To Value
5			CWE	C		Range Units
6	1..1		ID	O	0298	Range Type

– Example: |**100.00&USD**^UP^0^9^min^P~**150.00&USD**^UP^10^16^min^F|
  - Pro-rated Unit Price is $100.00 for time between 0 to 9 minutes
  - Price for anesthesia offered for 0-9 mins and 10-16 mins

Agenda

- Introduction
- HL7 Tables
- Data Type Groups
- Text and Numeric Data Type
- Money Data Type
- **Date and Time Data Type**
- Controlled Vocabulary Data Type
- Reference Data Type

Date and Time Data Type (1/2)

- **DT (Date)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	(4..8)	8				Date

  - Syntax: YYYY[MM[DD]]
  - Example: 20070723 (Note: 2007^07^23 – Wrong)

- The number of digits populated specifies the precision using the format specification YYYY[MM[DD]]. Thus:
  - 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"

Date and Time Data Type (2/2)

- **TM (Time)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	2..16	13#				Time

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

Example: 103000.90+0530

- **DTM (Time Stamp)**

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	4..24	8#				Date/Time

Syntax: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]

Example: 20070723103000.90+0530

- **DR (Date Range)**

Syntax: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]

Example: 20070723103000.90+0530^20070723133000.90+0530

Agenda

- Introduction
- HL7 Tables
- Data Type Groups
- Text and Numeric Data Type
- Money Data Type
- Date and Time Data Type
- **Controlled Vocabulary Data Type**
- Reference Data Type

Controlled Vocabulary Data Type (1/20)

- **Controlled Vocabulary (Code Sets)**

– Internal
  - HL7 Defined
  - User/Locally Defined

– External
  - Allows use of well-known taxonomy without the need to republish
  - Licensing by implementers
  - SNOMED, CPT etc.

Controlled Vocabulary Data Type (2/20)

- **Implicitly Referenced Tables**
  - ID : Coded values for HL7 defined tables
  - IS : Coded values for user defined tables

- **Common**
  - EI : Entity Identifier
  - HD : Hierarchic Designator

- **Explicitly Referenced Tables**
  - CNE : Coded with no Exception
  - CWE : Coded with Exception

Controlled Vocabulary Data Type (3/20)

- **Controlled Vocabulary (Code Sets)**

– Identifier
  - ID
  - IS
  - HD

– Code Values
  - CWE
  - CX
  - XCN

– Demographics
  - XPN
  - XTN

– Medical Records/Information Management
  - PPN

– Address
  - AD
  - XAD

Controlled Vocabulary Data Type (4/20)

- **Identifier**

— ID : Coded value from HL7 Table

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	1..	15=				Coded Value for HL7-Defined Tables

Example :

Seventh Component of Data type XAD (Extended Address Type) takes values from HL7 table 0190, Address Type, for which HL7 provides these values :

BA : Bad Address
H : Home
B : Business
L : Legal
C : Current/Temporary
P : Permanent
O : Office
……..others

Controlled Vocabulary Data Type (5/20)

- **Identifier**

— IS : Coded value from User Defined Table

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
	1..	20=				Coded Value for User-Defined Tables

Example :

PID-8 (SEX)

Suggested Values : F, M, O, U → |F|

Used Values : 1 ,2, 3, 4 → |1|

Controlled Vocabulary Data Type (6/20)

- **Identifier**
  - HD : Hierarchic Designator
    - May be used to represent either
    - A value from an internal code set,

      or
    - A value from an explicitly referenced external code set or identifier type

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		20=	IS	O	0300	Namespace ID
2		199=	ST	C		Universal ID
3	1..6		ID	C	0301	Universal ID Type

  - Namespace ID (IS)
    - Can be used to specify a value from an internal code set
    - The code set used is user-defined Table 0300, Namespace ID
  - Universal ID (ST)
    - Can be used to specify a value from an external code set
    - The code set used is specified in the third component, Universal ID Type.
  - Universal ID type (ID)
    - Specifies the identifier type or code set used in the second component, Universal ID
    - The value used comes from HL7 Table 0301, Universal ID Type

Controlled Vocabulary Data Type (7/20)

- **Identifier**

Syntax

<namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

1. If the first component for the HD data type is present, the second and third components are optional.
2. If the third component is present, then the second must also be present (although in this case the first is optional).
3. The second and third components must either both be valued (both non-null), or both be not valued (both null).

Example : MSH-4 (Sending Facility)

Communication Between A, B, C and D sites?

|DT|, |^2.3.4.5678.99999^ISO|, ????

Controlled Vocabulary Data Type (8/20)

- **Code Values**
  - CWE : Coded With Exception
    - May be used to represent either
      - A value from an explicitly referenced external code set,

      or
      - A non-encoded text value

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		20=	ST	O		Identifier
2		199#	ST	O		Text
3	1..12		ID	C	0396	Name of Coding System
4		20=	ST	O		Alternate Identifier
5		199#	ST	O		Alternate Text
6	1..12		ID	C	0396	Name of Alternate Coding System
7		10=	ST	C		Coding System Version ID
8		10=	ST	O		Alternate Coding System Version ID
9		199#	ST	O		Original Text

Controlled Vocabulary Data Type (9/20)

10		20=	ST	O		Second Alternate Identifier
11		199#	ST	O		Second Alternate Text
12	1..12		ID	C	0396	Name of Second Alternate Coding System
13		10=	ST	O		Second Alternate Coding System Version ID
14		199=	ST	C		Coding System OID
15		199=	ST	O		Value Set OID
16		8=	DTM	C		Value Set Version ID
17		199=	ST	C		Alternate Coding System OID
18		199=	ST	O		Alternate Value Set OID

- It has 21 components.
- In CNE data type the components remains same except the first component (CNE-1 Identifier) is mandatory.

Controlled Vocabulary Data Type (10/20)

- **Code Values**
    1. Other tables are allowed in the field or
    2. The external table may be locally extended or
    3. When the code may be replaced by local text.

Example

Site C sends metric units of measure in a CWE-type field. The value is selected from ISO 2955-1983

- |m^meter^ISO+|

Controlled Vocabulary Data Type (11/20)

- **Code Values**
  - CX : Extended Composite ID with Check Digit
    - Identifier Type code : When the assigning authority is responsible for more than one kind of identifier
    - It has 12components

Controlled Vocabulary Data Type (12/20)

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		15=	ST	R		ID Number
2		4=	ST	O		Identifier Check Digit
3	3..3		ID	O	0061	Check Digit Scheme
4			HD	C	0363	Assigning Authority
5	2..5		ID	R	0203	Identifier Type Code
6			HD	O		Assigning Facility
7			DT	O		Effective Date
8			DT	O		Expiration Date
9			CWE	C		Assigning Jurisdiction
10			CWE	C		Assigning Agency or Department
11		4=	ST	O		Security Check

Example

- |12345^5^M10^EMR App Name^MRN |
- |182298172^2^M12^US Govt^SSN |

Controlled Vocabulary Data Type (13/20)

- **Demographics**
  - XPN : Person Name
  - It comprises of 15 components

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1			FN	RE		Family Name
2		30#	ST	O		Given Name
3		30#	ST	O		Second and Further Given Names or Initials Thereof
4		20#	ST	O		Suffix (e.g., JR or III)
5		20#	ST	O		Prefix (e.g., DR)
6				W		Degree (e.g., MD)
7	1..5		ID	O	0200	Name Type Code
8	1..1		ID	O	0465	Name Representation Code
9			CWE	O	0448	Name Context
10				W		Name Validity Range

Controlled Vocabulary Data Type (14/20)

— XPN : Person Name

- 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 Honorarium, an academic degree and a board certificate. Professional suffixes are displayed as concatenated.
  - |Hippocrates^Harold^Henry^^^^L^^^^^^^AO.MBBS.ASCTS|
- Example 10: Herr Dr. Otto Graf Lambsdorff mdB a.D.
  - |Graf Lambsdorff&Graf&Lambsdorff^Otto^^^Dr.^^L~Graf Lambsdorff&Graf&Lambsdorff^Otto^^mdB a.D.^Herr Dr.^^D|

Controlled Vocabulary - XTN (15/20)

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1				W		Telephone Number
2	3..3		ID	O	0201	Telecommunication Use Code
3	2..8		ID	R	0202	Telecommunication Equipment Type
4		199=	ST	C		Communication Address
5		3=	SNM	O		Country Code
6		3=	SNM	O		Area/City Code
7		9=	SNM	C		Local Number
8		5=	SNM	C		Extension
9		199#	ST	O		Any Text
10		4=	ST	O		Extension Prefix
11		6=	ST	O		Speed Dial Code
12		199#	ST	C		Unformatted Telephone number
13			DTM	O		Effective Start Date
14			DTM	O		Expiration Date
15			CWE	O	0868	Expiration Reason
16			CWE	O	0618	Protection Code
17			EI	O		Shared Telecommunication Identifier
18		2=	NM	O		Preference Order

Controlled Vocabulary Data Type (16/20)

- **Demographics**
  - XTN :Extended Telephone Number

Example of XTN

- Telephone +1 (301) 585-5750 ^WPN^PH^^1^301^5855750
- Cell phone +1 (240) 351-5908 ^WPN^CP^^1^240^3515908
- Email mike@easterninformatics.com ^NET^Internet^mike@easterninformatics.com

Controlled Vocabulary Data Type (17/20)

- **Code Values**
  - CNN : Composite ID number and name

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

  - Specifies a person using both an identifier and the person's name. Retained for backward compatibility only as of v2.6.

Example - Dr. Francis A. Toothman III, MD => 39441^TOOTHMAN^FRANCIS^A^III^DR^MD^UABPVI^UAB

Controlled Vocabulary Data Type (18/20)

- **Code Values**
  - XCN : Extended Composite ID number and name

Transfer of name + identifier + identifier type + internationalization information (25 fields)

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		15=	ST	C		Person Identifier
2			FN	C		Family Name
3		30#	ST	O		Given Name
4		30#	ST	O		Second and Further Given Names or Initials Thereof
5		20#	ST	O		Suffix (e.g., JR or III)
6		20#	ST	O		Prefix (e.g., DR)
7				W		Degree (e.g., MD)
8			CWE	B	0297	Source Table
9			HD	C	0363	Assigning Authority
10	1..5		ID	C	0200	Name Type Code
11	1..4		ST	O		Identifier Check Digit
12	3..3		ID	C	0061	Check Digit Scheme
13	2..5		ID	C	0203	Identifier Type Code
14			HD	O		Assigning Facility
15	1..1		ID	O	0465	Name Representation Code
16			CWE	O	0448	Name Context
17				W		Name Validity Range

Controlled Vocabulary Data Type (19/20)

- **Code Values**
  - XCN : Extended Composite ID number and name

Example

- 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.
  - |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|

Controlled Vocabulary Data Type (20/20)

- **Address**
  - XAD : Extended Address

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		15=	ST	C		Person Identifier
2			FN	C		Family Name
3		30#	ST	O		Given Name
4		30#	ST	O		Second and Further Given Names or Initials Thereof
5		20#	ST	O		Suffix (e.g., JR or III)
6		20#	ST	O		Prefix (e.g., DR)
7				W		Degree (e.g., MD)
8			CWE	B	0297	Source Table
9			HD	C	0363	Assigning Authority
10	1..5		ID	C	0200	Name Type Code
11	1..4		ST	O		Identifier Check Digit
12	3..3		ID	C	0061	Check Digit Scheme
13	2..5		ID	C	0203	Identifier Type Code
14			HD	O		Assigning Facility
15	1..1		ID	O	0465	Name Representation Code
16			CWE	O	0448	Name Context
17				W		Name Validity Range
18	1..1		ID	O	0444	Name Assembly Order
19		8=	DTM	O		Effective Date

Agenda

- Introduction
- HL7 Tables
- Data Type Groups
- Text and Numeric Data Type
- Money Data type
- Date and Time Data Type
- Controlled Vocabulary Data Type
- **Reference Data Type**

Reference Data Type (1/3)

- **ED : Encapsulated Data**

  Data which is non-textual or mixture of textual and non-textual

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1			HD	O		Source Application
2	4..11		ID	R	0834	Type of Data
3		32=	ID	O	0291	Data Subtype
4	1..6		ID	R	0299	Encoding
5			TX	R		Data

Reference Data Type (2/3)

- **RP : Reference Pointer**

External data to be referenced from within HL7

Avoids overhead of carrying actual data

- Pointer
- Application ID
- Type of Data
- Subtype

SEQ	LEN	C.LEN	DT	OPT	TBL#	COMPONENT NAME
1		999#	ST	O		Pointer
2			HD	O		Application ID
3	4..11		ID	O	0834	Type of Data
4		32=	ID	O	0291	Subtype

Reference Data Type (3/3)

- **RP : Reference Pointer**

– Example

– A CDA document accessed by FTP:

  - |/cdasvc/u28864099/s9076500a/e77534/d55378.xml^&ftp://www.saintelsewhere.org&URI^text^x-hl7-cda-level-one|

– A DICOM image accessed by HTTP and converted to JPEG (using the ISO/DICOM WADO standard); note that ampersands in the Pointer string are escaped to "\T\" to avoid conflict with the sub-component delimiter:

  - |?requestType=WADO\T\study=1.2.840.113848.5.22.9220847989\T\series=1.2.840.113848.5.22.922084798.4\T\object=1.2.840.113848.5.22.922084798.4.5^&https://www.pacs.poupon.edu/wado.jsp&URI^image^jpeg|

Thank You