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Digital Imaging and Communications in Medicine (DICOM)

Supplement 227: Ultrasound Shear Wave Elastography Structured Report

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DICOM Standards Committee

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Table of Contents

Scope and Field

45 This Supplement to the DICOM Standard introduces an SR section template for Ultrasound Shear Wave Elastography results and a General Ultrasound Report within which it can be used.

Ultrasound elastography is used on tissues including liver, breast, prostate, and tendon. In shear wave elastography (SWE), the ultrasound system measures shear wave speed and derives a value for elasticity (in kPa) from that. Some systems also assess viscosity (which can be correlated to inflammation) by generating a value such as shear wave dispersion slope.

50 Strain elastography (SE) is out of scope for this supplement. In SE, elasticity/stiffness is assessed qualitatively by comparing the compression of tissue in a target region to that of tissue in a nearby reference region.

References:

https://doi.org/10.1148/radiol.2020192437 Update to the Society of Radiologists in Ultrasound Liver
55 *Elastography Consensus Statement – Jun 2020 – Full Text*

https://pubs.rsna.org/doi/full/10.1148/rg.2017160116 SWE Basic Physics and Musculoskeletal Applications

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5720889/

2015 EASL-ALEH Clinical Practice Guidelines: Non-invasive tests for evaluation of liver disease severity and prognosis https://www.journal-of-hepatology.eu/article/S0168-8278(15)00259-7/fulltext

60 *Guidelines from WFUMB (World Federation for Ultrasound in Medicine and Biology) and EFSUMB (European Federation of Societies for Ultrasound in Medicine and Biology)*

- *EFSUMB Guidelines and Recs on the Clinical Use of **Liver** Ultrasound Elastography, Update 2017 (Long Version), Dietrich CF et al., Ultraschall Med. https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0043-103952.pdf*
65 - *WFUMB guidelines and recs for clinical use of ultrasound elastography: Part 3: **liver**, Ferraioli G et al., Ultrasound Med Biol. 2015 May;41(5):1161-79;*
- *EFSUMB guidelines and recs for the clinical practice of Elastography in Non-Hepatic Application: Update 2018, Săftoiu A, et al., Ultraschall Med. 2019 Aug;40(4):425-453.; Section 5 **Breast***
- *WFUMB guidelines and recs for clinical use of ultrasound elastography: Part 2: **breast**, Barr RG et al.,*
70 *Ultrasound Med Biol. 2015 May;41(5):1148-60;*
- *EFSUMB guidelines and recs for the clinical practice of Elastography in Non-Hepatic Application: Update 2018, Săftoiu A, et al., Ultraschall Med. 2019 Aug;40(4):425-453.; Section 7 **Thyroid***
- *WFUMB Guidelines and Recs on the Clinical Use of Ultrasound Elastography: Part 4. **Thyroid**, Cosgrove D et al., Ultrasound Med Biol. 2016 Aug 25;*
75 - *EFSUMB guidelines and recs for the clinical practice of Elastography in Non-Hepatic Application: Update 2018, Săftoiu A, et al., Ultraschall Med. 2019 Aug;40(4):425-453.; Section 6 **Prostate***
- *WFUMB Guidelines and Recs on the Clinical Use of Ultrasound Elastography: Part 5. **Prostate**, Barr RG et. Al, Ultrasound Med Biol. 2016 Aug 23*

The following are currently less consolidated in the daily clinical practice or, like the vascular applications,
80 *are still areas of active research*

- *EFSUMB guidelines and recs for the clinical practice of Elastography in Non-Hepatic Application: Update 2018, Săftoiu A, et al., Ultraschall Med. 2019 Aug;40(4):425-453.; Section 8 Pancreas, Section 9 GastroIntestinal Tract, Section 10 Spleen, Section 11 Kidney, Section 12 Lymph nodes, Section 13 MusculoSkeletal, Section 14 Testis, Section 14 Vascular*

85

Changes to NEMA Standards Publication PS3.16

Digital Imaging and Communications in Medicine (DICOM)

Part 16: Content Mapping Resource

Add a General Ultrasound Report root template as shown

90 ## TID 12000 General Ultrasound Report

This is the Template for the root of the content tree for a general ultrasound procedure report.

Type: Extensible
Order: Significant
Root: Yes

95 **Table TID 12000. General Ultrasound Report**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	BCID 12320 "General Ultrasound Report Document Titles"	1	M		Root node
2	>	HAS CONCEPT MOD	INCLUDE	DTID 1204 "Language of Content Item and Descendants"	1	U		
3	>	HAS OBS CONTEXT	INCLUDE	DTID 1001 "Observation Context"	1	M		
4	>	CONTAINS	INCLUDE	DTID 12001 "Ultrasound Patient Characteristics"	1	U		
5	>	CONTAINS	CONTAINER	DT (55111-9, LN, "Current Procedure Descriptions")	1	U		
6	>>	CONTAINS	CODE	DT (125203, DCM, "Acquisition Protocol")	1-n	M		BCID 12001 "Ultrasound Protocol Types"
7	>>	CONTAINS	CODE	DT (113743, DCM, "Patient Orientation")	1	U		DCID 19 "Patient Orientation"
8	>>>	HAS CONCEPT MOD	CODE	EV (113744, DCM, "Patient Orientation Modifier")	1	U		DCID 20 "Patient Orientation Modifier"
9	>	CONTAINS	CONTAINER	EV (18785-6, LN, "Indications for Procedure")	1	U		
10	>>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		BCID 6051 "Breast Procedure Reason" BCID 12246 "Cardiac Ultrasound Indication for Study" BCID 12325 "Liver Ultrasound Study Indications"

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
11	>>	CONTAINS	TEXT	EV (121071, DCM, "Finding")	1	U		
12	>	CONTAINS	CONTAINER	DT (59776-5, LN, "Findings")	1-n	U		
13	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1-n	MC	IF Row 14 is not present	
14	>>	CONTAINS	TEXT	EV (121071, DCM, "Finding")	1-n	MC	IF Row 13 is not present	
15	>	CONTAINS	INCLUDE	DTID 5401 "Ultrasound Shear Wave Elastography Section"	1-n	U		

Content Item Descriptions

Row 10	Baseline CIDs are provided for indications for Breast, Cardiac, and Liver procedures, but this does not preclude indications for other relevant ultrasound procedures.
Row 12	This container permits capturing findings that do not appropriately fit in one of the sections that follow.

Add TID for Ultrasound Patient Characteristics as shown

TID 12001 Ultrasound Patient Characteristics

Type: Extensible
Order: Significant
Root: No

Table TID 12001. Ultrasound Patient Characteristics

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINER	NUM	EV (121118, DCM, "Patient Characteristics")	1	M		
2	>	CONTAINS	NUM	EV (121033, DCM, "Subject Age")	1	U		UNITS = DCID 7456 "Units of Measure for Age"
3	>	CONTAINS	CODE	EV (121032, DCM, "Subject Sex")	1	U		DCID 7455 "Sex"
4	>	CONTAINS	NUM	EV (8302-2, LN, "Patient Height")	1	U		UNITS = EV (cm, UCUM, "cm")
5	>	CONTAINS	NUM	EV (29463-7, LN, "Patient Weight")	1	U		UNITS = EV (kg, UCUM, "kg")
6	>	CONTAINS	NUM	EV (113550, DCM, "Fasting Duration")	1	U		UNITS= EV (h, UCUM, "hours")
7	>	CONTAINS	TEXT	EV (113552, DCM, "Recent Physical Activity")	1	U		
8	>	CONTAINS	NUM	EV (8867-4, LN, "Heart Rate")	1	U		UNITS = EV ({H.B.}/min, UCUM, "BPM")

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
9	>	CONTAINS	NUM	EV (271649006, SCT, "Systolic Blood Pressure")	1	U		UNITS= EV (mm[Hg], UCUM, "mmHg")
10	>	CONTAINS	NUM	EV (271650006, SCT, "Diastolic Blood Pressure")	1	U		UNITS= EV (mm[Hg], UCUM, "mmHg")
11	>	CONTAINS	CODE	EV (260905004, SCT, "Condition")	1-n	U		BCID 12323 "Ultrasound Relevant Patient Conditions"
12	>	CONTAINS	INCLUDE	DTID 3923 "BSA-Normalized Ventricular Measurements"	1	U		
13	>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	1	U		

105 **Content Item Descriptions**

Row 6	The number of hours prior to this exam that the subject started fasting.
Row 11	Patient conditions present at the time of the procedure that may affect, or are otherwise relevant to, the capture or interpretation of the findings in this report. It is not expected that all known patient conditions will be present here.
Row 13	General comments which may also include relevant patient conditions that would otherwise be recorded in Row 11 if appropriate codes were available.

Add Shear Wave Elastography Section TID 5401 as shown

TID 5401 Ultrasound Shear Wave Elastography Section

This section template incorporates a set of measurements for assessing tissue elasticity characteristics
110 based on shear wave speed.

Type: Extensible
Order: Significant
Root: No

Table TID 5401. Ultrasound Shear Wave Elastography Section

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (59776-5, LN, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, "Procedure Reported")	1	M		DT (448764002, SCT, "Ultrasound elastography (procedure)"
3	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		BCID 12321 "Elastography Sites"
4	>>	HAS CONCEPT MOD	CODE	EV (272741003, SCT, "Laterality")	1	U		DCID 244 "Laterality"

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
5	>	HAS ACQ CONTEXT	CODE	EV (399264008, SCT, "Image Mode")	1	U		BCID 12224 "Ultrasound Image Modes"
6	>	HAS ACQ CONTEXT	CODE	EV (111031, DCM, "Image View")	1	U		BCID 5 "Transducer Approach"
7	>>	HAS ACQ CONTEXT	CODE	EV (111032, DCM, "Image View Modifier")	1-n	U		BCID 6 "Transducer Orientation" BCID 7 "Ultrasound Beam Path"
8	>	HAS CONCEPT MOD	CODE	EV (130759, DCM, "Shear Wave Detection Method")	1	U		DCID 12324 "Shear Wave Detection Methods"
9	>	CONTAINS	CONTAINER	DT (55112-7, LN, "Summary")	1	M		
10	>>	CONTAINS	NUM	EV (130611, DCM, "Shear Wave Speed")	1	M		UNITS= EV (m/s, UCUM, "m/s")
11	>>>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	U		UNITS= EV (m/s, UCUM, "m/s")
12	>>>	HAS PROPERTIES	NUM	EV (373099004, SCT, "Median")	1	U		UNITS= EV (m/s, UCUM, "m/s")
13	>>>	HAS PROPERTIES	NUM	EV (130614, DCM, "Interquartile Range of population")	1	U		UNITS= EV (m/s, UCUM, "m/s")
14	>>>	HAS PROPERTIES	NUM	EV (130615, DCM, "Interquartile Range to Median Ratio of population")	1	M		UNITS = EV ({ratio}, UCUM, "ratio")
15	>>	CONTAINS	NUM	EV (110830, DCM, "Elasticity")	1	M		UNITS= EV (kPa, UCUM, "kPa")
16	>>>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	U		UNITS= EV (kPa, UCUM, "kPa")
17	>>>	HAS PROPERTIES	NUM	EV (373099004, SCT, "Median")	1	U		UNITS= EV (kPa, UCUM, "kPa")
18	>>>	HAS PROPERTIES	NUM	EV (130614, DCM, "Interquartile Range of population")	1	U		UNITS= EV (kPa, UCUM, "kPa")
19	>>>	HAS PROPERTIES	NUM	EV (130615, DCM, "Interquartile Range to Median Ratio of population")	1	M		UNITS = EV ({ratio}, UCUM, "ratio")
20	>>	CONTAINS	NUM	EV (130612, DCM, "Shear Wave Dispersion Slope")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
21	>>>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
22	>>>	HAS PROPERTIES	NUM	EV (373099004, SCT, "Median")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
23	>>>	HAS PROPERTIES	NUM	EV (130614, DCM, "Interquartile Range of population")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
24	>>>	HAS PROPERTIES	NUM	EV (130615, DCM, "Interquartile Range to Median Ratio of population")	1	M		UNITS = EV ({ratio}, UCUM, "ratio")
25	>	CONTAINS	CONTAINER	DT (125007, DCM, "Measurement Group")	1-n	M		
26	>>	HAS OBS CONTEXT	TEXT	EV (125010, DCM, "Identifier")	1	M		
27	>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	U		BCID 12322 "Elastography Measurement Sites"
28	>>		INCLUDE	DTID 5402 "Shear Wave Elastography Measurement"	1	M		
29	>	CONTAINS	CONTAINER	DT (130755, DCM, "Reference Measurement Group")	1	U		
30	>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	U		BCID 12322 "Elastography Measurement Sites"
31	>>		INCLUDE	DTID 5402 "Shear Wave Elastography Measurement"	1	M		

115 **Content Item Descriptions**

Row 10	The nominal shear wave speed for the tissue of interest. How this nominal value is derived from the measurements in Row 25 is implementation dependent.
Rows 11-14	These values are a statistical characterization of shear wave speed measurements in Row 25 from which the value in Row 10 was derived.
Row 15	The nominal Elasticity for the tissue of interest. How this nominal value is derived from the measurements in Row 25 is implementation dependent.
Rows 16-19	These values are a statistical characterization of Elasticity measurements in Row 25 from which the value in Row 15 was derived.
Row 20	The nominal Shear Wave Dispersion Slope for the tissue of interest. How this nominal value is derived from the measurements in Row 25 is implementation dependent.
Rows 21-24	These values are a statistical characterization of Shear Wave Dispersion Slope measurements in Row 25 from which the value in Row 20 was derived.
Row 26	The identifier is used to distinguish the different measurement ROIs. For example, the identifier might be used as a column header when displaying the measurements from all the ROIs in a table.
Row 27	The specific location of a measurement, e.g. the specific segment of the liver, may be recorded here. If this row is absent, the measurement is presumed to be somewhere within the organ/tissue identified in Row 3.
Row 29	In Shear Wave Elastography, the Reference Measurement Group is used to record measured values for a reference region against which the measurements in Row 25 may be compared.

Row 30	A coded description of the location of the reference measurement. If this row is absent, the reference measurement is presumed to be some conventional location appropriate for the organ/tissue identified in Row 3. If the SCOORD in TID 5402 is present, that indicates the spatial location.

TID 5402 Shear Wave Elastography Measurement

A shear wave elastography measurement, and related values, associated with a point or region in an ultrasound image.

120 **Type: Extensible**
Order: Significant
Root: No

Table TID 5402. Shear Wave Elastography Measurement

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		HAS CONCEPT MOD	NUM	EV (130613, DCM, "ROI Depth")	1	M		UNITS= EV (cm, UCUM, "cm")
2		HAS CONCEPT MOD	NUM	EV (131184002, SCT, "Area of defined region")	1	U		UNITS= EV (cm2, UCUM, "cm2")
3		INFERRED FROM	SCOORD	EV (111030, DCM, "Image Region")	1	M		GRAPHIC TYPE = not {MULTIPOINT}
4		CONTAINS	NUM	EV (130611, DCM, "Shear Wave Speed")	1	M		UNITS= EV (m/s, UCUM, "m/s")
5	>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	M		UNITS= EV (m/s, UCUM, "m/s")
6	>	HAS PROPERTIES	NUM	EV (255605001, SCT, "Minimum")	1	U		UNITS= EV (m/s, UCUM, "m/s")
7	>	HAS PROPERTIES	NUM	EV (56851009, SCT, "Maximum")	1	U		UNITS= EV (m/s, UCUM, "m/s")
8		CONTAINS	NUM	EV (110830, DCM, "Elasticity")	1	M		UNITS= EV (kPa, UCUM, "kPa")
9	>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	M		UNITS= EV (kPa, UCUM, "kPa")
10	>	HAS PROPERTIES	NUM	EV (255605001, SCT, "Minimum")	1	U		UNITS= EV (kPa, UCUM, "kPa")
11	>	HAS PROPERTIES	NUM	EV (56851009, SCT, "Maximum")	1	U		UNITS= EV (kPa, UCUM, "kPa")
12		CONTAINS	NUM	EV (130612, DCM, "Shear Wave Dispersion Slope")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
13	>	HAS PROPERTIES	NUM	EV (386136009, SCT, "Standard deviation")	1	M		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
14	>	HAS PROPERTIES	NUM	EV (255605001, SCT, "Minimum")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")
15	>	HAS PROPERTIES	NUM	EV (56851009, SCT, "Maximum")	1	U		UNITS= EV (m/s/kHz, UCUM, "m/s/kHz")

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
16	>	HAS PROPERTIES	NUM	EV (130758, DCM, "Shear Wave Dispersion Slope Center Frequency")	1	U		UNITS= EV (kHz, UCUM, "kHz")

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Content Item Descriptions

Row 1	The depth represents the distance from the transducer face to the center of the ROI and is typically determined by time-of-flight.
Row 3	The ROI is typically a circle or square, although other shapes are permitted. For measurements taken in point shear wave elastography image mode measurements, the measurement data is collected over some amount of adjacent tissue, but the region is indicated with a POINT ROI.
Rows 4, 8, 12	The value represents the mean value of the pixels contained in the ROI.
Rows 5, 9, 13	The value represents the standard deviation of the values of the pixels contained in the ROI. If the ROI is a point, the standard deviation is zero. If the ROI has a very small number of pixels, the standard deviation value might not be statistically meaningful.
Rows 6, 10, 14	The value represents the minimum value of the pixels contained in the ROI.
Rows 7, 11, 15	The value represents the maximum value of the pixels contained in the ROI.

Add the following UID Values to Part 6 Annex A Table A-3:

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Table A-3 CONTEXT GROUP UID VALUES

Context UID	Context Identifier	Context Group Name
...	...	…
1.2.840.10008.6.1.1447	**12320**	**General Ultrasound Report Document Titles**
1.2.840.10008.6.1.1448	**12321**	**Elastography Sites**
1.2.840.10008.6.1.1449	**12322**	**Elastography Measurement Sites**
1.2.840.10008.6.1.1450	**12323**	**Ultrasound Relevant Patient Conditions**
1.2.840.10008.6.1.1451	**12324**	**Shear Wave Detection Methods**
1.2.840.10008.6.1.1452	**12325**	**Liver Ultrasound Study Indications**

Add the following codes to the following CIDs in Part 16 Annex B:

CID 5   **Transducer Approach**

Type: **Extensible**

135 **Version:**   ~~20160314~~20220628

Table CID 5. Ultrasound Approach

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
SCT	24028007	Right	G-A100	C0205090
SCT	7771000	Left	G-A101	C0205091
SCT	49370004	Lateral	G-A104	C0205093
…				
SCT	**1197041002**	**Intercostal**		
SCT	**264208000**	**Subcostal**	**R-4218D**	**C0442184**
SCT	**117133000**	**First Intercostal Space**	**T-D3141**	**C0446477**
SCT	**117134006**	**Second Intercostal Space**	**T-D3142**	**C0446478**
SCT	**117135007**	**Third Intercostal Space**	**T-D3143**	**C0446479**
SCT	**117136008**	**Fourth Intercostal Space**	**T-D3144**	**C0446480**
SCT	**117137004**	**Fifth Intercostal Space**	**T-D3145**	**C0446481**
SCT	**117138009**	**Sixth Intercostal Space**	**T-D3146**	**C0446486**
SCT	**117139001**	**Seventh Intercostal Space**	**T-D3147**	**C0446482**
SCT	**117140004**	**Eighth Intercostal Space**	**T-D3148**	**C0446483**
SCT	**117141000**	**Ninth Intercostal Space**	**T-D3149**	**C0446484**
SCT	**117142007**	**Tenth Intercostal Space**	**T-D314A**	**C0446487**
SCT	**117143002**	**Eleventh Intercostal Space**	**T-D314B**	**C0446485**

Add the new General Ultrasound Report Document Titles to CID 7000 in Part 16 Annex B:

CID 7000   **Diagnostic Imaging Report Document Titles**
140 **Type:**   **Extensible**
Version: ~~20210120~~**20220628**

Table CID 7000. Diagnostic Imaging Report Document Titles

Coding Scheme Designator	Code Value	Code Meaning	UMLS Concept Unique ID
…			
LN	47048-4	Diagnostic Interventional Radiology Report	C1831148
Include CID 12100 "Vascular Ultrasound Report Document Titles"			
Include CID 12320 "General Ultrasound Report Document Titles"			

Add the following CIDs to Part 16 Annex B:

145 **CID 12320**   **General Ultrasound Report Document Titles**

Resources: **HTML l FHIR JSON l FHIR XML l IHE SVS XML**
Type: **Extensible**
Version: **20220628**
UID: **1.2.840.10008.6.1.1447**

150 **Table CID 12320. General Ultrasound Report Document Titles**

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
LN	25061-3	Ultrasound Report		C0882213
LN	39453-6	US Tendon Report		C1543529
LN	24601-7	US Breast Report		C0881836
LN	38036-0	US Kidney Report		C1527043
LN	28614-6	US Liver Report		C0944197
LN	24884-9	US Prostate (transrectal) Report		C0882072
LN	24859-1	US Pancreas Report		C0882052
LN	24990-4	US Spleen Report		C0882150
LN	24907-8	US Shoulder Report		C0882090
LN	25002-7	US Scrotum and Testicle Report		C0882162
LN	25010-0	US Thyroid Report		C0882168

CID 12321   **Elastography Sites**

This Context Group contains codes to identify the organ/tissue that is the subject of the elastography study. Codes for specific elastography measurement locations, such as a specific segment within the liver,
155 are contained in CID 12322.

Resources: **HTML l FHIR JSON l FHIR XML l IHE SVS XML**
Type: **Extensible**
Version: **20220628**
UID: **1.2.840.10008.6.1.1448**

160 **Table CID 12321. Elastography Sites**

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
SCT	61352006	Achilles Tendon	T-17860	C0001074
SCT	76752008	Breast	T-04000	C0006141
SCT	64033007	Kidney	T-71000	C0022646
SCT	10200004	Liver	T-62000	C0023884
SCT	41216001	Prostate	T-92000	C0033572
SCT	15776009	Pancreas	T-65000	C0030274
SCT	18033002	Patellar Tendon	T-18427	C0206332
SCT	78961009	Spleen	T-C3000	C0037993

SCT	245100002	Tendon of Rotator Cuff of Shoulder	T-12204	C0448535
SCT	40689003	Testis	T-94000	C0039597
SCT	69748006	Thyroid	T-B6000	C0040132

CID 12322   Elastography Measurement Sites

This Context Group contains codes to identify the anatomical location of a specific elastography measurement, such as a specific segment within the liver. Codes for the organ/tissue that is the subject of
165 the elastography study are contained in CID 12321.

Resources: HTML l FHIR JSON l FHIR XML l IHE SVS XML
Type: Extensible
Version: 20220628
UID: 1.2.840.10008.6.1.1449

170   **Table CID 12322. Elastography Measurement Sites**

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
DCM	125040	Background		
SCT	237495005	Thyroid Nodule		
Include CID 7170 "Couinaud Liver Segments"				

CID 12323   Ultrasound Relevant Patient Conditions
Resources: HTML l FHIR JSON l FHIR XML l IHE SVS XML
Type: Extensible
175 **Version: 20220628**
UID: 1.2.840.10008.6.1.1450

Table CID 12323. Ultrasound Relevant Patient Conditions

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
SCT	76281005	Hepatic Congestion	D5-81210	C0267821
SCT	37871000	Acute Hepatitis	D5-80140	C0267797
SCT	440565004	Not Fasting	R-21604	C2585491
SCT	441509002	Patient has pacemaker	R-00728	C2712998

CID 12324   Shear Wave Detection Methods
180 **Resources: HTML l FHIR JSON l FHIR XML l IHE SVS XML**
Type: Extensible
Version: 20220628
UID: 1.2.840.10008.6.1.1451

Table CID 12324. Shear Wave Detection Methods

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
DCM	130756	Particle Displacement Method		
DCM	130757	Particle Velocity Method		

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CID 12325   **Liver Ultrasound Study Indications**

Resources: **HTML l FHIR JSON l FHIR XML l IHE SVS XML**
Type: **Extensible**
Version: **20220628**
190 **UID:**   **1.2.840.10008.6.1.1452**

Table CID 12325. Liver Ultrasound Study Indications

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
SCT	41309000	Alcoholic liver disease	D5-80400	C1442981
SCT	19943007	Cirrhosis of liver	D5-80600	C0023890
SCT	128241005	Hepatitis	D5-81002	C0019158
SCT	66071002	Hepatitis B	DE-38010	C0019163
SCT	50711007	Hepatitis C	DE-38100	C0019196
SCT	80515008	Hepatomegaly	D5-81220	C0019209
SCT	18165001	Jaundice	M-57610	C0022346
SCT	1231824009	Nonalcoholic fatty liver disease (NAFLD)		
SCT	197315008	Nonalcoholic fatty liver (NAFL)	D5-80822	C0400966
SCT	442685003	Nonalcoholic steatohepatitis (NASH)	D5-000C0	C3241937
SCT	409673008	Serum alanine aminotransferase level raised	F-04BC1	C1443982
SCT	115347700	Serum albumin below reference range		
SCT	166612004	Serum bilirubin raised	F-0169D	C0020433

Add the following Definitions to Annex D

DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition
130755	Reference Measurement Group	A grouping of related measurements and calculations that share a common context and that serves as a reference against which similar measurement groups are compared.
130756	Particle Displacement Method	A method for detecting a shear wave in ultrasound data based on the displacement of particles relative to their referenced baseline positions.
130757	Particle Velocity Method	A method for detecting a shear wave in ultrasound data based on estimated particle velocity. Particle velocity is estimated from frame to frame particle displacement.
130758	Shear Wave Dispersion Slope Center Frequency	The center frequency of the range over which the shear wave dispersion slope was assessed.
130759	Shear Wave Detection Method	Method used to detect and characterize a shear wave motion signal in an ultrasound signal.

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