Digital Imaging and Communications in Medicine (DICOM)

Supplement 72: Echocardiography Procedure Reports

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DICOM Standards Committee

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Table of Contents

Scope and Field of Application

This supplement introduces the structure and codes used to transfer echocardiography reporting information. The goal of the supplement is the transfer of the most routinely used measurements and calculations from ultrasound machines for subsequent review.

This Supplement does not address:

a. Fetal echocardiography
b. Pediatric echocardiography
c. Physician reports
d. Measurements beyond the ASE set.

Add acronyms to PS 3.16

4 Symbols and abbreviations

The following symbols and abbreviations are used in this Part of the Standard.

ACR	American College of Radiology
ASE	**American Society of Echocardiography**
…	

Add Informative Annex

ANNEX X ECHOCARDIOGRAPHY PROCEDURE REPORTS (INFORMATIVE)

X.1 Content Structure

The templates for ultrasound reports are defined in PS 3.16, Annex A, DCMR Templates. The following figure is an outline of the echocardiography report.

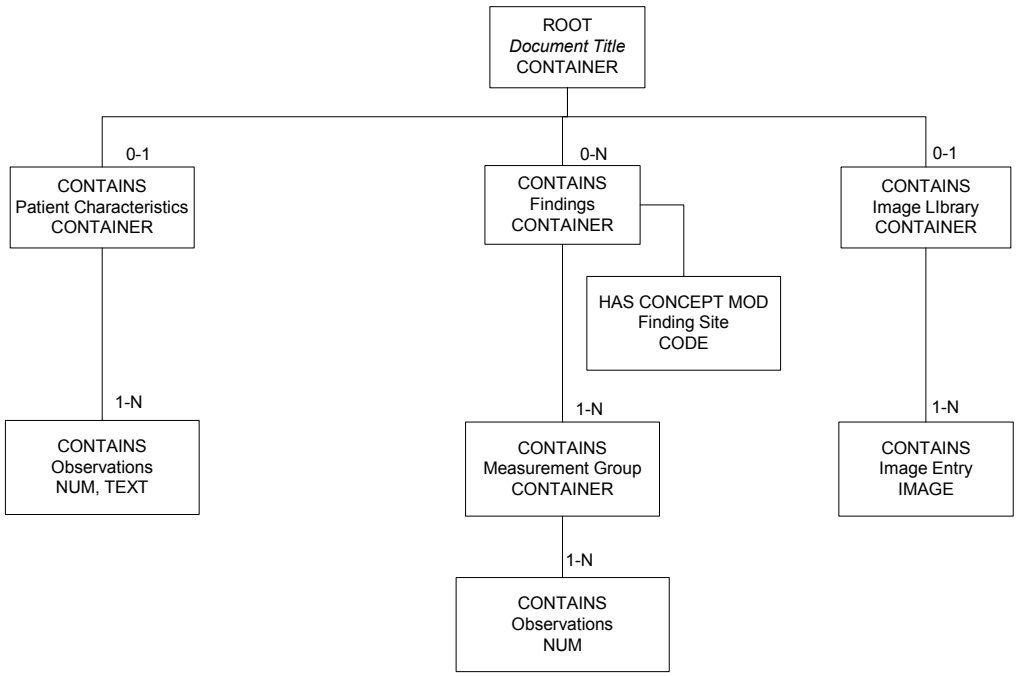

Figure X.1-1 Top Level Structure of Content

X.1 Echo Patterns

The common echocardiography measurement pattern is a group of measurements obtained in the context of a protocol. The figure below shows the pattern.

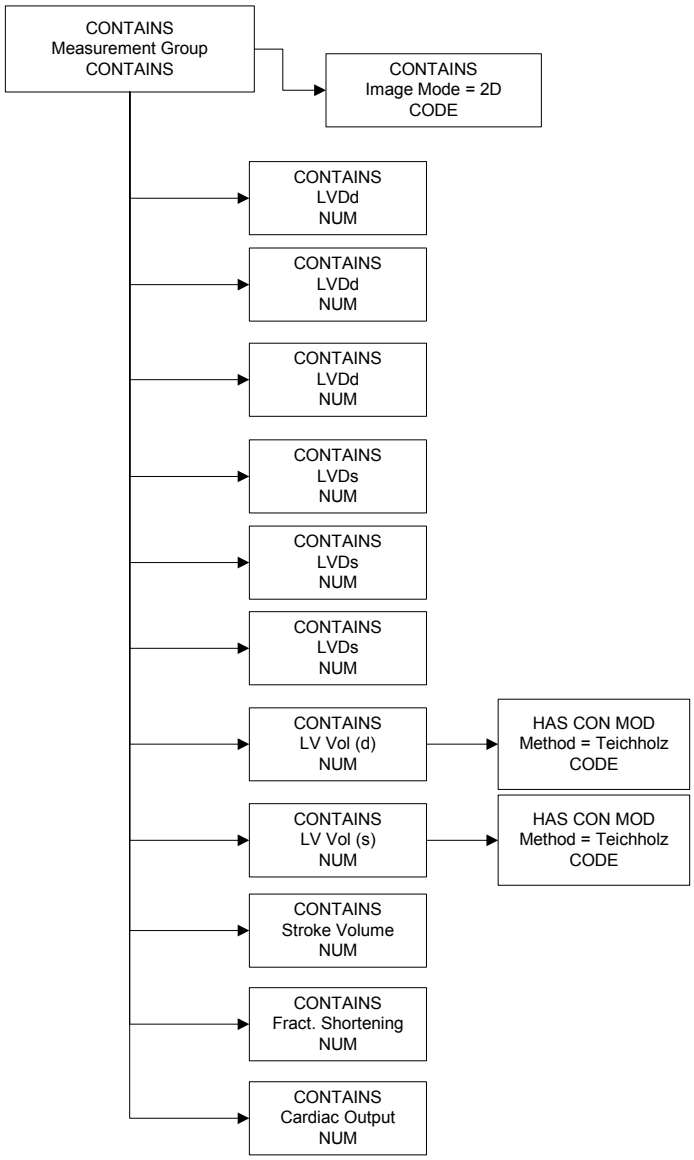

Figure X.1-2 Echocardiography Measurement Group Example

X.2 Measurement Terminology Composition

DICOM identifies echocardiography observations with various degrees of pre- and post-coordination. The concept name of the base content item typically specifies both anatomy and property for commonly used terms, or purely a property. Pure property concepts require an anatomic site concept modifier. Pure property concepts such as those in CID 12222 Orifice Flow Properties and CID 12239 Cardiac Output Properties use concept modifiers shown below.

Concept Name of Modifier	Value Set

(G-C036, SRT, “Measurement Method”)	CID 12227 Echo Measurement Method
(G-C0E3, SRT, “Finding Site”)	CID 12236 Echo Anatomic Sites
(G-A1F8, SRT, “Topographical Modifier”)	CID 12237 Echo Anatomic Site Modifiers
(G-C048, SRT, “Flow Direction”)	CID 12221 Flow Direction
(R-4089A, SRT, “Respiratory Cycle Point”)	CID 12234 Respiration State
(R-4089A, SRT, “Cardiac Cycle Point”)	CID 12233 Cardiac Phase
(121401, DCM, ”Derivation”)	CID 3627 Measurement Type

Further qualification specifies the image mode and the image plane using HAS ACQ CONTEXT with the value sets shown below.

Concept Name	Value Set
(G-0373, SRT, “Image Mode”)	CID 12224 Ultrasound Image Modes
(111031, DCM, “Image View”)	CID 12226 Echocardiography Image View

X.3 Illustrative Mapping to ASE Concepts

The content of this section provides recommendations on how to express the concepts from draft ASE guidelines with measurement type concept names and concept name modifiers.

The leftmost column is the name of the ASE concept. The Base Measurement Concept Name is the concept name of the numeric measurement content item. The modifiers column specifies a set of modifiers for the base measurement concept name. Each modifier consists of a modifier concept name (e.g. method or mode) and its value (e.g. Continuity). Where no Concept Modifier appears, the base concept matches the ASE concept.

X.3.1 Aorta

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Aortic Root Diameter	(18015-8, LN, “Aortic Root Diameter”)	
Ascending Aortic Diameter	(18012-5, LN, “Ascending Aortic Diameter”)	
Aortic Arch Diameter	(18011-7, LN, ”Aortic Arch Diameter”)	
Descending Aortic Diameter	(18013-3, LN, “Descending Aortic Diameter”)	

X.3.2 Aortic Valve

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Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Aortic Valve Cusp Separation	(17996-0, LN, "Aortic Valve Cusp Separation")	
Aortic Valve Systolic Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Valve Systolic Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Valve Systolic Area	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Valve Planimetered Systolic Area	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125220, DCM, "Planimetry")
Aortic Valve Systolic Area by Continuity	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125212, DCM, "Continuity Equation")
Aortic Valve Systolic Area by Continuity of Peak Velocity	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125214. DCM, "Continuity Equation Peak Velocity")
Aortic Valve Systolic Area by Continuity of Mean Velocity	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125213. DCM, "Continuity Equation by Mean Velocity")
Aortic Valve Systolic Area by Continuity of VTI	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (1252125, DCM, "Continuity Equation by Velocity Time Integral")
Aortic Valve Systolic Peak Instantaneous Gradient	(20247-3 LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Valve Systolic Mean Gradient	(20256-4, LN, "Mean Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Annulus Systolic Diameter	(G-038F, SRT, "Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (T-35410, SRT, "Aortic Valve Ring") (G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Aortic Valve Regurgitant Diastolic Deceleration Slope	(20216-8, LN, "Deceleration Slope")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Aortic Valve Regurgitant Diastolic Deceleration Time	(20217-6, LN, "Deceleration Time")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Aortic Valve Regurgitant Diastolic Pressure Half-time	(20280-4, LN, "Pressure Half-Time")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Aortic Insufficiency, End-Diastolic Pressure Gradient	(20247-3, LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Aortic Insufficiency, End Diastolic Velocity	(11653-3, LN, "End Diastolic Velocity")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")

Note: Aortic Valve measurements appear in TID 5202 which specifies the Finding Site to be Aortic Valve with the concept modifier (G-C0E3, SRT, "Finding Site") = (T-35400, SRT, "Aortic Valve").Therefore, the Finding Site modifier does not appear in the right column.

X.3.3 Left Ventricle - Linear

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricle Internal End Diastolic Dimension	(29436-3, LN "Left Ventricle Internal End Diastolic Dimension")	
Left Ventricle Internal Systolic Dimension	(29438-9, LN, "Left Ventricle Internal Systolic Dimension")	
Left Ventricle Diastolic Major Axis	(18077-8, LN, "Left Ventricle Diastolic Major Axis")	
Left Ventricle Systolic Major Axis	(18076-0, LN, "Left Ventricle Systolic Major Axis")	
Left Ventricular Fractional Shortening	(18051-3, LN, "Left Ventricular Fractional Shortening")	
Interventricular Septum Diastolic Thickness	(18154-5, LN, "Interventricular Septum Diastolic Thickness")	
Interventricular Septum Systolic Thickness	(18158-6, LN, "Interventricular Septum Systolic Thickness")	
Interventricular Septum % Thickening	(18054-7, LN, "Interventricular Septum % Thickening")	

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricle Posterior Wall Diastolic Thickness	(18152-9, LN, “Left Ventricle Posterior Wall Diastolic Thickness”)	
Left Ventricle Posterior Wall Systolic Thickness	(18156-0, LN, “Left Ventricle Posterior Wall Systolic Thickness”)	
Left Ventricle Posterior Wall % Thickening	(18053-9, LN, “Left Ventricle Posterior Wall % Thickening”)	
Interventricular Septum to Posterior Wall Thickness ratio	(18155-2, LN, “Interventricular Septum to Posterior Wall Thickness Ratio”)	
Left Ventricular Internal End Diastolic Dimension by 2-D	(29436-3, LN, “Left Ventricle Internal End Diastolic Dimension”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Left Ventricular Internal Systolic Dimension by 2-D	(29438-9, LN, “Left Ventricle Internal Systolic Dimension”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Left Ventricular Fractional Shortening by 2-D	(18051-3, LN, “Left Ventricular Fractional Shortening”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Interventricular Septum Diastolic Thickness by 2-D	(18154-5, LN, “Interventricular Septum Diastolic Thickness”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Interventricular Septum Systolic Thickness by 2-D	(18158-6, LN, “Interventricular Septum Systolic Thickness”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Interventricular Septum % Thickening by 2-D	(18054-7, LN, “Interventricular Septum % Thickening”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Left Ventricular Posterior Wall Diastolic Thickness by 2-D	(18152-9, LN, “Left Ventricle Posterior Wall Diastolic Thickness”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)
Left Ventricle Posterior Wall Systolic Thickness by 2-D	(18156-0, LN, “Left Ventricle Posterior Wall Systolic Thickness”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”)

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricle Posterior Wall % Thickening by 2-D	(18053-9, LN, "Left Ventricle Posterior Wall % Thickening")	G-0373, SRT, "Image Mode") = (G-03A2, SRT, "2D mode")
Interventricular Septum/ Left Ventricular Posterior Wall Diastolic Thickness Ratio by 2-D	(18155-2, LN, "Interventricular Septum to Posterior Wall Thickness Ratio")	(G-0373, SRT, "Image Mode") = (G-03A2, SRT, "2D mode")
Left Ventricular Internal End Diastolic Dimension by M-Mode	(29436-3, LN, "Left Ventricle Internal End Diastolic Dimension")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Ventricular Internal Systolic Dimension by M-Mode	(29438-9, LN, "Left Ventricle Internal Systolic Dimension")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Ventricular Systolic Fractional Shortening by M-Mode	(18051-3, LN, "Left Ventricular Fractional Shortening")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Interventricular Septum Diastolic Thickness by M-Mode	(18154-5, LN, "Interventricular Septum Diastolic Thickness")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Interventricular Septum Systolic Thickness by M-Mode	(18158-6, LN, "Interventricular Septum Systolic Thickness")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Interventricular Septum % Thickening by M-Mode	(18054-7, LN, "Interventricular Septum % Thickening")	G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Ventricular Posterior Wall Diastolic Thickness by M-Mode	(18152-9, LN, "Left Ventricle Posterior Wall Diastolic Thickness")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Ventricle Posterior Wall Systolic Thickness by M-Mode	(18156-0, LN, "Left Ventricle Posterior Wall Systolic Thickness")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Ventricle Posterior Wall % Thickening by M-Mode	(18053-9, LN, "Left Ventricle Posterior Wall % Thickening")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Interventricular Septum to Left Ventricular Posterior Wall Ratio by M-Mode	(18155-2, LN, "Interventricular Septum to Posterior Wall Thickness Ratio")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")

172 **X.3.4 Left Ventricle Volumes and Ejection Fraction**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricular End Diastolic Volume	(18026-5, LN, "Left Ventricular End Diastolic Volume")	
Left Ventricular End Diastolic Volume by Teichholz Method	(18026-5, LN, "Left Ventricular End Diastolic Volume")	(G-C036, SRT, "Measurement Method") = (125209, DCM, "Teichholz")
Left Ventricular End Diastolic Volume by 2-D Single Plane by Method of Disks (4-Chamber)	(18026-5, LN, "Left Ventricular End Diastolic Volume")	(111031, DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber") (G-C036, SRT, "Measurement Method") = (125208, DCM, "Method of Disks, Single Plane")
Left Ventricular End Diastolic Volume by 2-D Biplane by Method of Disks	(18026-5, LN, "Left Ventricular End Diastolic Volume")	(G-C036, SRT, "Measurement Method") = (125207, DCM, "Method of Disks, Biplane")
Left Ventricular End Systolic Volume	(18148-7, LN, "Left Ventricular End Systolic Volume")	
Left Ventricular End Systolic Volume by Teichholz Method	(18148-7, LN, "Left Ventricular End Systolic Volume")	(G-C036, SRT, "Measurement Method") = (125209, DCM, "Teichholz")
Left Ventricular End Systolic Volume by 2D Single Plane by Method of Disks (4-Chamber)	(18148-7, LN, "Left Ventricular End Systolic Volume")	(111031, DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber") (G-C036, SRT, "Measurement Method") = (125208, DCM, "Method of Disks, Single Plane")
Left Ventricular End Systolic Volume by 2-D Biplane by Method of Disks	(18148-7, LN, "Left Ventricular End Systolic Volume")	(G-C036, SRT, "Measurement Method") = (125207, DCM, "Method of Disks, Biplane")
Left Ventricular EF	(18043-0, LN, "Left Ventricular Ejection Fraction")	
Left Ventricular EF by Teichholz Method	(18043-0, LN, "Left Ventricular Ejection Fraction")	(G-C036, SRT, "Measurement Method") = (125209, DCM, "Teichholz")
Left Ventricular EF by 2D Single Plane by Method of Disks (4-Chamber)	(18043-0, LN, "Left Ventricular Ejection Fraction")	(111031, DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber ") (G-C036, SRT, "Measurement Method") = (125208, DCM, "Method Of Disks, Single Plane")
Left Ventricular EF by 2-D Biplane by Method of Disks	(18043-0, LN, "Left Ventricular Ejection Fraction")	(G-C036, SRT, "Measurement Method") = (1252087, DCM, "Method of Disks, Biplane")

X.3.5 Left Ventricle Output

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricular Stroke Volume	(F-32120, SRT, "Stroke Volume")	
Left Ventricular Stroke Volume by Doppler Volume Flow	(F-32120, SRT, "Stroke Volume")	(G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow") (G-C0E3, SRT, "Finding Site") = (T-32650, SNM3, "Left Ventricle Outflow Tract")
Left Ventricular Stroke Volume by Teichholz Method	(F-32120, SRT, "Stroke Volume")	(G-C036, SRT, "Measurement Method") = (125209, DCM, "Teichholz")
Left Ventricular Stroke Volume by 2-D Single Plane by Method of Disks (4-Chamber)	(F-32120, SRT, "Stroke Volume")	(1110321 DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber") (G-C036, SRT, "Measurement Method") =(125208, DCM, "Method of Disks, Single Plane")
Left Ventricular Stroke Volume by 2-D Biplane by Method of Disks	(F-32120, SRT, "Stroke Volume")	(G-C036, SRT, "Measurement Method") = (125207, DCM, "Method of Disks, Biplane")
Left Ventricular Cardiac Output	(F-32100, SRT, "Cardiac Output")	
Left Ventricular Cardiac Output by Doppler Volume Outflow	(F-32100, SRT, "Cardiac Output")	(G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow") (G-C0E3, SRT, "Finding Site")= (T-32650, SNM3, "Left Ventricle Outflow Tract")
Left Ventricular Cardiac Output by Teichholz Method	(F-32100, SRT, "Cardiac Output")	(G-C036, SRT, "Measurement Method") =(125209, DCM, "Teichholz")
Left Ventricular Cardiac Output by 2-D Single Plane by Method of Disks (4-Chamber)	(F-32100, SRT, "Cardiac Output")	(111031, DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber") (G-C036, SRT, "Measurement Method") = (125208, DCM, "Method of Disks, Single Plane")
Left Ventricular Cardiac Output by 2-D Biplane by Method of Disks	(F-32100, SRT, "Cardiac Output")	(G-C036, SRT, "Measurement Method") = (125207, DCM, "Method of Disks, Biplane")
Left Ventricular Cardiac Index	(F-32110, SRT, "Cardiac Index")	
Left Ventricular Cardiac Index by Doppler Volume Flow	(F-32110, SRT, "Cardiac Index")	(G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow")
Left Ventricular Cardiac Index by Teichholz Method	(F-32110, SRT, "Cardiac Index")	(G-C036, SRT, "Measurement Method") = (125209, DCM, "Teichholz")
Left Ventricular Cardiac Index by 2-D Single Plane by Method of Disks (4-Chamber)	(F-32110, SRT, "Cardiac Index")	(111031, DCM, "Image View") = (G-A19B, SRT, "Apical Four Chamber") (G-C036, SRT, "Measurement Method") = (125208, DCM, "Method Of Disks, Single Plane")
Left Ventricular Cardiac Index by 2-D Biplane by Method of Disks	(F-32110, SRT, "Cardiac Index")	(G-C036, SRT, "Measurement Method") = (125207, DCM, "Method of Disks, Biplane")

176 Note: Measurements in the Left Ventricle section have context of Left Ventricle and do not require a Finding Site modifer (G-C0E3, SRT, “Finding Site”) = (T-35400, SRT, “Left Ventricle”) to specifiy the site.The Finding Site modifier appears for more specificity.

180 **X.3.6 Left Ventricular Outflow Tract**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricular Outflow Tract Systolic Diameter	(G-038F, SRT, “Cardiovascular Orifice Diameter”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Cross Sectional Area	(G-038E, SRT, “Cardiovascular Orifice Area”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Peak Velocity	(11726-7, LN, “Peak Velocity”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Peak Instantaneous Gradient	(20247-3, LN, “Peak Gradient”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Mean Velocity	(20352-1, LN, “Mean Velocity”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Mean Gradient	(20256-4, LN, “Mean Gradient”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)
Left Ventricular Outflow Tract Systolic Velocity Time Integral	(11726-7, LN, “Peak Velocity”)	(G-C0E3, SRT, “Finding Site”) = (T-32651, SRT, “Left Ventricular Outflow Tract”)

X.3.7 Left Ventricle Mass

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricle Mass	(18087-7, LN, “Left Ventricle Mass”)	
Left Ventricular Mass by 2-D Method of Disks, Single Plane (4-Chamber)	(18087-7, LN, “Left Ventricle Mass”)	(G-0373, SRT, “Image Mode”) = (G-03A2, SRT, “2D mode”) (G-C036, SRT, “Measurement Method”) = (125208, DCM, “Method Of Disks, single plane”)
Left Ventricular Mass by 2-D Biplane by Method of Disks	(18087-7, LN, “Left Ventricle Mass”)	(G-0373, SRT, “Image Mode”) =(G-03A2, SRT, “2D mode”) (G-C036, SRT, “Measurement Method”) = (1252087, DCM, “Method of disks, biplane”)
Left Ventricular Mass by M-Mode	(18087-7, LN, “Left Ventricle Mass”)	(G-0373, SRT, “Image Mode”) = (G-0394, SRT, “M mode”)

184 **X.3.8 Left Ventricle Miscellaneous**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Ventricular Isovolumic Relaxation Time	(18071-1, LN, "Left Ventricular Isovolumic Relaxation Time")	
Left Ventricular Isovolumic Contraction Time	(G-037E, SRT, "Left Ventricular Isovolumic Contraction Time")	
Left Ventricular Peak Early Diastolic Tissue Velocity at the Medial Mitral Annulus	(G-037A, SRT, "Left Ventricular Peak Early Diastolic Tissue Velocity")	(G-C0E3, SRT, "Finding Site") = (G-0391, SRT, "Medial Mitral Annulus")
Left Ventricular Peak Early Diastolic Tissue Velocity at the Lateral Mitral Annulus	(G-037A, SRT, "Left Ventricular Peak Early Diastolic Tissue Velocity")	(G-C0E3, SRT, "Finding Site") = (C4360-2, SRT, "Lateral Mitral Annulus")
Ratio of Mitral Valve E-Wave Peak Velocity to Left Ventricular Peak Early Diastolic Tissue Velocity at the Medial Mitral Annulus	(G-037B, SRT, "Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave")	(G-C0E3, SRT, "Finding Site") = (G-0391, SRT, "Medial Mitral Annulus")
Ratio of Mitral Valve E-Wave Peak Velocity to Left Ventricular Peak Early Diastolic Tissue Velocity at the Lateral Mitral Annulus	(G-037B, SRT, "Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave")	(G-C0E3, SRT, "Finding Site") = (G-0392, SRT, "Lateral Mitral Annulus")
Left Ventricular Peak Diastolic Tissue Velocity at the Medial Mitral Annulus During Atrial Systole	(G-037C, SRT, "LV Peak Diastolic Tissue Velocity During Atrial Systole")	(G-C0E3, SRT, "Finding Site") = (G-0391, SRT, "Medial Mitral Annulus")
Left Ventricular Peak Diastolic Tissue Velocity at the Lateral Mitral Annulus During Atrial Systole	(G-037C, SRT, "LV Peak Diastolic Tissue Velocity During Atrial Systole")	(G-C0E3, SRT, "Finding Site") = (G-0392, SRT, "Lateral Mitral Annulus")
Left Ventricular Peak Systolic Tissue Velocity at the Medial Mitral Annulus	(G-037D, SRT, "Left Ventricular Peak Systolic Tissue Velocity")	(G-C0E3, SRT, "Finding Site") = (G-0391, SRT, "Medial Mitral Annulus")
Left Ventricular Peak Systolic Tissue Velocity at the Lateral Mitral Annulus	(G-037D, SRT, "Left Ventricular Peak Systolic Tissue Velocity")	(G-C0E3, SRT, "Finding Site") = (G-0392, SRT, "Lateral Mitral Annulus")

X.3.9 Mitral Valve

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Mitral Valve Area	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Valve Area by Continuity	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125212. DCM, "Continuity Equation")
Mitral Valve Area by Planimetry	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125220, DCM, "Planimetry")
Mitral Valve Area by Pressure Half-time	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125210, DCM, "Area by PHT")
Mitral Valve Area by Proximal Isovelocity Surface Area	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method") = (125216, DCM, "Proximal Isovelocity Surface Area")
Mitral Valve Pressure Half-time	(20280-4, LN, "Pressure Half-Time")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Valve A-Wave Peak Velocity	(17978-8, LN, "Mitral Valve A-Wave Peak Velocity")	
Mitral Valve E-Wave Peak Velocity	(18037-2, LN, "Mitral Valve E-Wave Peak Velocity")	
Mitral Valve E to A Ratio	(18038-0, LN, "Mitral Valve E to A Ratio")	
Mitral Valve E-Wave Deceleration Time	(G-0384, SRT, "Mitral Valve E-Wave Deceleration Time")	
Mitral Valve E-F Slope by M-Mode	(18040-6, LN, "Mitral Valve E-F Slope by M-Mode")	
Mitral Valve Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Valve Diastolic Peak Instantaneous Gradient	(20247-3, LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Valve Diastolic Mean Gradient	(20256-4, LN, "Mean Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Valve Annulus Diastolic Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C0E3, SRT, "Finding Site") = (T-35313, SRT, "Mitral Annulus") (G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Mitral Valve Annulus Diastolic Diameter	(G-038F, SRT, "Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (T-35313, SRT, "Mitral Annulus") (G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Mitral Regurgitant Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Mitral Valve Effective Regurgitant Orifice by Proximal Isovelocity Surface Area Method	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow") G-C036, SRT, "Measurement Method") = (125216, DCM, "Proximal Isovelocity Surface Area")
Mitral Valve Regurgitant Volume by Proximal Isovelocity Surface Area Method	(33878-0, LN, "Volume Flow")	(G-C0E3, SRT, "Finding Site") = (T-35313, SRT, "Mitral Annulus") (G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method") = (125216, DCM, "Proximal Isovelocity Surface Area")
Mitral Valve Regurgitant Fraction	(G-0390, SRT, "Regurgitant Fraction")	
Mitral Valve Regurgitant Fraction by PISA	(G-0390-4, SRT, "Regurgitant Fraction")	(G-C036, SRT, "Measurement Method") = (125216, DCM, "Proximal Isovelocity Surface Area")
Mitral Valve Regurgitant Fraction by Mitral Annular Flow	(G-0390, SRT, "Regurgitant Fraction")	(G-C0E3, SRT, "Finding Site") = (T-35313, SRT, "Mitral Annulus") (G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow")
Mitral Regurgitation Peak Gradient	(20247-3, LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Left Ventricular dP/dt derived from Mitral Regurgitation velocity	(18035-6, LN, "Mitral Regurgitation dP/dt derived from Mitral Regurgitation velocity")	

188 Note: Mitral Valve measurements appear in TID 5202 which specifies the Finding Site to be Mitral Valve with the concpet modifier (G-C0E3, SRT, "Finding Site") = (T-35300, SRT, "Mitral Valve").Therefore, the Finding Site modifier does not appear in the right column.

192 **X.3.10 Pulmonary Vein**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Pulmonary Vein Systolic Peak Velocity	(29450-4, LN, "Pulmonary Vein Systolic Peak Velocity")	

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Pulmonary Vein Diastolic Peak Velocity	(29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity")	
Pulmonary Vein Systolic to Diastolic Ratio	(29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio")	
Pulmonary Vein Atrial Contraction Reversal Peak Velocity	(29453-8, LN, "Pulmonary Vein Atrial Contraction Reversal Peak Velocity")	
Right Upper Pulmonary Vein Peak Systolic Velocity	(29450-4, LN, "Pulmonary Vein Systolic Peak Velocity")	(G-A1F8G-A1F8, SRT, "Topographical Modifier") = (R-404A0, SRT, "Right Upper Segment")
Right Upper Pulmonary Vein Diastolic Peak Velocity	(29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity")	(G-A1F8G-A1F8, SRT, "Topographical Modifier") = (R-404A0, SRT, "Right Upper Segment")
Right Upper Pulmonary Vein Systolic to Diastolic Velocity Ratio	(29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio")	(G-A1F8, SRT, "Anatomic Site Modifier") = (R-404A0, SRT, "Right Upper Segment")
Right Lower Pulmonary Vein Peak Systolic Velocity	(29450-4, LN, "Pulmonary Vein Systolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-4049E, SRT, "Right Lower Segment")
Right Lower Pulmonary Vein Diastolic Peak Velocity	(29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-4049E, SRT, "Right Lower Segment")
Right Lower Pulmonary Vein Systolic to Diastolic Velocity Ratio	(29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio")	(G-A1F8, SRT, "Topographical Modifier") = (R-4049E, SRT, "Right Lower Segment")
Left Upper Pulmonary Vein Peak Systolic Velocity	(29450-4, LN, "Pulmonary Vein Systolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-40491, SRT, "Left Upper Segment")
Left Upper Pulmonary Vein Velocity Peak Diastolic	(29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-40491, SRT, "Left Upper Segment")
Left Upper Pulmonary Vein Systolic to Diastolic Velocity Ratio	(29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio")	(G-A1F8, SRT, "Topographical Modifier") = (R-40491, SRT, "Left Upper Segment")

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Lower Pulmonary Vein Peak Systolic Velocity	(29450-4, LN, "Pulmonary Vein Systolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-4214B, SRT, "Left Lower Segment")
Left Lower Pulmonary Vein Diastolic Peak Velocity	(29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity")	(G-A1F8, SRT, "Topographical Modifier") = (R-4214B, SRT, "Left Lower Segment")
Left Lower Pulmonary Vein Systolic to Diastolic Velocity Ratio	(29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio")	(G-A1F8, SRT, "Topographical Modifier") = (R-4214B, SRT, "Left Lower Segment")

X.3.11 Left Atrium / Appendage

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Left Atrium Antero-posterior Systolic Dimension	(29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension")	
Left Atrial Antero-posterior Systolic Dimension by M-Mode	(29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Left Atrial Antero-posterior Systolic Dimension by 2-D	(29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension")	(G-0373, SRT, "Image Mode") = (G-03A2, SRT, "2D mode")
Left Atrium to Aortic Root Ratio	(17985-3, LN, "Left Atrium to Aortic Root Ratio")	
Left Atrial Appendage Peak Velocity	(29486-8, LN, "Left Atrial Appendage Peak Velocity")	
Left Atrium Systolic Area	(17977-0, LN, "Left Atrium Systolic Area")	
Left Atrium Systolic Volume	(G-0383, SRT, "Atrium Systolic Volume")	

196 **X.3.12 Right Ventricle**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Right Ventricular Internal Diastolic Dimension by M-Mode	(20304-2, SRT, "Right Ventricular Internal Diastolic Dimension")	(G-0373, SRT, "Image Mode") = (G-0394, SRT, "M mode")
Right Ventricular Internal Diastolic Dimension by 2-D	(20304-2, SRT, "Right Ventricular Internal Diastolic Dimension")	(G-0373, SRT, "Image Mode") = (G-03A2, SRT, "2D mode")
Right Ventricular Outflow Tract Systolic Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Outflow Tract Systolic Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Outflow Systolic Diameter by 2-D	(G-038F, SRT, "Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract") (G-0373, SRT, "Image Mode") =(G-03A2, SRT, "2D mode")
Right Ventricular Outflow Tract Systolic Peak Instantaneous Gradient	(20247-3, LN, "Peak Gradient")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Outflow Tract Systolic Mean Gradient	(20256-4, LN, "Mean Gradient")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Stroke Volume by Doppler Volume Outflow	(F-32120, SRT, "Stroke Volume")	(G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow") (G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Outflow Tract Area	(G-038E, SRT, "Cardiovascular Orifice Area")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricular Outflow Tract Mean Velocity	(20352-1, LN, "Mean Velocity")	(G-C0E3, SRT, "Finding Site") = (T-32550, SRT, "Right Ventricular Outflow Tract")
Right Ventricle Anterior Wall Diastolic Thickness	(18153-7, LN, "Right Ventricle Anterior Wall Diastolic Thickness")	
Right Ventricular Anterior Wall Systolic Thickness	(18157-8, LN, "Right Ventricular Anterior Wall Systolic Thickness")	
Right Ventricular Peak Systolic Pressure	(G-0380, SRT, "Right Ventricular Peak Systolic Pressure")	

X.3.13 Pulmonic Valve / Pulmonic Artery

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Main Pulmonary Artery Diameter	(18020-8, LN, "Main Pulmonary Artery Diameter")	
Main Pulmonary Artery Velocity	(G-038A, SRT, "Main Pulmonary Artery Velocity")	
Right Pulmonary Artery Diameter	(18021-6, LN, "Right Pulmonary Artery Diameter")	
Left Pulmonary Artery Diameter	(18019-0, LN, "Left Pulmonary Artery Diameter")	
Pulmonic Valve Systolic Peak Instantaneous Gradient	(20247-3, LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Pulmonic Valve Systolic Mean Gradient	(20256-4, LN, "Mean Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Pulmonic Valve Systolic Peak Velocity	(20354-7, LN, 11726-7, LN, "Peak Velocity")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Pulmonic Valve Systolic Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Pulmonic Valve Area by Continuity	(18096-8, LN, "Pulmonic valve Area by Continuity")	
Pulmonic Valve Acceleration Time	(20168-1, LN, "Acceleration Time")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Pulmonic Valve Regurgitant End Diastolic Velocity	(11653-3, LN, "End Diastolic Velocity")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Pulmonic Valve Regurgitant Diastolic Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")

200 Note: Pulmonic Valve measurements appear in TID 5202 which specifies the Finding Site to be Pulmonic Valve with the concept modifier (G-C0E3, SRT, "Finding Site") = (T-35100, SRT, "Pulmonic Valve"). Therefore, this Finding Site concept modifier does not appear in the right column.

204 **X.3.14 Tricuspid Valve**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Tricuspid Valve Mean Diastolic Velocity	(20352-1, LN, "Mean Velocity")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Tricuspid Valve E Wave Peak Velocity	(18031-5, LN, "Tricuspid Valve E Wave Peak Velocity")	

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Tricuspid Valve A Wave Peak Velocity	(18030-7, LN, "Tricuspid Valve A Wave Peak Velocity")	
Tricuspid Valve Diastolic Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Tricuspid Valve Peak Diastolic Gradient	(20247-3, LN, Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Tricuspid Valve Mean Diastolic Gradient	(20256-4, LN, Mean Gradient")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Tricuspid Valve Annulus Diastolic Diameter	(G-038F, SRT, Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (T-35111, SRT, "Tricuspid Annulus") (G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")
Tricuspid Valve Regurgitant Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Tricuspid Regurgitation Peak Pressure Gradient	(20247-3, LN, "Peak Gradient")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Tricuspid Regurgitation Velocity Time Integral	(20354-7, LN, "Velocity Time Integral")	(G-C048, SRT, "Orifice Function") = (R-42E61, SRT, "Regurgitant Flow")
Tricuspid Valve Deceleration Time	(20217-6, LN, "Deceleration Time")	(G-C048, SRT, "Orifice Function") = (R-42047, SRT, "Antegrade Flow")

Note: TRICUSPID Valve measurements appear in TID 5202 which specifies the Finding Site to be Tricuspid Valve with the concept modifier (G-C0E3, SRT, "Finding Site") = (T-35100, SRT, "Tricuspid Valve"). Therefore, the Finding Site modifier does not appear in the right column.

X.3.15 Right Atrium / Inferior Vena Cava

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Right Atrium Systolic Pressure	(18070-3, LN, "Right Atrium Systolic Pressure")	
Right Atrium Systolic Area	(17988-7, LN, "Right Atrium Systolic Area")	
Inferior Vena Cava Diameter	(18006-7, LN, "Inferior Vena Cava Diameter")	
Inferior Vena Cava Diameter at Inspiration	(18006-7, LN, "Inferior Vena Cava Diameter")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20010, SRT, "During Inspiration")
Inferior Vena Cava Diameter at Expiration	(18006-7, LN, "Inferior Vena Cava Diameter")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20020, SRT, "During Expiration")

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Inferior Vena Cava % Collapse	(18050-5, LN, "Inferior Vena Cava % Collapse")	
Hepatic Vein Systolic Peak Velocity	(29471-0, LN, "Hepatic Vein Systolic Peak Velocity")	
Hepatic Vein Diastolic Peak Velocity	(29472-8, LN, "Hepatic Vein Diastolic Peak Velocity")	
Hepatic Vein Systolic to Diastolic Ratio	(29473-6, LN, "Hepatic Vein Systolic to Diastolic Ratio")	
Hepatic Vein Atrial Contraction Reversal Peak Velocity	(29474-4, LN, "Hepatic Vein Atrial Contraction Reversal Peak Velocity")	
Hepatic Vein Peak Systolic Velocity at Inspiration	(29471-0, LN, "Hepatic Vein Systolic Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20010, SRT, "During Inspiration")
Hepatic Vein Peak Diastolic Velocity at Inspiration	(29472-8, LN, "Hepatic Vein Diastolic Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20010, SRT, "During Inspiration")
Hepatic Vein Systolic to Diastolic Ratio at Inspiration	(29473-6, LN, "Hepatic Vein Systolic to Diastolic Ratio")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20010, SRT, "During Inspiration")
Hepatic Vein Peak Atrial Contraction Reversal Velocity at Inspiration	(29474-4, LN, "Hepatic Vein Atrial Contraction Reversal Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20010, SRT, "During Inspiration")
Hepatic Vein Peak Systolic Velocity at Expiration	(29471-0, LN, "Hepatic Vein Systolic Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20020, SRT, "During Expiration")
Hepatic Vein Peak Diastolic Velocity at Expiration	(29472-8, LN, "Hepatic Vein Diastolic Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20020, SRT, "During Expiration")
Hepatic Vein Systolic to Diastolic Ratio at Expiration	(29473-6, LN, "Hepatic Vein Systolic to Diastolic Ratio")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20020, SRT, "During Expiration")

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Hepatic Vein Peak Atrial Contraction Reversal Velocity at Expiration	(29474-4, LN, "Hepatic Vein Atrial Contraction Reversal Peak Velocity")	(R-40899, SRT, "Respiratory Cycle Point") = (F-20020, SRT, "During Expiration")

212 **X.3.16 Congenital / Pediatric**

Name of ASE Concept	Base Measurement Concept Name	Concept or Acquisition Context Modifiers
Thoracic Aorta Coarctation Systolic Peak Velocity	(29460-3, LN, "Thoracic Aorta Coarctation Systolic Peak Velocity")	
Thoracic Aorta Coarctation Systolic Peak Instantaneous Gradient	(17995-2, LN, "Thoracic Aorta Coarctation Systolic Peak Instantaneous Gradient")	
Thoracic Aorta Coarctation Systolic Mean Gradient	(17995-2, LN, "Thoracic Aorta Coarctation Systolic Peak Instantaneous Gradient")	
Ventricular Septal Defect Diameter	(G-038F, SRT, "Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (D4-31150, SRT, "Ventricular Septal Defect")
Ventricular Septal Defect Systolic Peak Instantaneous Gradient	(20247-3, LN, "Peak Gradient")	(G-C0E3, SRT, "Finding Site") = (D4-31150, SRT, "Ventricular Septal Defect")
Ventricular Septal Defect Systolic Mean Gradient	(20256-4, LN, "Mean Gradient")	(G-C0E3, SRT, "Finding Site") = (D4-31150, SRT, "Ventricular Septal Defect")
Ventricular Septum Defect Systolic Peak Velocity	(11726-7, LN, "Peak Velocity")	(G-C0E3, SRT, "Finding Site") = (D4-31150, SRT, "Ventricular Septal Defect")
Atrial Septal Defect Diameter	(G-038F, SRT, "Cardiovascular Orifice Diameter")	(G-C0E3, SRT, "Finding Site") = (D4-31220, SRT, "Atrial Septal Defect")
Pulmonary-to-Systemic Shunt Flow Ratio	(29462-9, LN, "Pulmonary-to-Systemic Shunt Flow Ratio")	
Pulmonary-to-Systemic Shunt Flow Ratio by Doppler Volume Flow	(29462-9, LN, "Pulmonary-to-Systemic Shunt Flow Ratio")	(G-C036, SRT, "Measurement Method") = (125219, DCM, "Doppler Volume Flow")

X.4 ENCODING EXAMPLES

X.4.1 Example 1: Patient Characteristics

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Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Patient Characteristics		5201
>>	Subject Age	39 years	5201
>>	Subject Sex	M	5201
>>	Patient Height	167 cm	300
>>	Patient Weight	72.6 kg	300
>>	Body Surface Area	1.82 m2	300
>>>	Body Surface Area Formula	Code: 122240	5201

X.4.2 Example 2: LV Dimensions and Fractional Shortening

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Findings		5202
>>	Finding Site	Left Ventricle	5202
>>	Measurement Group		5202
>>	Acquisition Protocol	2D Dimensions	5202
>>>	Heart Rate	45 bpm	300
>>>	Left Ventricle Internal End Diastolic Dimension	5.09 cm	300
>>>>	Image Mode	2d	5203
>>>	Left Ventricle Internal End Diastolic Dimension	5.34 cm	300
>>>>	Image Mode	2d	5203
>>>	Left Ventricle Internal End Diastolic Dimension	5.22 cm	300
>>>>	Image Mode	2d	5203
>>>>	Derivation	Mean	300
>>>	Left Ventricle Internal Systolic Dimension	5.09 cm	300
>>>>	Image Mode	2d	5203
>>>	Left Ventricle Internal Systolic Dimension	5.34 cm	300
>>>>	Image Mode	2d	5203
>>>	Left Ventricle Internal Systolic Dimension	5.22 cm	300
>>>>	Image Mode	2d	5203
>>>>	Derivation	Mean	300
>>>	Interventricular Septum Diastolic Thickness	1.20 cm	300
>>>	Interventricular Septum Diastolic Thickness	1.20 cm	300

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
>>>>	Derivation	Mean	300
>>>	Left Ventricle Internal Systolic Dimension	5.09 cm	300
>>>	Left Ventricle Internal Systolic Dimension	5.30 cm	300
>>>>	Derivation	Mean	300
>>>	Left Ventricular Fractional Shortening	54.8%	300
>>>	…		…

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X.4.3 Example 3: Left Atrium / Aortic Root Ratio

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Findings		5202
>>	Finding Site	Left Atrium	5202
>>	Measurement Group		5202
>>>	Acquisition Protocol	2D Dimensions	5202
>>>	Left Atrium Antero-posterior Systolic Dimension	3.45 cm	5202
>>>	Left Atrium Antero-posterior Systolic Dimension	3.45 cm	5202
>>>>	Derivation	Mean	5202
>>>	Left Atrium to Aortic Root Ratio	1.35	5202
>	Findings		5202
>>	Finding Site	Aorta	5202
>>	Measurement Group		5202
>>	Acquisition Protocol	2D Dimensions	5202
>>>	Aortic Root Diameter	2.55 cm	5202
>>>	…		…

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Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Findings		5202
>>	Finding Site	Right Atrium	5202
>>	Measurement Group		5202
>>>	Acquisition Protocol	Pressure Predictions	5202
>>>	Right Atrium Systolic Pressure	10 mmHg	5202
>>>>	Derivation	User estimate	5202
>>	Finding Site	Right Ventricle	5202

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
>>	Measurement Group		5202
>>>	Acquisition Protocol	Pressure Predictions	5202
>>>	Right Ventricular Peak Systolic Pressure	49.3 mmHg	5202

X.4.5 Example 5: Cardiac Output

228

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Findings		5202
>>	Finding Site	Left Ventricle	5202
>>	Measurement Group		5202
>>	Image Mode	2D	5202
>>>	Heart Rate	89 bpm	5202
>>>	Left Ventricular End Diastolic Volume	38.914 ml	5202
>>>>	Measurement Method	Teichholz	5202
>>>	Left Ventricular End Systolic Volume	12.304 ml	5202
>>>>	Measurement Method	Teichholz	5202
…	…	…	…
>>>	Stroke Volume	26.6 ml	5202
>>>>	Anatomic Site	Left Ventricle	5202
>>>	Stroke Index	13.49 ml/m2	5202
>>>>	Anatomic Site	Left Ventricle	5202
>>>	Cardiac Output	2.37 l/min	5202
>>>>	Anatomic Site	Left Ventricle	5202
>>>	Cardiac Index	1.20 l/min/m2	5202
>>>>	Anatomic Site	Left Ventricle	5202
>>>>	Index	BSA	5202
>>>	Left Ventricular Ejection Fraction	68.4 %	5202
>>>	…		…

X.4.6 Example 6: Wall Scoring

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
	Adult Echocardiography Procedure Report		5200
>	….		…
>	Findings		5204

Nest	Code Meaning of Concept Name	Code Meaning or Example Value	TID
>>	Procedure Reported	Echocardiography for Determining Ventricular Contraction	5204
>>	Stage	Pre-stress image acquisition	5204
>>	LV Wall Motion Score Index	1.0	5204
>>>	Assessment Scale	5 Point Segment Finding Scale	5204
>>	Findings		5204
>>>	Wall Segment	Basal anterior	5204
>>>>	Wall motion finding	Normal	5204
>>>	Wall Segment	Basal anteroseptal	5204
>>>>	Wall motion finding	Normal	5204
>>>	Wall Segment	Basal inferoseptal	5204
>>>>	Wall motion finding	Akinetic	5204
…	… remaining segments …		5204
>	Wall Motion Analysis		5204
>>	Stage	Peak-stress image acquisition	5204
>>	LV Wall Motion Score Index	1.23	5204
>>>	Assessment Scale	5 Point Segment Finding Scale	5204
>>	Findings		5204
>>>	Wall Segment	Basal anterior	5204
>>>>	Score	Hypokinesis	5204
>>>	Wall Segment	Basal anteroseptal	5204
>>>>	Score	Akinetic	5204
>>>>	Morphology	Scar / Thinning	5204
>>>	Wall Segment	Basal inferoseptal	5204
>>>>	Score	Normal	5204
…	… remaining segments …		5204

Part 16 Structured Reporting Templates (Normative)

Add normative reference to Section 2 of PS3.16 Normative References

Quantitation of the Left Ventricle

Recommendations for Quantitation of the Left Ventricle by Two-Dimensional Echocardiography, Journal of the American Society of Echocardiography, Vol 2, No 5 358-367, Oct 1989.

Add the following Templates to Part 16 Annex A DCMR Templates (Normative):

240

TID 5200 Echocardiography Procedure Report

This template forms the top of a content tree that allows an ultrasound device to describe the results of an adult echocardiography imaging procedure. It is instantiated at the root node. It can also be included in
244 other templates that need to incorporate echocardiography findings into another report as quoted evidence.

Type: Extensible

TID 5200 – Echocardiography Procedure Report

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (125200, DCM, "Adult Echocardiography Procedure Report")	1	M		
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 (5201) Echocardiography Patient Characteristics	1	U		
5	>	CONTAINS	CONTAINER	(111028, DCM, "Image Library")	1	U		
6	>>	CONTAINS	IMAGE	No purpose of reference	1-n	M		
7	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-32600, SRT, "Left Ventricle") $MeasType = DCID (12200) Echocardiography Left Ventricle
8	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-32500, SRT, "Right Ventricle") $MeasType = DCID (12204) Echocardiography Right Ventricle
9	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-32300, SRT, "Left Atrium") $MeasType = DCID (12205) Echocardiography Left Atrium
10	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-32200, SRT, "Right Atrium") $MeasType = DCID (12206) Echocardiography Right Atrium
11	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-35400, SRT, "Aortic Valve") $MeasType = DCID (12211) Echocardiography Aortic Valve
12	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-35300, SRT, "Mitral Valve") $MeasType = DCID (12207) Echocardiography Mitral Valve
13	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-35200, SRT, "Pulmonic Valve") $MeasType = DCID (12209) Echocardiography Pulmonic Valve
14	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-35100, SRT, "Tricuspid Valve") $MeasType = DCID (12208) Echocardiography Tricuspid Valve

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
15	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-42000, SRT, "Aorta") $MeasType= DCID (12212) Echocardiography Aorta
16	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-44000, SRT, "Pulmonary artery") $MeasType DCID (12210) = Echocardiography Pulmonary Artery
17	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-48600, SRT, "Vena Cava" $MeasType = DCID (12215) Echocardiography Vena Cavae
18	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (T-48581, SRT, "Pulmonary Venous Structure" $MeasType = DCID (12214) Echocardiography Pulmonary Veins
19	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (P5-30031, SRT, "Cardiac Shunt Study") $MeasType = DCID (12217) Echocardiography Cardiac Shunt
20	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	U		$SectionSubject = EV (D4-30000, SRT, "Congenital Anomaly of Cardiovascular System") $MeasType = DCID (12218) Echocardiography Congenital
21	>	CONTAINS	INCLUDE	DTID (5204) Wall Motion Analysis	1-n	U		

Content Item Descriptions

Row 21 The wall motion findings of stress stage. There may be multiple Template instances to report wall motion findings of multiple stages.

TID 5201 Echocardiography Patient Characteristics

Patient Characteristic concepts in this template, which may replicate attributes in the Patient Study Module, are included here as possible targets of by-reference relationships from other content items in the SR tree.

Note: Several of the concepts in this template duplicate concepts in TID 1007 "Subject Context, Patient". The difference in use is that this template has those concepts as primary observations of the patient, while in TID 1007 the concepts are used to set (or reset) the context for other observations.

Type: Extensible

TID 5201
Echocardiography Patient Characteristics

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	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 (8867-4, LN, "Heart Rate")	1	U		
5		CONTAINS	NUM	EV (F-008EC, SRT, "Systolic Blood Pressure")	1	U		

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
		CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")	1	U		
6	>	CONTAINS	NUM	EV (8277-6, LN, “Body Surface Area”)	1	M		
7	>>	INFERRED FROM	CODE	EV (8248-4, LN, "Body Surface Area Formula")	1	U		BCID (3663) Body Surface Area Equations

TID 5202 Echo Section

This is a generic section heading Template for any of the anatomical headings. Measurements within a
264 section heading appear as groups (by image mode or acquisition protocol).

Parameter Name	Parameter Usage
$SectionSubject	The subject modifier of the section heading container
$MeasType	The concept name of the measurement

Type: Extensible

TID 5202
268 **ECHO SECTION**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (121070, DCM, ”Findings”)	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	M		$SectionSubject
3	>	CONTAINS	CONTAINER	DT (125007, DCM, “Measurement Group”)	1-n	M		
4	>>	HAS CONCEPT MOD	CODE	EV (G-0373, SRT,”Image Mode”)	1	UC	IFF measurements are grouped by image mode	BCID (12224) Ultrasound Image Modes
5	>>	HAS CONCEPT MOD	CODE	DT (125203,DCM,”Acquisition Protocol”)	1	UC	IF Row 4 is not present	
6	>>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	M		$Measurement = $MeasType $Method=CID (12227) Echocardiography Measurement Method

Echo Section Descriptions

Rows 4, 5 Type of measurement group. May be grouped by image mode, or acquisition protocol, or some other user or manufacturer designated classification

272 **TID 5203 Echo Measurement**

Parameter Name	Parameter Usage
$Measurement	Coded term or Context Group for Concept Name of measurement

$Method	Value for Measurement Method

276

Type: Extensible

TID 5203
Echo Measurement

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			INCLUDE	DTID (300) Measurement	1	M		$Measurement = $Measurement $Method = $Method $TargetSite = BCID (12236) Echo Anatomic Sites $TargetSiteMod = BCID (12237) Echocardiography Anatomic Site Modifiers
2	>	HAS CONCEPT MOD	CODE	EV (G-C048, SRT, “Flow Direction”)	1	U		BCID (12221) Flow Direction
3	>	HAS CONCEPT MOD	CODE	EV (R-40899, SRT, “Respiratory Cycle Point”)	1	U		DCID (12234) Respiration State
4	>	HAS CONCEPT MOD	CODE	EV (R-4089A, SRT, “Cardiac Cycle Point”)	1	U		DCID (12233) Cardiac Phase
5	>	HAS ACQ CONTEXT	CODE	EV (G-0373, SRT, “Image Mode”)	1	U		DCID (12224) Ultrasound Image Modes
6	>	HAS ACQ CONTEXT	CODE	EV (111031, DCM, “Image View”)	1	U		BCID (12226) Echocardiography Image View

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TID 5204 Echocardiography Wall Motion Analysis

The Wall Motion Analysis Template is used to document wall motion scoring.

Type: Extensible **Version: 20030918**

284 **TID 5204 - Wall Motion Analysis**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (121070, DCM, "Findings")		M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, ”Procedure reported”)	1	M		DT (P5-B3121, SRT, "Echocardiography for Determining Ventricular Contraction")
3	>	HAS ACQ CONTEXT	CODE	EV (LN, 18139-6, "Stage")	1	U		CID (12002) Ultrasound Protocol Stage Types
4	>	CONTAINS	IMAGE	EV (125201, DCM, "Illustration of Finding")	1	U		
5	>	CONTAINS	TEXT	EV (LN, 18118-0, “LV Wall Motion Segmental Findings”)	1	U		
6	>	CONTAINS	NUM	DT (125202, DCM, “LV Wall Motion Score Index”)	1	U		
7	>>	HAS CONCEPT MOD	CODE	EV (G-E048, SRT, “Assessment Scale”)	1	M		CID (12238) Wall Motion Scoring Scheme
8	>	CONTAINS	CONTAINER	EV (121070, DCM, "Findings")	1	UC	IF observer specifies a score	
10	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	M		DT (T-D0772, SRT, ”Myocardial Wall”)
11	>>	CONTAINS	CODE	EV (LN, 18179-2, "Wall Segment”)	1-n	M		BCID (3717) Myocardial Wall Segments
12	>>>	HAS PROPERTIES	CODE	EV (F-32050, SRT, ”Cardiac Wall Motion”)	1	MC	IF row 13 is absent	DCID (3703) Wall Motion
13	>>>	HAS PROPERTIES	CODE	EV (G-C504, SRT, "Associated Morphology")	1	MC	IF row 12 is absent	DCID (3704) Myocardium Wall Morphology Findings
14	>>>	HAS PROPERTIES	NUM	DT (G-C1E3, SRT, “Score”)	1	U		

Wall Motion Analysis Item Descriptions

Row 3	The stage of the ultrasound protocol at which these findings were scored. This row may be absent if this is a generic, non-staged scoring.
Row 4	Image that graphically depicts the segments and their scores.
Row 5	Text narration accompanying this stage.
Row 6	The composite score computed from the average of the scored segments
Row 7	The type of scoring scheme used to score this exam.
Row 8	A container of all of the individual segment findings for this stage. The container shall be present if the observer makes an assessment, including the assessment of Not Visualized. It shall not be present if no evaluation was made.
Rows 12, 13	Scar/thinning (in Row 13) may accompany akinesis and dyskinesis (in Row 12).

Row 14 — A numeric designation for the score. Score ranges vary, typically 0-4 or 0-5. Numeric scores may depend on wall motion findings as well as morphology findings. See the table below for conventional numeric assignment schemes. The UCUM annotation code enables specifying the numeric range, ("{L:N}", UCUM, "scale L:N"), where L and N are the lower and upper ends of the range.

288 **Table 5204-1 Numeric Score Assignment for Segmental Findings**

A description of the scoring schemes described in the table below is available in *Recommendations for Quantitation of the Left Ventricle by Two-Dimensional Echocardiography*, Journal of the American Society of Echocardiography, Vol 2, No 5 358-367, Oct 1989.

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Conventional Numeric Assignment	Wall Motion Finding or Morphology Finding		
	4 Point	5 Point	5 Point with Graded Hypokinesis
-1	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-0030D SRT, “Hyperkinesis”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-0030D, SRT, “Hyperkinesis”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-0030D, SRT, “Hyperkinesis”)
0	(F-32050, SRT, ”Cardiac Wall Motion”) = (122288, DCM , “Not Visualized”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (122288, DCM , “Not Visualized”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (122288, DCM , “Not Visualized”)
1	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-00344, SRT, “Normal Wall Motion”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-00344, SRT, “Normal Wall Motion”)	(F-32050, SRT, ”Cardiac Wall Motion”) = (R-00344, SRT, “Normal Wall Motion”)
1.5			(R-00327, SRT, “Mild Hypokinesis”)
2	(R-4041B, SRT, “Hypokinesis”)	(R-4041B, SRT, “Hypokinesis”)	(R-0032F, SRT, “Moderate Hypokinesis”)
2.5			(R-00370, SRT, “Severe Hypokinesis”)
3	(F-30004, SRT, “Akinesis”)	(F-30004, SRT, “Akinesis”)	(F-30004, SRT, “Akinesis”)
4	(F-32052, SRT, “Dyskinesis”)	(F-32052, SRT, “Dyskinesis”)	(F-32052, SRT, “Dyskinesis”)
5		(G-C504, SRT, "Associated Morphology") = (D3-10510, SRT, “Ventricular Aneurysm”)	(G-C504, SRT, "Associated Morphology") = (D3-10510, SRT, “Ventricular Aneurysm”)

Annex B DCMR Context Groups (Normative)

CONTEXT GROUP 12200 – Echocardiography Left Ventricle

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CID 12200
Echocardiography Left Ventricle

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12201 Left Ventricle Linear			
INCLUDE CID 12240 Left Ventricle Area			
INCLUDE CID 12202 Left Ventricle Volume			
INCLUDE CID 12222 Orifice Flow Properties			
INCLUDE CID 12203 Left Ventricle Other			
INCLUDE CID 12239 Cardiac Output Properties			

300 **CONTEXT GROUP 12201 – Left Ventricle Linear**

CID 12201
Left Ventricle Linear

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
LN		29436-3	Left Ventricle Internal End Diastolic Dimension
LN		29438-9	Left Ventricle Internal Systolic Dimension
LN		18051-3	Left Ventricular Fractional Shortening
LN		18154-5	Interventricular Septum Diastolic Thickness
LN		18155-2	Interventricular Septum to Posterior Wall Thickness Ratio
LN		18054-7	Interventricular Septum % Thickening
LN		18158-6	Interventricular Septum Systolic Thickness
LN		18053-9	Left Ventricle Posterior Wall % Thickening
LN		18077-8	Left Ventricle diastolic major axis
LN		18076-0	Left Ventricle systolic major axis
LN		18156-0	Left Ventricle Posterior Wall Systolic Thickness
LN		18152-9	Left Ventricle Posterior Wall Diastolic Thickness
SRT		G-0377	Left Ventricle Semi-major Axis Diastolic Dimension
SRT		G-0378	Left Ventricle Truncated Semi-major Axis Diastolic Dimension

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CONTEXT GROUP 12202 – Left Ventricle Volume

CID 12202
308 **Left Ventricle Volume**

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
LN		18026-5	Left Ventricular End Diastolic Volume
LN		18148-7	Left Ventricular End Systolic Volume
LN		18043-0	Left Ventricular Ejection Fraction

CONTEXT GROUP 12203 – Left Ventricle Other

312 **CID 12203**
Left Ventricle Other

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
LN		18087-7	Left Ventricle Mass
LN		18071-1	Left Ventricular Isovolumic Relaxation Time
SRT		G-037E	Left Ventricular Isovolumic Contraction Time
SRT		G-037A	Left Ventricular Peak Early Diastolic Tissue Velocity
SRT		G-037B	Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave
SRT		G-037C	LV Peak Diastolic Tissue Velocity During Atrial Systole
SRT		G-037D	Left Ventricular Peak Systolic Tissue Velocity
SRT		G-037F	Left Ventricular Index of Myocardial Performance

316 **CONTEXT GROUP 12204 – Echocardiography Right Ventricle**

CID 12204
Echocardiography Right Ventricle

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12239 Cardiac Output Properties			
LN		20304-2	Right Ventricular Internal Diastolic Dimension
LN		20305-9	Right Ventricular Internal Systolic Dimension
SRT		G-0381	Right Ventricular Index of Myocardial Performance
SRT		G-0380	Right Ventricular Peak Systolic Pressure
LN		18153-7	Right Ventricular Anterior Wall Diastolic Thickness
LN		18157-8	Right Ventricular Anterior Wall Systolic Thickness

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CONTEXT GROUP 12205 – Echocardiography Left Atrium

CID 12205
Echocardiography Left Atrium

324 **Type: Extensible Version: 20030918**

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		29469-4	Left Atrium Antero-posterior Systolic Dimension
LN		17985-3	Left Atrium to Aortic Root Ratio
LN		29486-8	Left Atrial Appendage Peak Velocity
LN		17977-0	Left Atrium Systolic Area
SRT		G-0383	Left Atrium Systolic Volume

CONTEXT GROUP 12206 – Echocardiography Right Atrium

CID 12206
328 **Echocardiography Right Atrium**

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		18070-3	Right Atrium Systolic Pressure
LN		17988-7	Right Atrium Systolic Area

CONTEXT GROUP 12207 – Echocardiography Mitral Valve

332

CID 12207
Echocardiography Mitral Valve

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			
INCLUDE CID 12239 Cardiac Output Properties			
LN		17978-8	Mitral Valve A-Wave Peak Velocity
LN		18037-2	Mitral Valve E-Wave Peak Velocity
LN		18038-0	Mitral Valve E to A Ratio
SRT		G-0386	Mitral Valve AT/DT Ratio
SRT		G-0384	Mitral Valve E-Wave Deceleration Time
LN		18040-6	Mitral Valve E-F Slope by M-Mode
LN		18036-4	Mitral Valve EPSS, E wave
SRT		G-0385	Mitral Valve A-Wave Duration
LN		18057-0	Mitral Valve Diastolic Peak Instantaneous Gradient
SRT		G-0387	Mitral Valve Closure to Opening Time
LN		18035-6	Mitral Regurgitation dP/dt derived from Mitral Regurgitation velocity

336 **CONTEXT GROUP 12208 – Echocardiography Tricuspid Valve**

CID 12208
Echocardiography Tricuspid Valve

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			
LN		18031-5	Tricuspid Valve E Wave Peak Velocity
LN		18030-7	Tricuspid Valve A Wave Peak Velocity
LN		18039-8	Tricuspid Valve E to A Ratio
LN		20296-0	Time from Q wave to Tricuspid Valve Opens
SRT		G-0389	Tricuspid Valve Closure to Opening Time
LN		18034-9	Tricuspid Regurgitation dP/dt

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CONTEXT GROUP 12209 – Echocardiography Pulmonic Valve

CID 12209
Echocardiography Pulmonic Valve
Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			
LN		18096-8	Pulmonic Valve Area by continuity
LN		18042-2	Pulmonic Valve Ejection Time
SRT		G-0388	Ratio of Pulmonic Valve Acceleration Time to Ejection Time
LN		20295-2	Time from Q wave to Pulmonic Valve Closes

CONTEXT GROUP 12210 – Echocardiography Pulmonary Artery

CID 12210
Echocardiography Pulmonary Artery
Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		18020-8	Main Pulmonary Artery Diameter
LN		18021-6	Right Pulmonary Artery Diameter
LN		18019-0	Left Pulmonary Artery Diameter
SRT		G-038A	Main Pulmonary Artery Peak Velocity

CONTEXT GROUP 12211 – Echocardiography Aortic Valve

CID 12211
Echocardiography Aortic Valve
Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			
LN		17996-0	Aortic Valve Cusp Separation
LN		18041-4	Aortic Valve Ejection Time

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
SRT		G-0382	Ratio of Aortic Valve Acceleration Time to Ejection Time

CONTEXT GROUP 12212 – Echocardiography Aorta

360 **CID 12212**
Echocardiography Aorta

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		18015-8	Aortic Root Diameter
LN		18011-7	Aortic Arch Diameter
LN		18012-5	Ascending Aortic Diameter
LN		18014-1	Aortic Isthmus Diameter
LN		18013-3	Descending Aortic Diameter
LN		17995-2	Thoracic Aorta Coarctation Systolic Peak Instantaneous Gradient
LN		29460-3	Thoracic Aorta Coarctation Systolic Peak Velocity

CONTEXT GROUP 12214 – Echocardiography Pulmonary Veins

364 **CID 12214**
Echocardiography Pulmonary Veins

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		29450-4	Pulmonary Vein Systolic Peak Velocity
LN		29451-2	Pulmonary Vein Diastolic Peak Velocity
LN		29452-0	Pulmonary Vein Systolic to Diastolic Ratio
LN		29453-8	Pulmonary Vein Atrial Contraction Reversal Peak Velocity
SRT		G-038B	Pulmonary Vein A-Wave Duration
SRT		G-038D	Pulmonary Vein D-Wave Velocity Time Integral
SRT		G-038C	Pulmonary Vein S-Wave Velocity Time Integral

368 **CONTEXT GROUP 12215 – Echocardiography Vena Cavae**

CID 12215
Echocardiography Vena Cavae

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		18006-7	Inferior Vena Cava Diameter
LN		18050-5	Inferior Vena Cava % Collapse

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CONTEXT GROUP 12216 – Echocardiography Hepatic Veins

CID 12216
Echocardiography Hepatic Veins

376 **Type: Extensible Version: 20030918**

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		29471-0	Hepatic Vein Systolic Peak Velocity
LN		29472-8	Hepatic Vein Diastolic Peak Velocity
LN		29473-6	Hepatic Vein Systolic to Diastolic Ratio
LN		29474-4	Hepatic Vein Atrial Contraction Reversal Peak Velocity

CONTEXT GROUP 12217 – Echocardiography Cardiac Shunt

CID 12217
380 **Echocardiography Cardiac Shunt**

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
LN		29462-9	Pulmonary-to-Systemic Shunt Flow Ratio

CONTEXT GROUP 12218 – Echocardiography Congenital

CID 12218
Echocardiography Congenital

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
INCLUDE CID 12220 Echocardiography Common Measurements			
INCLUDE CID 12222 Orifice Flow Properties			

CONTEXT GROUP 12219 – Pulmonary Vein Modifiers

CID 12219
Pulmonary Vein Modifiers

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-404A0	Right Upper Segment
SRT		R-4049E	Right Lower Segment
SRT		R-40491	Left Upper Segment
SRT		R-4214B	Left Lower Segment

CONTEXT GROUP 12220 – Echocardiography Common Measurements

CID 12220
Echocardiography Common Measurements

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN		8867-4	Heart rate

CONTEXT GROUP 12221 – Flow Direction

CID 12221
Flow Direction

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-42047	Antegrade Flow
SRT		R-42E61	Regurgitant Flow

CONTEXT GROUP 12222 – Orifice Flow Properties

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CID 12222
Orifice Flow Properties

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN		33878-0	Volume Flow
LN		34141-2	Peak Instantaneous Flow Rate
SRT		G-038E	Cardiovascular Orifice Area
SRT		G-038F	Cardiovascular Orifice Diameter
SRT		G-0390	Regurgitant Fraction
LN		11653-3	End Diastolic Velocity
LN		11726-7	Peak Velocity
LN		20352-1	Mean Velocity
LN		20247-3	Peak Gradient
LN		20256-4	Mean Gradient
LN		20354-7	Velocity Time Integral
LN		20280-4	Pressure Half-Time
LN		20168-1	Acceleration Time
LN		20217-6	Deceleration Time
LN		20216-8	Deceleration Slope

408 **CONTEXT GROUP 12223 – Echocardiography Stroke Volume Origin**

CID 12223
Echocardiography Stroke Volume Origin

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SNM3		T-32600	Left Ventricle
SNM3		T-32650	Left Ventricle Outflow Tract
SNM3		T-32550	Right Ventricle Outflow Tract
SNM3		T-35300	Mitral Valve
SNM3		T-42000	Aorta

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CONTEXT GROUP 12224 – Ultrasound Image Modes

CID 12224
Ultrasound Image Modes

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-03A2	2D mode
SRT		R-409E2	Doppler Color Flow
SRT		G-0394	M mode
SRT		R-409E4	Doppler Pulsed
SRT		R-409E3	Doppler Continuous Wave

CONTEXT GROUP 12226 – Echocardiography Image View

CID 12226
Echocardiography Image View

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-A19B	Apical two chamber
SRT		G-A19C	Apical four chamber
SRT		G-0395	Apical long axis
SRT		G-0396	Parasternal long axis
SRT		G-0397	Parasternal short axis
SRT		G-0398	Parasternal short axis at the aortic valve level
SRT		G-0399	Parasternal short axis at the level of the mitral chords
SRT		G-039A	Parasternal short axis at the Mitral Valve level
SRT		G-039B	Parasternal short axis at the Papillary Muscle level
SRT		G-039C	Right Ventricular Inflow Tract View
SRT		G-039D	Right Ventricular Outflow Tract View
SRT		G-039E	Subcostal long axis
SRT		G-039F	Subcostal short axis
SRT		G-03A0	Suprasternal long axis
SRT		G-03A1	Suprasternal short axis

CONTEXT GROUP 12227 – Echocardiography Measurement Method

CID 12227
Echocardiography Measurement Method

Type: Extensible Version: 20030918

Code Scheme	Code Value	Concept Name
INCLUDE CID 12228 Volume Methods		
INCLUDE CID 12229 Area Methods		
INCLUDE CID 12230 Gradient Methods		
INCLUDE CID 12231 Volume Flow Methods		
INCLUDE CID 12232 Myocardium Mass Methods		

CONTEXT GROUP 12228 – Volume Methods

CID 12228
Volume Methods

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125204	Area-Length Biplane
DCM		125205	Area-Length Single Plane
DCM		125211	Biplane Ellipse
DCM		125226	Single Plane Ellipse
DCM		125206	Cube Method
DCM		125207	Method of Disks, Biplane
DCM		125208	Method of Disks, Single Plane
DCM		125209	Teichholz

CONTEXT GROUP 12229 – Area Methods

CID 12229
Area Methods

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125210	Area by Pressure Half-Time
DCM		125212	Continuity Equation
DCM		125213	Continuity Equation by Mean Velocity
DCM		125214	Continuity Equation by Peak Velocity
DCM		125215	Continuity Equation by Velocity Time Integral

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125216	Proximal Isovelocity Surface Area
DCM		125220	Planimetry

CONTEXT GROUP 12230 – Gradient Methods

CID 12230
Gradient Methods

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125217	Full Bernoulli
DCM		125218	Simplified Bernoulli

CONTEXT GROUP 12231 – Volume Flow Methods

CID 12231
Volume Flow Methods

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125219	Doppler Volume Flow
DCM		125216	Proximal Isovelocity Surface Area

CONTEXT GROUP 12232 – Myocardium Mass Methods

CID 12232
Myocardium Mass Methods

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125221	Left Ventricle Mass by M-mode
DCM		125222	Left Ventricle Mass Truncated Ellipse

CONTEXT GROUP 12233 – Cardiac Phase

CID 12233
Cardiac Phase

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-32020	Systole
SRT		F-32010	Diastole
SRT		F-32011	End Diastole
DCM		109070	End Systole

CONTEXT GROUP 12234 – Respiration State

CID 12234
Respiration Phase

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-20010	During Inspiration
SRT		F-20020	During Expiration

CONTEXT GROUP 12235 – Mitral Valve Anatomic Sites

CID 12235
Mitral Valve Anatomic Sites

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-0391	Medial Mitral Annulus
SRT		G-0392	Lateral Mitral Annulus

CONTEXT GROUP 12236 – Echo Anatomic Sites

CID 12236
Echo Anatomic Sites

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12235 Mitral Valve Anatomic Sites			

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12223 Stroke Volume Origin			

CONTEXT GROUP 12237 – Echocardiography Anatomic Site Modifiers

Type: Extensible Version: 20030918

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CID 12237
Echocardiography Anatomic Site Modifiers

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12219 Pulmonary Vein Modifiers			

480 **CONTEXT GROUP 12238– Wall Motion Scoring Schemes**

CID 12238
Wall Motion Scoring Schemes

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		125223	4 Point Segment Finding Scale
DCM		125224	5 Point Segment Finding Scale
DCM		125225	4 Point Segment Finding Scale With Graded Hypokinesis

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CONTEXT GROUP 12239 – Cardiac Output Properties

CID 12239
Cardiac Output Properties

488 **Type: Extensible Version: 20030918**

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-32120	Stroke Volume
SRT		F-32100	Cardiac Output
SRT		F-32110	Cardiac Index
SRT		F-00078	Stroke Index

CONTEXT GROUP 12240 – Left Ventricle Area

CID 12240
Left Ventricle Area

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100	Code Meaning (0008,0104)
SRT		G-0374	Left Ventricular Systolic Area
SRT		G-0375	Left Ventricular Diastolic Area
SRT		G-0376	Left Ventricular Fractional Area Change
SRT		G-0379	Left Ventricle Epicardial Diastolic Area, psax pap view

Add the following definitions to Part 16 Annex D DICOM Controlled Terminology Definitions (Normative):

Annex D DICOM Controlled Terminology Definitions (Normative)

This Annex specifies the meanings of codes defined in DICOM, either explicitly or by reference to another part of DICOM or an external reference document or standard.

Code Value	Code Meaning	Definition	Notes
125200	Adult Echocardiography Procedure Report	Document title of adult echocardiography procedure (evidence) report.	
125201	Illustration of Finding	An image that is a pictorial representation of findings. The concept is typically used as a purpose of reference to an image, such as a depiction of myocardium segments depicting wall motion function.	
125202	LV Wall Motion Score Index	The average of all scored (non-zero) Left Ventricle segment wall motion scores.	
125203	Acquisition Protocol	A type of clinical acquisition protocol for creating images or image-derived measurements. Acquisition protocols may be specific to a manufacturer’s product.	

125204	Area-length biplane	Method for calculating left ventricular volume from two orthogonal views containing the true long axis (usually the apical 4 and 2 chamber views). Volume = $[\pi L_1/6]*[(4A_1)\div(\pi L_1)]*[(4A_2)\div(\pi L_2)]$	
125205	Area-Length Single Plane	Method for calculating left ventricular volume from a view containing the true long axis (usually the apical 4-chamber view). Volume = $[8(A)^2]\div[3\pi L]$	
125206	Cube	Method (formula) for calculating left ventricle volumes and function derivatives (EF, SV, SI, etc.) that estimates the volume as the cube of diameter.	
125207	Method of Disks, Biplane	Method of calculating volume based on the summation of disk volumes. The disk axis is parallel to the left ventricular long axis and using a disk diameter averaged from the two chamber and four chamber views.	
125208	Method of Disks, Single Plane	Method of calculating volume based on the summation of disk volumes. The disk axis is parallel to the left ventricular long axis with disk diameter taken from the four-chamber view.	
125209	Teichholz	Method (formula) for calculating left ventricle volumes and function derivatives (EF, SV, SI, etc.) Volume = $[7.0/(2.4+D)]*D^3$	
125210	Area by Pressure Half-Time	Mitral valve area (cm2) by Pressure Half-time = 220 (cm2.ms) / PHT (ms)	
125211	Biplane Ellipse	Area = $\Pi/4$ X d1 X d2 d1 = anterior/posterior axis d2 = medial/lateral axis *Hagen-Ansert, Sandra L., Textbook of Diagnostic Ultrasound, ed. 3, The C.V.Mosby Co., 1989, p. 73.*	
125212	Continuity Equation	For conduits in series ("in continuity"), volume flow is equal: A1*V1 = A2*V2. where V is the velocity	
125213	Continuity Equation by Mean Velocity continuity	For conduits in series ("in continuity"), volume flow is equal: A1*V1 = A2*V2. where V is the mean velocity	

125214	Continuity Equation by Peak Velocity continuity	For conduits in series ("in continuity"), volume flow is equal: A1*V1 = A2*V2. where V is the peak velocity	
125215	Continuity Equation by Velocity Time Integral	For conduits in series ("in continuity"), volume flow is equal: A1*V1 = A2*V2. where V is the velocity time integral	
125216	Proximal Isovelocity Surface Area	Utilizes aliasing velocity (by color Doppler) of flow into an orifice (often regurgitant or stenotic) to measure instantaneous flow rate, orifice area, and flow volume. The instantaneous flow rate = $(2 \pi r^2 v_{av}) * (\alpha / \pi)$ where v_{av} is the constant velocity known as aliasing velocity at radius r, v_p is the peak velocity at the orifice, and α is the angle in radians of the constant velocity surface. Estimated Orifice area = Flow rate / v_p, where v_p is the peak velocity at the orifice and the flow rate is the PISA peak flow rate. The volume flow is then the product of the orifice area and Velocity Time Integral	
125217	Full Bernoulli	$\Delta P = 4*(V1^2 - V2^2)$	
125218	Simplified Bernoulli	$\Delta P = 4*V2$	
125219	Doppler Volume Flow	Volume flow = Conduit CSA * (Velocity Time Integral)	
125220	Planimetry	Direct measurement of an area by tracing an irregular perimeter	
125221	Left Ventricle Mass by M-mode	Mass = $1.04 * [(ST+LVID+PWT)^3 - LVID^3] * 0.8 + 0.6$. Mass unit is grams and length in cm.	

125222	Left Ventricle Mass by Truncated Ellipse	Mass = $1.05 \Pi ((b + t)^2 X (2/3 (a + t) + d – d^3/3(a + t)^2) – b^2 (2/3a + d – d^3/3a^2))$ a = Semi-major axis from widest minor axis radius to apex. b = Short axis radius calculated from short axis cavity area t = Myocardial thickness calculated from short axis epicardial and cavity areas d = Truncated semi-major axis from widest short axis diameter to plane of mitral annulus. Mass unit is grams and length in cm. *Schiller NB et al: Recommendations for quantification of the left ventricle by two-dimensional echocardiography, American Society of Echocardiography 2:364, 1989.*	
125223	4 Point Segment Finding Scale	A conventional, echocardiography, numeric scoring scheme myocardium segment based on evaluation of wall motion and ventricle morphology. See Table TID 5204-1 column 1	
125224	5 Point Segment Finding Scale	A conventional, echocardiography, numeric scoring scheme myocardium segment based on evaluation of wall motion and ventricle morphology. See Table TID 5204-1 column 2	
125225	4 Point Segment Finding Scale With Graded Hypokinesis	A conventional, echocardiographic, numeric scoring scheme of myocardium wall segments based on evaluation of wall motion and ventricle morphology. See Table TID 5204-1 column 3	
125226	Single Plane Ellipse	Method of estimating volume from a planar ellipse. Equivalent to Biplane Ellipse with an assumption that the ellipse in the orthogonal plane has identical major and minor diameters.	

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Annex G English Code Meanings of Selected Codes

LOINC Code Meanings

Coding Scheme Designator (0008,0102)	Coding Scheme Version	Code Value (0008,0100)	Code Meaning (0008,0104)
LN		8302-2	Patient height
LN		8277-6	Body Surface Area
			BSA
LN		17977-0	Left Atrium Systolic Area
LN		17978-8	Mitral Valve A-Wave Peak Velocity
LN		17988-7	Right Atrium Systolic Area.
LN		17985-3	Left Atrium to Aortic Root Ratio
LN		17995-2	Thoracic Aorta Coarctation Systolic Peak Instantaneous Gradient
LN		17996-0	Aortic Valve Cusp Separation
LN		17998-6	Aortic Valve Regurgitant Diastolic Deceleration Time
LN		18006-7	Inferior Vena Cava Diameter
LN		18011-7	Aortic Arch Diameter
LN		18012-5	Ascending Aortic Diameter
LN		18013-3	Descending Aortic Diameter
LN		18015-8	Aortic Root Diameter
LN		18019-0	Left Pulmonary Artery Diameter
LN		18020-8	Main Pulmonary Artery Diameter
LN		18021-6	Right Pulmonary Artery Diameter
LN		18026-5	Left Ventricular End Diastolic Volume
LN		18030-7	Tricuspid Valve A Wave Peak Velocity
LN		18031-5	Tricuspid Valve E Wave Peak Velocity
LN		18035-6	Mitral Regurgitation dP/dt derived from Mitral Regurgitation velocity
LN		18037-2	Mitral Valve E-Wave Peak Velocity
LN		18038-0	Mitral Valve E to A Ratio
LN		18040-6	Mitral Valve E-F Slope by M-Mode
LN		18041-4	Aortic Valve Ejection Time
LN		18043-0	Left Ventricular Ejection Fraction
LN		18050-5	Inferior Vena Cava % Collapse
LN		18051-3	Left Ventricular Fractional Shortening
LN		18053-9	Left Ventricle Posterior Wall % Thickening
LN		18054-7	Interventricular Septum % Thickening
LN		18070-3	Right Atrium Systolic Pressure

LN		18071-1	Left Ventricular Isovolumic Relaxation Time
LN		18076-0	Left Ventricle Systolic Major Axis
LN		18077-8	Left Ventricle Diastolic Major Axis
LN		18087-7	Left Ventricle Mass
LN		18096-8	Pulmonic valve Area by continuity
LN		18118-0	Narrative Findings
LN		18139-6	Stage
LN		18148-7	Left Ventricular End Systolic Volume
LN		18152-9	Left Ventricle Posterior Wall Diastolic Thickness
LN		18153-7	Right Ventricle Anterior Wall Diastolic Thickness
LN		18154-5	Interventricular Septum Diastolic Thickness
LN		18155-2	Interventricular Septum to Posterior Wall Thickness Ratio
LN		18156-0	Left Ventricle Posterior Wall Systolic Thickness
LN		18157-8	Right Ventricular Anterior Wall Systolic Thickness
LN		18158-6	Interventricular Septum Systolic Thickness
LN		18179-2	Wall Segment
LN		20247-3	Peak Gradient
LN		11726-7	Peak Velocity
LN		20295-2	Time from Q wave to Pulmonic Valve Closes
LN		29436-3	Left Ventricle Internal End Diastolic Dimension
LN		29438-9	Left Ventricle Internal Systolic Dimension
LN		29449-6	Mitral Valve Regurgitant Volume by Proximal Isovelocity Surface Area Method
LN		29450-4	Pulmonary Vein Systolic Peak Velocity
LN		29451-2	Pulmonary Vein Diastolic Peak Velocity
LN		29452-0	Pulmonary Vein Systolic to Diastolic Ratio
LN		29453-8	Pulmonary Vein Atrial Contraction Reversal Peak Velocity
LN		29460-3	Thoracic Aorta Coarctation Systolic Peak Velocity
LN		29462-9	Pulmonary-to-Systemic Shunt Flow Ratio
			Qp/Qs
LN		29463-7	Patient weight
LN		29469-4	Left Atrium Antero-posterior Systolic Dimension
LN		29471-0	Hepatic Vein Systolic Peak Velocity
LN		29472-8	Hepatic Vein Diastolic Peak Velocity
LN		29473-6	Hepatic Vein Systolic to Diastolic Ratio
LN		29474-4	Hepatic Vein Atrial Contraction Reversal Peak Velocity
LN		29486-8	Left Atrial Appendage Peak Velocity
SRT		R-42047	Antegrade Direction
			Antegrade Flow
SRT		R-42E61	Retrograde Direction
			Regurgitant Flow

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