Digital Imaging and Communications in Medicine (DICOM)

Supplement 128: Cardiac Stress Testing Structured Reports

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Foreword

Cardiac stress testing is a common procedure used for the evaluation of angina (chest pain). The test includes acquisition of either, or both, electrocardiograms (ECGs) or images (ultrasound or nuclear medicine). In the U.S., over 80% of stress tests involve imaging.

The current DICOM Standard has no Structured Report templates addressing NM or ECG stress testing measurements and results. The Echocardiography SR templates address ultrasound stress imaging, but have some minor defects in this regard.

The American Society of Nuclear Cardiology has developed draft guidelines for data reporting for NM stress exams. These form the basis for the proposed DICOM Structured Report Template with standard hierarchical structures and common coded terminology. Minor revisions to the Echocardiography SR template are also proposed to ensure consistency in cardiac stress reporting across modalities.

This DICOM Standard Supplement is part of a larger project for an integrated stress testing data and workflow environment based on the DICOM Standard being promoted by the Integrating the Healthcare Enterprise (IHE) efforty.

Part 17 Addendum

130 *Add the following new Annex*

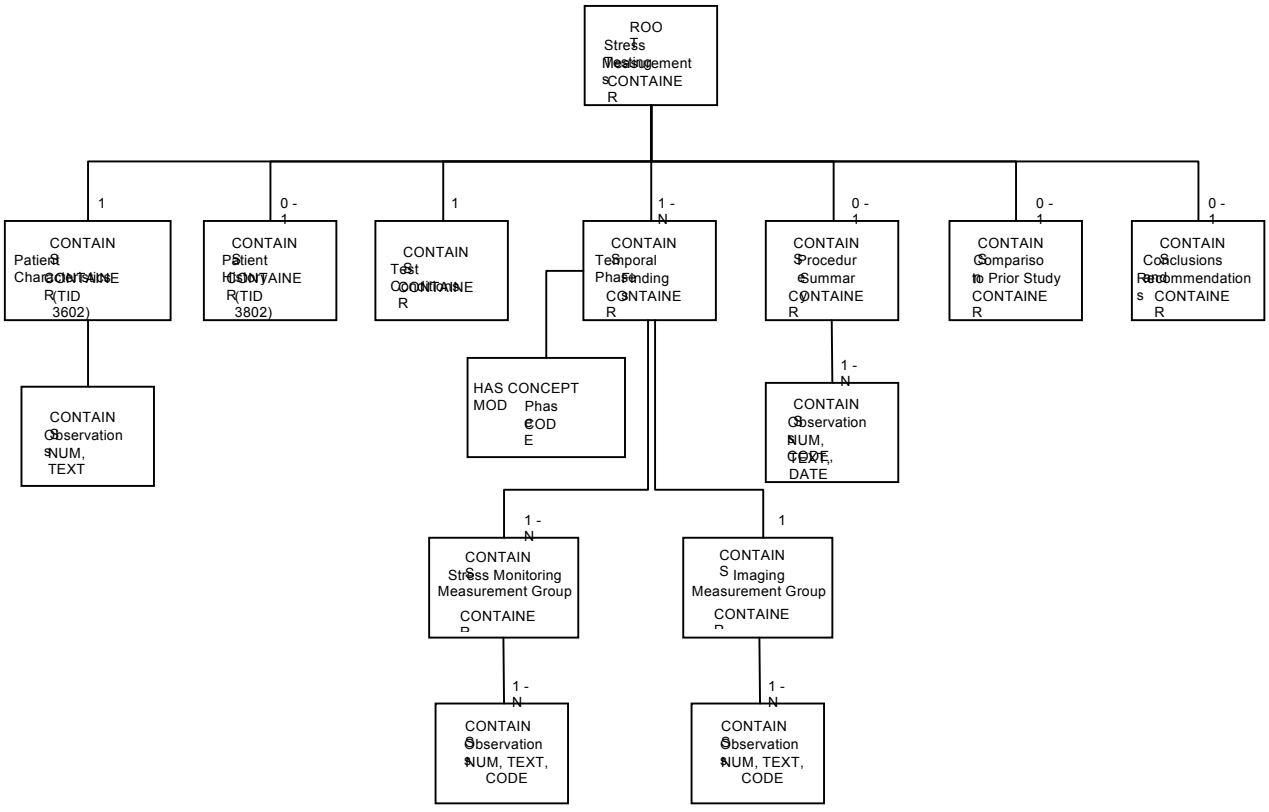
Annex HH Stress Testing Report Template (Informative)

The Stress Testing Report is based on TID 3300. The first part of the report contains sections (containers) describing the patient characteristics (height, weight, etc.), medical history, and presentation at the time of the exam.

135 The next part describes the technical aspects of the exam. It includes zero or more findings containers, each corresponding to a phase of the stress testing procedure. Within each container may be one or more sub-containers, each associated with a single measurement set. A measurement set consists of measurements at a single point in time. There are measurement sets defined for both stress monitoring and for imaging.

The final part of the report includes a summary of significant findings or measurements, and any conclusions or
140 recommendations

The resulting hierarchical structure is depicted in Figure HH-1.



Part 16 Addendum

Add the following to Section 8

Table 8-1 Coding Schemes

Coding Scheme Designator	Coding Scheme UID	Description
…		
MDC	**2.16.840.1.113883.6.24**	**ISO/IEEE 11073 Medical Device Nomenclature, including all its subsections (-10101, -10102, etc.), encoded as decimal strings <partition>:<element>**

Add the following to Annex A

STRESS TESTING REPORT TEMPLATES

TID 3300 Stress Testing Report

The Stress Testing Report template is the root structure for the representation of measurements and findings of a stress testing procedure.

TID 3300
Stress Testing Report
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (18752-6, LN, “Stress Testing Report”)	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, ”Procedure reported”)	1	M		DCID (3200) Stress Procedure Type
3	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) Language of Content Item and Descendants	1	M		
4	>	HAS OBS CONTEXT	INCLUDE	DTID (1002) Observer Context	1-n	M		
5	>	CONTAINS	CONTAINER	EV (121109, DCM, "Indications for Procedure")	1	U		
6	>>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		DCID (3201) Indications for Stress Test
7	>>	CONTAINS	TEXT	EV (121071, DCM, "Finding")	1	U		
8	>	CONTAINS	INCLUDE	DTID (3602) Cardiovascular Patient Characteristics	1	M		

9	>	CONTAINS	INCLUDE	DTID (3802) Cardiovascular Patient History	1	U		
10	>	CONTAINS	INCLUDE	DTID (3301) Stress Test Procedure Description	1	M		
11	>	CONTAINS	INCLUDE	DTID (3303) Stress Test Phase Data	1-n	M		
12	>	CONTAINS	INCLUDE	DTID (3311) Stress Test Summary	1	U		
13	>	CONTAINS	INCLUDE	DTID (3318) Comparison to Prior Stress Exam	1	U		
14	>	CONTAINS	INCLUDE	DTID (3320) Conclusions and Recommendations	1	U		

160 **TID 3301 Stress Test Procedure Description**

TID 3301
Stress Test Procedure Description
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121064, DCM, “Current Procedure Descriptions”)		M		
2	>	CONTAINS	CODE	DT (109056, DCM, ”Stress Protocol”)	1	U		BCID (3261) Stress Protocols
3	>	CONTAINS	TEXT	DT (109056, DCM, ”Stress Protocol”)	1	U		
4	>	CONTAINS	CODE	DT (10:11345, MDC, “Lead System”)	1	U		BCID (3263) Electrode Placement Values
5	>	CONTAINS	CODE	DT (A-17200, SRT, “Exerciser Device”)	1	U		BCID (3203) Exerciser Device
6	>	CONTAINS	CODE	DT (G-C11C, SRT, “Pharmacological Stress Agent”)	1	MC	IFF Pharmacological Stress used	BCID (3204) Stress Agents
7	>	CONTAINS	CONTAINER	EV (122700, DCM, "Indications for Pharmacological Stress")	1	MC	IFF Pharmacological Stress used	
8	>>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		DCID (3205) Indications for Pharmacological Stress Test
9	>	CONTAINS	CODE	DT (P0-0099A, SRT, “Imaging procedure”)	1	MC	IFF imaging used in procedure	DCID (3206) Non-invasive Cardiac Imaging Procedures
10	>	CONTAINS	CODE	DT (125203, DCM, ”Acquisition Protocol”)	1	UC	IFF Nuclear imaging	DCID (3110) Nuclear Cardiology Protocols
11	>	CONTAINS	CODE	DT (125203, DCM, ”Acquisition Protocol”)	1	UC	IFF PET imaging	DCID (3106) PET Cardiology Protocols
12	>	CONTAINS	TEXT	DT (121141, DCM, ”Image Type”)	1	UC	IFF Nuclear or PET imaging	STATIC, DYNAMIC, or GATED. See note.
13	>	CONTAINS	CODE	DT (125203, DCM, ”Acquisition Protocol”)	1	UC	IFF Contrast echocardiography	DT(P5-B3008, SRT, “Contrast echocardiography”)

14	>	CONTAINS	CODE	DT (113743, DCM, “Patient Orientation”)	1	U		DCID (19) Patient Orientation
15	>>	HAS CONCEPT MOD	CODE	EV (113744, DCM, “Patient Orientation Modifier”)	1	U		DCID (20) Patient Orientation Modifier
16	>	CONTAINS	TEXT	DT (121065, DCM, “Procedure Description”)	1	U		
17	>	CONTAINS	DATETIME	DT (122701, DCM, “Procedure Time Base”)	1	U		See note.

TID 3301 Stress Test Procedure Descriptions

Row 12	Image Type may be copied from the NM Image SOP Instance attribute Image Type (0008,0008) value 3, or from the PET Image SOP Instance attribute Series Type (0054,1000).
Row 17	The Procedure Time Base is the time from which elapsed times are measured. The Study Time (0008,0030) may include the patient prep period, while this Procedure Time Base is typically established when baseline data collection begins.

TID 3303 Stress Test Phase Data

The Stress Test Phase Data template provides a structure for measurements acquired during a single procedure phase.

TID 3303
Stress Test Phase Data
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, “Findings”)	1	M		See note.
2	>	HAS ACQ CONTEXT	CODE	EV (G-7292, SRT, “Procedure phase”)	1	MC	XOR row 3	BCID (3207) Stress Test Procedure Phases
3	>	HAS ACQ CONTEXT	CODE	EV (G-7292, SRT, “Procedure phase”)	1	MC	IFF Nuclear Imaging; XOR row 2	DCID (3101) NM Procedural State Values
4	>	HAS ACQ CONTEXT	TEXT	EV (G-7292, SRT, “Procedure phase”)	1	U		
5	>	CONTAINS	INCLUDE	DTID (3301) Stress Test Procedure	1	MC	IFF protocol changed from initial specification	
6	>	HAS ACQ CONTEXT	NUM	EV (109055, DCM, “Protocol Stage”)	1	U		UNITS = DT(“{stage}”, UCUM, “stage”)
7	>	CONTAINS	INCLUDE	DTID (3304) Stress Test Measurement Group	1-n	U		
8	>	CONTAINS	INCLUDE	DTID (3307) NM/PET Perfusion Measurement Group	1	MC	IFF Nuclear or PET Imaging	
9	>	CONTAINS	INCLUDE	DTID (3309) Stress Echo Measurement Group	1	UC	IFF Echocardiography Imaging	

TID x3303 Stress Test Phase Data Descriptions

Row 1	The Container shall have a specific Content Item Observation Datetime (0040,A032) attribute to indicate the time at which the phase began.

TID 3304 Stress Test Measurement Group

Each instance of the Stress Test Measurement Group represents a group of data elements acquired at approximately the same instant, and conventionally rendered as row in a tabular presentation. It is typically generated during the Stress exam whenever a time interval elapses (for example, every minute of the phase), when a technician observes data worth capturing, or when measurements exceed a given range.

TID 3304
Stress Test Measurement Group
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, “Findings”)	1	M		See note.
2	>	CONTAINS	NUM	DT(F-031F9, SRT, “Time since start of exam”)	1	M		UNITS = DT(min, UCUM, “min”)
3	>	CONTAINS	NUM	DT (122710, DCM, “Time since start of stage”)	1	M		UNITS = DT(min, UCUM, “min”)
4	>	CONTAINS	NUM	DT (122702, DCM, “Treadmill speed”)	1	U		UNITS = DCID (3212) Treadmill Speed
5	>	CONTAINS	NUM	DT (122703, DCM, “Treadmill gradient”)	1	U		UNITS = EV (%, UCUM, "%")
6	>	CONTAINS	NUM	DT (122704, DCM, “Ergometer power”)	1	U		UNITS = EV (W, UCUM, "watts")
7	>	CONTAINS	NUM	DT (122709, DCM, ”Activity workload”)	1	U		UNITS = DT ([MET], UCUM, "METS")
8	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		$Measurement = DT(122706, DCM, “Rating of Perceived Exertion”) $Method = BCID (3239) Perceived Exertion Scales
9	>	CONTAINS	NUM	DT (122705, DCM, “Pharmacological Stress Agent Dose Rate”)	1	MC	IFF Pharma-cological Stress used	UNITS = EV (ug/kg/min, UCUM, "ug/kg/min”)
10	>	CONTAINS	INCLUDE	DCID (3106) Drugs/Contrast Administered	1	U		See note.
11	>	CONTAINS	NUM	EV (8867-4, LN, “Heart Rate”)	1	U		UNITS = EV ("{H.B.}/min", UCUM, "BPM")
12	>	CONTAINS	NUM	EV (F-008EC, SRT, “Systolic Blood Pressure”)	1	U		UNITS = DCID (3500) Pressure Units
13	>	CONTAINS	NUM	EV (F-008ED, SRT, “Diastolic Blood Pressure”)	1	U		UNITS = DCID (3500) Pressure Units
14	>	CONTAINS	NUM	DT (122707, DCM, “Number of Ectopic Beats”)	1	U		UNITS = ({beats}, UCUM, “beats”)
15	>>	HAS CONCEPT MOD	NUM	DT (R-40861, SRT, "Period of collection")	1	M		UNITS = DT(min, UCUM, “min”)

16	>>	HAS PROPERTIES	CODE	EV (G-C504, SRT, "Associated Morphology")	1-n	U		BCID (3234) Ectopic Beat Morphology
17	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		$Measurement = DT(F-03204, SRT, “ST Elevation”) $Units = DT (mV, UCUM, “mV”) $TargetSite = DCID (3001) ECG Leads
18	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		$Measurement = DT(F-38279, SRT, “ST Depression”) $Units = DT (mV, UCUM, “mV”) $TargetSite = DCID (3001) ECG Leads
19	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		$Measurement = DCID (3228) ECG Timing Measurements $Units = DT (ms, UCUM, "ms") $TargetSite = DCID (3001) ECG Leads See note.
20	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		$Measurement = DCID (3227) QTc Measurements $Units = DT (ms, UCUM, "ms") $TargetSite = DCID (3001) ECG Leads $Equation = DCID (3678) QT Correction Algorithms See note.
21	>>	INFERRED FROM	NUM	DT (2:16000, MDC, “RR Interval for QTc”)	1	U		UNITS = DT (ms, UCUM, "ms") See note.
22	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		$Measurement = DCID (3229) ECG Axis Measurements $Units = DT(deg, UCUM, "°") See note.
23	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		$Measurement =DCID (3526) Blood gas saturation $Units = EV (%, UCUM, "%")
24	>	CONTAINS	NUM	DT (122708, DCM, ”Double Product”)	1	U		UNITS = DT (mm[Hg]{HB}/min, UCUM, "mmHg*BPM")
25	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		DCID (3220) Stress Symptoms
26	>	CONTAINS	CODE	EV (F-00033, SRT, "ECG Finding")	1-n	U		DCID (3230) ECG Findings
27	>	CONTAINS	TEXT	EV (121106, DCM, “Comment”)	1	U		

TID 3304 Stress Test Measurement Group Descriptions

Row 1	The Container shall have a specific Content Item Observation Datetime (0040,A032) attribute to indicate the time at which the measurements were made.
Row 10	Included Template 3106 allows the recording of test medications other than the Pharmacological Stress Agent identified in Template x3301.

Rows 17, 18	ECG ST elevation/depression is measured in units of mV, but is conventionally reported in units of mm, based on strip recordings with scaling of 100 uV/mm. The display application should render these measurements in units meaningful to the user.
Row 19	Note that the MDC codes for “per lead” measurements specified in CID 3228 are base codes for post-coordination with lead identifiers conveyed in the Target Site modifier in TID 300. MDC also defines pre-coordinated codes that include both the measurement and the lead, which may be used in this row.
Row 20	Note that the MDC code for “QTc interval per lead” specified in CID 3227 is a base code for post-coordination with lead identifiers conveyed in the Target Site modifier in TID 300. MDC also defines pre-coordinated codes that include both the measurement and the lead, which may be used in this row. Note that TID 300 enables the encoding of a non-standard correction algorithm, either as a local code, or as a TEXT Method Citation (see TID 300 row 12).
Row 21	R-R interval used for QT correction algorithm
Row 22	Recommended range for ECG axis measurements is -90° to +270°

TID 3307 NM/PET Perfusion Measurement Group

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TID 3307
NM/PET Perfusion Measurement Group
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, “Findings”)	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, ”Procedure reported”)	1	M		DCID (3108) NM/PET Procedures
3	>	CONTAINS	CODE	EV (123001, DCM, “Radiopharmaceutical”)	1	M		DCID (3111) Nuclear Cardiology Radiopharmaceuticals
4	>	CONTAINS	NUM	EV (123006, DCM, “Radionuclide Total Dose”)	1	M		DCID (3083) Units of Radioactivity
5	>	CONTAINS	DATETIME	EV (123003, DCM, “Radiopharmaceutical Start Time”)	1	M		
6	>	CONTAINS	NUM	DT (122711, DCM, “Exercise duration after stress agent injection”)	1	U		UNITS = DT(min, UCUM, “min”)
7	>	CONTAINS	DATETIME	EV (122712, DCM, “Imaging Start Time”)	1	M		
8	>	CONTAINS	CODE	EV (122713, DCM, “Attenuation correction”)	1	U		BCID (3112) Attenuation Correction
9	>>	HAS PROPERTIES	CODE	EV (111001, DCM, “Algorithm Name”)	1	U		BCID (3117) Attenuation Correction Methods
10	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		BCID (3113) Types of Perfusion Defects
11	>>	HAS PROPERTIES	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	M		BCID (3717) Myocardial Wall Segments
12	>>	HAS PROPERTIES	CODE	EV (112025, DCM, “Size Descriptor”)	1	M		BCID (252) S-M-L Size Descriptor

13	>>	HAS PROPERTIES	CODE	EV (G-C197, SRT, "Severity")	1	M		BCID (3716) Severity
14	>	CONTAINS	CODE	EV (F-02220, SRT, “Left Ventricular Function”)	1	U		BCID (3119) LV Function
15	>>	HAS PROPERTIES	CODE	EV (G-C197, SRT, "Severity")	1	U		BCID (3716) Severity
16	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		$Measurement = EV (10230-1, LN, "LV Ejection Fraction") $Units = EV (%, UCUM, "%") $Derivation = DT (R-41D2D, SRT, “Calculated”)
17	>	CONTAINS	CODE	EV (F-02236, SRT, “Left Ventricular Size”)	1	U		BCID (3122) Ventricular enlargement
18	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		$Measurement = EV (8821-1, LN, "Left Ventricular ED Volume") $Units = EV (ml, UCUM, "ml")
19	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		$Measurement = EV (8823-7, LN, "Left Ventricular ES Volume") $Units = EV (ml, UCUM, "ml")
20	>	CONTAINS	INCLUDE	DTID (5204) Wall Motion Analysis	1	U		$Procedure = DCID (3108) NM/PET Procedures

195 **TID 3309 Stress Echo Measurement Group**

TID 3309
Stress Echo Measurement Group
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, “Findings”)	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, ”Procedure reported”)	1	M		DT (P5- B3000, SRT, “Echocardiography”)
3	>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	U		$Measurement = DCID (12200) Echocardiography Left Ventricle $Method=CID (12227) Echocardiography Measurement Method
4	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	MC	IF Row 3 measurement concept is in CID (12222) Orifice Flow Properties	EV (T-32600, SRT, “Left Ventricle”)
5	>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	U		$Measurement = DCID (12211) Echocardiography Aortic Valve $Method=CID (12227) Echocardiography Measurement Method

6	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	MC	IF Row 5 measurement concept is in CID (12222) Orifice Flow Properties	EV (T-35400, SRT, “Aortic Valve”)
7	>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	U		$Measurement = DCID (12207) Echocardiography Mitral Valve $Method=CID (12227) Echocardiography Measurement Method
8	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	MC	IF Row 7 measurement concept is in CID (12222) Orifice Flow Properties	EV (T-35300, SRT, “Mitral Valve”)
9	>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	U		$Measurement = DCID (12208) Echocardiography Tricuspid Valve $Method=CID (12227) Echocardiography Measurement Method
10	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	MC	IF Row 9 measurement concept is in CID (12222) Orifice Flow Properties	EV (T-35100, SRT, “Tricuspid Valve”)
11	>	CONTAINS	INCLUDE	DTID (5204) Wall Motion Analysis	1	U		$Procedure = DT (P5-B3121, SRT, "Echocardiography for Determining Ventricular Contraction")

200 **TID 3309 Stress Echo Measurement Group Descriptions**

Rows 3-10	These invocations of TID 5203 do not include an inherited Findings Site concept, for example as in the invocations of TID 5203 from TID 5202. Echo measurements that do not have the associated Finding Site pre-coordinated in the measurement concept (i.e., the orifice flow measurements of CID 12222), shall have the Finding Site explicitly post-coordinated with a Concept Modifier (Rows 4, 6, 8, and 10). This template does not include the concept of an Image Library, for example as used in TID 5200. Image Content Items in the Echo Measurement template shall be included with by-value relationships, not with by-reference relationships.

TID 3311 Stress Test Summary

205 **TID 3311**
Stress Test Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (121111, DCM, "Summary")	1	M		
2	>	CONTAINS	TEXT	EV (121111, DCM, "Summary")	1	U		

3	>	CONTAINS	INCLUDE	DTID (3312) Physiological Summary	1	U		
4	>	CONTAINS	INCLUDE	DTID (3313) Stress ECG Summary	1	U		
5	>	CONTAINS	INCLUDE	DTID (3317) Stress Imaging Summary	1	U		
6	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1	U		EV (D3-13025, SRT, “Exercise-induced angina”) See note.
7	>>		INCLUDE	DTID (1350) Negation Modifier, Presence of Finding	1	M		
8	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1-n	U		DCID (3220) Stress Symptoms
9	>	CONTAINS	TEXT	EV (121071, DCM, "Finding")	1	U		
10	>	CONTAINS	CODE	DT (G-0180, SRT, ”Reason for stopping test”)	1	U		DCID (3221) Stress Test Termination Reasons
11	>	CONTAINS	NUM	DT (122715, DCM, “Pharmacological Stress Agent Dose”)	1	U		DT (mg/kg, UCUM, “mg/kg”)

TID 3311 Stress Test Summary Descriptions

Rows 6-7	These rows allow an explicit finding of presence or absence of exercise-induced angina through the Template 1350 Concept Modifier “Presence of property”

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TID 3312 Physiological Summary

TID 3312
Physiological Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	DT (40443-4, LN, “Resting Heart Rate”)	1	M		UNITS = DT({H.B.}/min, UCUM, "BPM”)
2			NUM	EV (F-008EC, SRT, “Systolic Blood Pressure”)	1	M		Units = DCID (3500) Pressure Units
3	>	HAS CONCEPT MOD	CODE	EV (109054, DCM, ”Patient State”)	1	M		DT(F-01604, SRT, “Resting State”)
4			NUM	EV (F-008ED, SRT, “Diastolic Blood Pressure”)	1	M		Units = DCID (3500) Pressure Units
5	>	HAS CONCEPT MOD	CODE	EV (109054, DCM, ”Patient State”)	1	M		DT(F-01604, SRT, “Resting State”)
6			NUM	DT (F-04F92, SRT, ”Target HR”)	1	M		UNITS = DT({H.B.}/min, UCUM, "BPM”)
7			NUM	DT (F-04FA6, SRT, ”Maximum HR Achieved”)	1	M		UNITS = DT({H.B.}/min, UCUM, "BPM”)

8			NUM	DT (F-04FA6, SRT, ”Maximum HR Achieved”)	1	M		UNITS = EV (%, UCUM, "%")
9	>	HAS CONCEPT MOD	CODE	EV(121425, DCM, "Index")	1	M		DT (F-04F92, SRT, ”Target HR”)
10			NUM	DT (122716, DCM, ”Maximum Power Output Achieved”)	1	U		UNITS = DT(W, UCUM, "Watts”)
11			NUM	DT (122717, DCM, ”Peak activity workload”)	1	U		UNITS = DT ([MET], UCUM, "METS")
12			CODE	DT (F-04F9F, SRT, ”HR Response”)	1	U		DCID (3210) Speed of Response
13			NUM	DT (F-00E11, SRT, ”Maximum systolic blood pressure”)	1	U		UNITS = DCID (3500) Pressure Units
14			NUM	DT (F-00E21, SRT, ”Maximum diastolic blood pressure”)	1	U		UNITS = DCID (3500) Pressure Units
15			CODE	DT (F-04F74, SRT,”BP Response”)	1	U		DCID (3210) Speed of Response
16			NUM	DT (122718, DCM, ”Peak Double Product”)	1	U		UNITS = DT (mm[Hg]{HB}/min, UCUM, "mmHg*BPM")
17			NUM	DT (F-031F8, SRT, ”Total Exercise duration”)	1	U		UNITS = DT (min, UCUM, "min")
18			NUM	DT (F-031F7, SRT, ”Total test duration”)	1	U		UNITS = DT (min, UCUM, "min")
19			INCLUDE	TID (300) Measurement	1	U		$Measurement = DT (F-04FCC, SRT, ”Functional capacity”) See note.
20			TEXT	DT (F-04FCC, SRT, ”Functional capacity”)	1	U		
21			INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV(122760, DCM, “Stress test score”) $Method = BCID (3238) Stress Scoring Scales
22			NUM	DT (F-04FCA, SRT, ”Heart rate recovery time”)	1	U		UNITS = DT (s, UCUM, "s")
23			CODE	EV (121071, DCM, "Finding")	1-n	U		BCID (3213) Stress Hemodynamic Findings
24			CODE	EV (F-00F4E, SRT, “Cardiovascular event risk”)	1	U		BCID (3118) Level of Risk

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TID 3312 Physiological Summary Descriptions

Row 22	Numerical scoring of a patient’s functional capacity shall include the range of the scoring system in the Units of Measurement (see Section 7.2.2), and may include a coded identifier for the scoring system in the Method concept modifier of Template 300.

TID 3313 Stress ECG Summary

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TID 3313
Stress ECG Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (F-00033, SRT, "ECG Finding")	1	U		Device Generated Test Summary
2	>	HAS OBS CONTEXT	CODE	EV (121005, DCM, “Observer Type”)	1	M		EV (121007, DCM, “Device”)
3	>	HAS OBS CONTEXT	INCLUDE	DTID (1004) Device Observer Identifying Attributes	1	M		
4			INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (F-03204, SRT, “ST Elevation”) $Units = DT(mV, UCUM, “mV”) $Derivation = (G-A437, SRT, “Maximum”) $TargetSite = DCID (3001) ECG Leads
5			INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (F-38279, SRT, “ST Depression”) $Units = DT(mV, UCUM, “mV”) $Derivation = (G-A437, SRT, “Maximum”) $TargetSite = DCID (3001) ECG Leads
6			INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (F-38287, SRT, “T wave alternans”) $Units = DT(uV, UCUM, “uV”) $Derivation = (G-A437, SRT, “Maximum”) $TargetSite = DCID (3001) ECG Leads
7			CODE	EV (F-38035, SRT, "ST Segment Finding")	1	U		BCID (3231) ST Segment Findings
8	>	HAS PROPERTIES	CODE	EV (G-C0E3, SRT, “Finding Site”)	1-n	U		BCID (3232) ST Segment Location
9	>	HAS PROPERTIES	CODE	EV (G-C504, SRT, "Associated Morphology")	1	U		BCID (3233) ST Segment Morphology
10			NUM	DT (122707, DCM, “Number of Ectopic Beats”)	1	U		UNITS = ({beats}, UCUM, “beats”)
11	>	HAS PROPERTIES	CODE	EV (G-C504, SRT, "Associated Morphology")	1-n	U		BCID (3234) Ectopic Beat Morphology
12			CODE	DT (8884-9, LN, "Cardiac Rhythm")	1-2	U		BCID (3415) Cardiac Rhythms See note.
13	>	HAS CONCEPT MOD	CODE	EV (109054, DCM, ”Patient State”)	1	M		DCID (3102) Rest-Stress
14			CODE	EV (F-00033, SRT, "ECG Finding")	1-n	U		BCID (3230) ECG Findings

15	>	HAS CONCEPT MOD	CODE	EV (109054, DCM, ”Patient State”)	1	U		BCID (3262) ECG Patient State Values

TID 3313 Stress ECG Summary Descriptions

Rows 4-14	Each observation (measurement or finding) may have a specific Content Item Observation Datetime attribute to indicate the time in the procedure at which the observation was made (e.g., time of maximum heart rate, or time of occurrence of an arrhythmia).
Row 12-13	This Concept and the associated Concept Modifier may be instantiated twice, once for resting state measurements, once for stress.

TID 3317 Stress Imaging Summary

TID 3317
Stress Imaging Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	DT (122739, DCM, "Overall study quality”)	1	M		BCID (3114) Study Quality
2			CODE	DT (113010, DCM, "Quality Issue")	1	U		BCID (3115) Stress Imaging Quality Issues
3			CODE	EV (121071, DCM, "Finding")	1	U		BCID (3116) NM Extracardiac Findings
4			INCLUDE	DTID (300) Measurement	1-2	U		$Measurement = DT(F-04F76, SRT, “Perfusion defect extent”) $ModType = EV (109054, DCM, ”Patient State”) $ModValue = DCID (3102) Rest-Stress $Units = EV (%, UCUM, "%") See note.
5			INCLUDE	DTID (300) Measurement	1	U		$Measurement = DT(F-04FCD, SRT, “Stress ischemia extent”) $Units = EV (%, UCUM, "%")
6			INCLUDE	DTID (300) Measurement	1	U		$Measurement = DT(122762, DCM, “Number of diseased vessel territories”) $Units = EV({territories}, UCUM, “territories”)
7			CODE	EV (121071, DCM, "Finding")	1	U		EV (D3-13040, SRT, “Coronary artery disease”)
8	>	HAS PROPERTIES	CODE	EV (G-C0E3, SRT, “Finding Site”)	1-n	M		BCID (3016) Major Coronary Arteries
9			CODE	EV (F-0238D, SRT, “Myocardial perfusion”)	1-2	U		BCID (3120) Perfusion Findings

10	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	M		BCID (3463) Ventricle Identification
11	>	HAS PROPERTIES	CODE	EV (G-C504, SRT, "Associated Morphology")	1	U		BCID (3121) Perfusion Morphology
12			CODE	EV (121071, DCM, "Finding")	1	U		DT(D4-31124, SRT, “Transient cavitary dilatation”)
13	>		INCLUDE	DTID (1350) Negation Modifier, Presence of Finding	1	U		
14			INCLUDE	DTID (300) Measurement	1	U		$Measurement = DT(F-04FB4, SRT, “Transient cavitary dilatation ratio”) $Units = EV({ratio}, UCUM, “ratio”)
15			INCLUDE	TID (300) Measurement	1-2	U		$Measurement = EV (10230-1, LN, "LV Ejection Fraction") $ModType = EV (109054, DCM, ”Patient State”) $ModValue = DCID (3102) Rest-Stress $Units = EV (%, UCUM, "%") See note.

TID 3317 Stress Imaging Summary Descriptions

Row 4	This row may be instantiated twice, once for resting state measurements, once for stress.
Row 15	The LVEF code specified in this row is defined in LOINC with method “imaging”. LVEF measurement by ultrasound may also be encoded elsewhere in the Content Tree (e.g., in TID x3309 Stress Echo Measurement Group) with LOINC code 18043-0, which has method “ultrasound”. It is recommended that such findings from the per-phase measurements be summarized here with the generic “LVEF by Imaging” concept code.

TID 3318 Comparison to Prior Stress Exam

This template describes changes in findings from a prior stress exam. Comparison is to only one prior exam, even though the generic concept name for the template uses the plural “exams”.

TID 3318
Comparison to Prior Stress Exam
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (111424, DCM, “Comparison to previous exams”)	1	M		
2	>	CONTAINS	CODE	DT(121058, DCM, “Procedure Reported”)	1	U		DCID (3200) Stress Procedure Type

3	>>	HAS PROPERTIES	DATETIME	EV(122146, DCM, “Procedure Datetime”)	1	U		
4	>>	HAS PROPERTIES	UIDREF	EV (121018, DCM, “Procedure Study Instance UID”)	1	U		
5	>>	HAS PROPERTIES	COMPOSITE	EV (122075, DCM, "Prior report for current patient")	1-n	U		
6	>	CONTAINS	CODE	DT(F-03D1D, SRT, “Exercise tolerance”)	1	U		BCID (3236) Tolerance Comparison Findings
7	>	CONTAINS	CODE	DT(F-0238D, SRT, “Myocardial Perfusion”)	1	U		BCID (3235) Perfusion Comparison Findings
8	>>	HAS CONCEPT MOD	CODE	EV (G-C036, SRT, “Measurement Method")	1-n	U		BCID (3215) Perfusion Finding Method
9	>	CONTAINS	CODE	DT(F-02225, SRT, “LV Wall motion”)	1-n	U		BCID (3237) Wall Motion Comparison Findings
10	>>	HAS CONCEPT MOD	CODE	EV (109054, DCM, ”Patient State”)	1	M		DCID (3102) Rest-stress
11	>	CONTAINS	CODE	EV (111424, DCM, “Comparison to previous exams”)	1	U		BCID (3217) Comparison Finding
12	>	CONTAINS	NUM	DT(122768, DCM, “Difference in Ejection Fraction”)	1	U		UNITS = EV (%, UCUM, "%")
13	>	CONTAINS	NUM	DT(122769, DCM, “Difference in ED LV Volume”)	1	U		UNITS = EV (ml, UCUM, "ml")
14	>	CONTAINS	NUM	DT(122769, DCM, “Difference in ED LV Volume”)	1	U		UNITS = EV (ml/m2, UCUM, "ml/m2")
15	>>	HAS CONCEPT MOD	CODE	EV (121425, DCM, “Index”)	1	M		DT(8277-6, LN, “BSA”)

TID 3320 Conclusions and Recommendations

TID 3320
Conclusions and Recommendations
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (121076, DCM, "Conclusions")	1	MC	IF Completion Flag (0040,A491) = COMPLETE	
2	>	CONTAINS	TEXT	EV (121077, DCM, "Conclusion")	1	U		
3	>	CONTAINS	CODE	EV (F-00033, SRT, "ECG Finding")	1	M		DCID (3208) Summary Codes Exercise ECG
4	>	CONTAINS	CODE	EV (F-01969, SRT, "Imaging Finding")	1	M		DCID (3209) Summary Codes Stress Imaging
5			CONTAINER	EV (121074, DCM, "Recommendations")	1	U		

6	>	CONTAINS	TEXT	EV (121075, DCM, "Recommendation")	1	U		

Update existing Templates

TID 3602 Cardiovascular Patient Characteristics

This template describes the characteristics of the patient that are specific to the current clinical presentation (visit). 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.

TID 3602
Cardiovascular Patient Characteristics
Type: Extensible

	NL	Relation with Parent	Value Type	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	M		Units = DCID (7456) Units of Measure for Age
3	>	CONTAINS	CODE	EV (121032, DCM, "Subject Sex”)	1	M		DCID (7455) Sex
4	>	CONTAINS	NUM	EV (8302-2, LN, “Patient Height”)	1	M		UNITS = EV (cm, UCUM, “cm”)
5	>	CONTAINS	NUM	EV (29463-7, LN, “Patient Weight”)	1	M		UNITS = EV (kg, UCUM, “kg”)
6	>	CONTAINS	NUM	EV (122221, DCM, “Thorax diameter, sagittal”)	1	U		UNITS = EV (cm, UCUM, “cm”)
7	>	CONTAINS	NUM	EV (8277-6, LN, “Body Surface Area”)	1	M**C**	**IF BSA used for indexed measurements in SOP Instance**	UNITS = EV (m2, UCUM, "m^2")
8	>>	INFERRED FROM	CODE	EV (8248-4, LN, "Body Surface Area Formula")	1	U		BCID (3663) Body Surface Area Equations
9	>	CONTAINS	NUM	EV (F-01860, SRT, “Body Mass Index”)	1	U		UNITS = EV (kg/m2, UCUM, "kg/m^2")
10	>>	INFERRED FROM	CODE	EV (121420, DCM, "Equation")	1	U		DT (122265, DCM, "BMI = Wt/Ht^2")
11	>	CONTAINS	NUM	EV (8867-4, LN, “Heart Rate”)	1	U		UNITS = EV ("{H.B.}/min", UCUM, "BPM")
12	>	CONTAINS	NUM	EV (F-008EC, SRT, “Systolic Blood Pressure”)	1	U		Units = DCID (3500)
13	>	CONTAINS	NUM	EV (F-008ED, SRT, “Diastolic Blood Pressure”)	1	U		Units = DCID (3500)
14	**≥**	**CONTAINS**	**CODE**	**DT (8884-9, LN, "Cardiac Rhythm")**	**1**	**U**		**BCID (3415) Cardiac Rhythms**
15	**≥**	**CONTAINS**	**NUM**	**EV (F-03D8C, SRT, “Chest Circumference”)**	**1**	**U**		**UNITS = EV (cm, UCUM, "cm")**
16	**≥**	**CONTAINS**	**TEXT**	**EV (F-009E4, SRT, “Breast size”)**	**1**	**U**		**Bra size as text string**
17	**≥**	**CONTAINS**	**CODE**	**EV (121071, DCM, "Finding")**	**1**	**U**		**DCID (3202) Chest Pain**

18	**>**	**CONTAINS**	**CODE**	**EV (F-04FCC, SRT, "Functional capacity")**	**1**	**U**		**DCID (3719) Canadian Clinical Classification**
19	**>**	**CONTAINS**	**CODE**	**EV (F-04FCC, SRT, "Functional capacity")**	**1**	**U**		**DCID (3736) NYHA Classification**
20	**>**	**CONTAINS**	**CODE**	**EV (121071, DCM, "Finding")**	**1-n**	**U**		
21	**>**	**CONTAINS**	**TEXT**	**EV (121110, DCM, "Patient Presentation")**	**1**	**U**		

TID 3602 Cardiovascular Patient Characteristics Descriptions

Rows 11-13	**Cardiac vital signs, for use when the SR SOP Instance does not record vital signs at multiple procedure phases or stages.**
Row 16	**Breast size for interpretation of attenuation in nuclear medicine imaging**

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 other templates that need to incorporate echocardiography findings into another report as quoted evidence.

TID 5200
Echocardiography Procedure Report
Type: Extensible

	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		
…								
21	>	CONTAINS	INCLUDE	DTID (5204) Wall Motion Analysis	1-n	U		**$Procedure = DT (P5-B3121, SRT, "Echocardiography for Determining Ventricular Contraction")**

TID 5202 Echo Section

This is a generic section heading Template for any of the anatomical headings. Measurements within a section heading appear as groups (by image mode**, ~~or~~** acquisition protocol**, and/or protocol stage**).

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

TID 5202
ECHO SECTION
Type: Extensible

	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	U		BCID (12224) Ultrasound Image Modes
5	>>	HAS CONCEPT MOD	CODE	DT (125203,DCM,"Acquisition Protocol")	1	U		
6	**>>**	**HAS ACQ CONTEXT**	**CODE**	**EV (LN, 18139-6, "Stage")**	**1**	**U**		**BCID (12002) Ultrasound Protocol Stage Types**
~~6~~**7**	>>	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
Row 6	**For measurements acquired in a staged protocol, all measurements in a measurement group are acquired at the identified stage.**

TID 5203
Echo Measurement
Type: Extensible

	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
7	**>**	**HAS ACQ CONTEXT**	**CODE**	**EV (LN, 18139-6, "Stage")**	**1**	**U**		**BCID (12002) Ultrasound Protocol Stage Types**

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TID 5204 ~~Echocardiography~~ Wall Motion Analysis

The Wall Motion Analysis Template is used to document wall motion scoring **for any imaging modality**.

Parameter Name	Parameter Usage
$Procedure	**The imaging procedure used for wall motion analysis.**

295

TID 5204
Wall Motion Analysis
Type: Extensible

	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")**~~ **$Procedure**
3	>	HAS ACQ CONTEXT	CODE	EV (LN, 18139-6, "Stage")	1	U		~~**BCID (12002) Ultrasound Protocol Stage Types**~~ **BCID (3207) Stress Test Procedure Phases**
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		BCID (12238) Wall Motion Scoring Scheme
8	>	CONTAINS	CONTAINER	EV (121070, DCM, "Findings")	1	U~~C~~	~~**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		
15	**>>>**	**HAS PROPERTIES**	**NUM**	**EV(122624, DCM, "Wall Thickness Ratio end-systolic to end-diastolic")**	**1**	**U**		**UNITS = DT(%, UCUM, “%")**

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.

Add the following context groups in Annex B

CID 252 S-M-L Size Descriptor

CID 6118 is a superset of this Context Group.

Context ID 252
S-M-L Size Descriptor
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-404A8	Small
SRT	R-404A9	Medium
SRT	R-404AA	Large

CID 3016 Major Coronary Arteries

Context ID 3016
Major Coronary Arteries
Type: Non-Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	T-4311A	Left Anterior Descending Coronary Artery
SRT	T-43203	Right Coronary Artery
SRT	T-43120	Circumflex Coronary Artery
SRT	T-43107	Left Main Coronary Artery

CID 3083 Units of Radioactivity

Context ID 3083
Units of Radioactivity
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
UCUM	Bq	becquerel
UCUM	MBq	megabecquerel
UCUM	mCi	millicurie

CID 3102 Rest-Stress

Context ID 3102
Rest-Stress
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-01604	Resting State
DCM	109091	Cardiac Stress State

CID 3106 PET Cardiology Protocols

Context ID 3106
PET Cardiology Protocols
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122791	PET Myocardial Perfusion, Rest only
DCM	122792	PET Myocardial Perfusion, Stress only
DCM	122793	PET Myocardial Perfusion, Rest and Stress
DCM	122795	PET Myocardial Viability, Rest only
DCM	122796	PET Myocardial Viability, Stress only
DCM	122797	PET Myocardial Viability, Rest and Stress

CID 3107 PET Cardiology Radiopharmaceuticals

Context ID 3107
PET Cardiology Radiopharmaceuticals
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	C-B1031	Fluorodeoxyglucose F^18^
SRT	C-107A1	^13^Nitrogen
SRT	C-159A2	^82^Rubidium

CID 3108 NM/PET Procedures

Context ID 3108
NM/PET Procedures
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	P5-D30F8	Nuclear medicine cardiovascular study
SRT	P5-0A006	PET heart study

CID 3110 Nuclear Cardiology Protocols

Context ID 3110
Nuclear Cardiology Protocols
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	P5-D300B	Stress thallium procedure
DCM	122781	Rest thallium/stress technetium procedure
DCM	122782	Rest technetium/stress technetium 1 day procedure
DCM	122783	Rest technetium/stress technetium 2 day procedure
DCM	122784	Stress technetium/rest technetium 1 day procedure
DCM	122785	NM Myocardial Viability procedure

CID 3111 Nuclear Cardiology Radiopharmaceuticals

Context ID 3111
Nuclear Cardiology Radiopharmaceuticals
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	C-B1130	Thallium-201
SRT	C-B10A2	Tc-99m sestamibi
SRT	C-B10A4	Tc-99m tetrofosmin

CID 3112 Attenuation Correction

Context ID 3112
Attenuation Correction
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122726	Algorithmic Attenuation Correction
DCM	122727	NM Transmission Attenuation Correction
DCM	122728	CT–based Attenuation Correction
DCM	122729	No Attenuation Correction

CID 3113 Types of Perfusion Defects

Context ID 3113
Types of Perfusion Defects
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-3014D	Reversible myocardial perfusion defect
SRT	F-3014F	Fixed myocardial perfusion defect
SRT	F-3014E	Partially Reversible myocardial perfusion defect
DCM	122748	False Positive defect finding

CID 3114 Study Quality

Context ID 3114
Study Quality
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122740	Excellent image quality
DCM	122741	Good image quality
DCM	122742	Poor image quality
DCM	111235	Unusable — Quality renders image unusable

CID 3115 Stress Imaging Quality Issues

Context ID 3115
Stress Imaging Quality Issues
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
DCM	111210	Motion blur
DCM	122743	Body habitus attentuation
DCM	122744	Breast attenuation
DCM	122745	Diaphragmatic attenuation
SRT	F-04FD3	Subdiaphragmatic uptake

CID 3116 NM Extracardiac Findings

Context ID 3116
NM Extracardiac Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-04FA0	Normal extracardiac uptake
SRT	F-04FB8	Increased lung uptake
SRT	F-04FE3	Abnormal extracardiac uptake

CID 3117 Attenuation Correction Methods

Context ID 3117
Attenuation Correction Methods
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122720	OSEM algorithm
DCM	122721	Chang method

CID 3118 Level of Risk

Context ID 3118
Level of Risk
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	G-4044	Normal risk
SRT	G-4041	Low risk
SRT	G-4045	Low to moderate risk
SRT	G-4042	Moderate risk
SRT	G-4046	Moderate to high risk
SRT	G-4043	High risk
SRT	G-A648	Uncertain risk

CID 3119 LV Function

Context ID 3119
LV Function
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	G-A460	Normal
SRT	F-300FA	Impaired left ventricular function

CID 3120 Perfusion Findings

Context ID 3120
Perfusion Findings
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-30172	Myocardial perfusion normal
SRT	G-A466	Equivocal
SRT	R-42037	Abnormal

CID 3121 Perfusion Morphology

Context ID 3121
Perfusion Morphology
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	D3-1070D	Myocardial ischemia
SRT	D3-15000	Myocardial Infarction
SRT	D3-10711	Mixed Ischemia and Infarction

CID 3122 Ventricular Enlargement

Context ID 3122
Ventricular Enlargement
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-00343	Normal size cardiac chamber
SRT	R-0032A	Mildly enlarged cardiac chamber
SRT	R-00331	Moderately enlarged cardiac chamber
SRT	R-00316	Markedly enlarged cardiac chamber

CID 3200 Stress Test Procedure

Context ID 3200
Stress Test Procedure
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	P0-006E4	Exercise stress test
SRT	P2-31107	Pharmacologic stress test
SRT	P2-31011	Pharmacologic and exercise stress test
SRT	P2-3110B	Paced stress test

CID 3201 Indications for Stress Test

Context ID 3201
Indications for Stress Test

Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-37000	Chest Pain
SRT	R-413C5	Pre-operative
SRT	D3-13040	Coronary Artery Disease
SRT	D3-16000	Heart failure
SRT	F-03C97	Heart disease risk factors
SRT	F-201B3	Dyspnea
SRT	R-00357	Post PTCA
SRT	G-03A5	History of CABG
SRT	F-00103	Abnormal exercise tolerance test
SRT	F-38002	Abnormal ECG
SRT	D3-30000	Arrhythmia
SRT	D3-13012	Angina pectoris
SRT	D3-02000	Hypertension
SRT	F-37150	Palpitations
SRT	D3-31290	Supraventricular tachycardia
SRT	D3-00006	Syncope
SRT	G-03AA	History of Myocardial Infarction
SRT	D3-33120	Left bundle branch block
SRT	D3-10800	Valvular heart disease
SRT	P7-00044	Occupational requirement

CID 3202 Chest Pain

Context ID 3202
Chest Pain

Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	D3-13020	Stable Angina
SRT	D3-12700	Unstable Angina
SRT	R-0038F	Atypical Angina
SRT	F-37015	Noncardiac Chest Pain
SRT	F-A265A	Chest pain not present

SRT	D3-13037	Typical Angina
DCM	122799	Anginal Equivalent

CID 3203 Exerciser Device

Context ID 3203
Exerciser Device

Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	A-17230	Bicycle ergometer
SRT	A-17222	Treadmill
SRT	A-1002A	Arm ergometer

CID 3204 Stress Agents

Context ID 3204
Stress Agents

Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning	Trade Name (informative)
SRT	C-81590	Dipyridamole	Persantine
SRT	C-68030	Dobutamine	
SRT	C-80349	Adenosine	
SRT	C-67770	Atropine	
SRT	C-80012	Adenosine A2 receptor agonist	

CID 3205 Indications for Pharmacological Stress Test

Context ID 3205
Indications for Pharmacological Stress Test

Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	D3-33120	Left bundle branch block
SRT	R-0039E	Patient has pacemaker

SRT	DA-26000	Paralytic syndrome
SRT	F-A4580	Ataxia or incoordination
SRT	D3-8005B	Peripheral vascular disease
SRT	D2-50000	Pulmonary disease
SRT	F-18002	Gait problem
SRT	F-A0846	Transient limb paralysis
SRT	F-01380	Asthenia (debility)
SRT	F-029F7	Cachexia
SRT	DD-13000	Fracture of lower limb
SRT	DD-33500	Open wound of lower limb
SRT	G-02BD	Lower limb amputation
SRT	G-0202	Request by Physician
SRT	S-20570	Dependence on enabling machine or device
SRT	G-044D	Recent Myocardial infarction
SRT	F-33019	Cannot reach target heart rate
DCM	122764	Patient weight exceeds equipment limit

CID 3206 Non-invasive Cardiac Imaging Procedures

Context ID 3206
Non-invasive Cardiac Imaging Procedures

Type: Extensible Version: 20070827

Coding Scheme Designator	Code Value	Code Meaning
SRT	P5-D30F8	Nuclear medicine cardiovascular study
SRT	P5-D3304	Cardiac blood pool imaging (nuclear)
SRT	P5-0A006	PET heart study
SRT	P5-0A100	SPECT
SRT	P5-B3000	Echocardiography
SRT	P5-09011	Cardiac MRI

Note: CID 3207 also specified in CP817

CID 3207 Stress Test Procedure Phases

Context ID 3207
Stress Test Procedure Phases
Type: Extensible Version: 20080931

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-01604	Resting State
SRT	F-05019	Cardiac stress state
SRT	F-05028	Peak cardiac stress state
SRT	F-05018	Cardiac stress recovery state
SRT	F-25040	Hyperventilation

CID 3208 Summary Codes Exercise ECG

Context ID 3208
Summary Codes Exercise ECG
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-00101	Exercise ECG normal
SRT	F-00103	Exercise ECG abnormal
SRT	F-201B6	Exercise ECG equivocal
SRT	R-4135B	Not performed

CID 3209 Summary Codes Stress Imaging

Context ID 3209
Summary Codes Stress Imaging
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-04AB2	Imaging result normal
SRT	F-04AB3	Imaging result abnormal
SRT	F-04A13	Imaging result equivocal
SRT	R-4135B	Not performed

CID 3210 Speed of Response

Context ID 3210
Speed of Response
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	G-A460	normal
SRT	R-40AA8	accentuated
SRT	R-40AA7	blunted

CID 3211 BP Response

Context ID 3211
BP Response
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	G-A460	normal
SRT	D3-04000	Hypotensive
SRT	D3-02000	Hypertensive
SRT	R-40AA7	blunted

CID 3212 Treadmill Speed

Context ID 3212
Treadmill Speed
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
UCUM	km/h	km/h
UCUM	[mi_i]/h	mph

CID 3213 Stress Hemodynamic Findings

Context ID 3213
Stress Hemodynamic Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	D3-0400A	Exertional hypotension
SRT	D3-0200B	Exertional hypertension
SRT	F-380B2	Chronotropic incompetence

CID 3215 Perfusion Finding Method

Context ID 3215
Perfusion Finding Method
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-41D8B	ECG analysis
SRT	P3-41910	Image analysis

CID 3217 Comparison Finding

Context ID 3217
Comparison Finding
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122775	Agreement with prior findings
DCM	122776	Disagreement with prior findings

CID 3220 Stress Symptoms

Context ID 3220
Stress Symptoms
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-201B3	Dyspnea
SRT	F-18010	Claudication
SRT	D3-00006	Syncope
SRT	D0-30017	Flushing
SRT	F-52760	Nausea
SRT	F-06017	Dizziness
SRT	F-01360	Fatigue
SRT	F-37000	Chest pain
SRT	F-37006	Chest discomfort
Include CID 3202 Chest pain		

CID 3221 Stress Test Termination Reasons

Context ID 3221
Stress Test Termination Reasons
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-37000	Chest pain
SRT	F-38002	Abnormal ECG
SRT	F-01360	Fatigue
SRT	F-201B3	Dyspnea
SRT	R-214DD	Patient Refused exercise test
SRT	F-021E1	Target Heart Rate Achieved
SRT	D3-04001	Hypotensive episode
SRT	D3-02004	Hypertensive episode
SRT	D3-30000	Arrhythmia
SRT	F-18010	Claudication
SRT	R-4038D	End of Protocol
SRT	D3-00006	Syncope

CID 3227 QTc Measurements

This Context Group include both global and per lead corrected QT measurements specified in the IEEE MDC nomenclature. Note that the MDC code for the per lead measurement is a base code for post-coordination with separately encoded lead identifiers. MDC also defines pre-coordinated codes that include both the measurement and the lead, which may be used in the same context as this Context Group.

Context ID 3227
QTc Measurements
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	2:16164	QTc interval global	MDC_ECG_TIME_PD_QTC
MDC	2:8448	QTc interval per lead	MDC_ECG_TIME_PD_QT_CORR_<lead

CID 3228 ECG Timing Measurements

This Context Group include both global and per lead ECG measurements specified in the IEEE MDC nomenclature. Note that the MDC codes for "per lead" measurements are base codes for post-coordination with separately encoded lead identifiers. MDC also defines pre-coordinated codes that include both the measurement and the lead, which may be used in the same context as this Context Group.

Context ID 3228
ECG Timing Measurements
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	2:15872	PR interval global	MDC_ECG_TIME_PD_PR
MDC	2:16160	QT interval global	MDC_ECG_TIME_PD_QT
MDC	2:16156	QRS duration global	MDC_ECG_TIME_PD_QRS
MDC	2:16184	P duration global	MDC_ECG_TIME_PD_P
MDC	2:16140	PP interval global	MDC_ECG_TIME_PD_PP
MDC	2:16168	RR interval global	MDC_ECG_TIME_PD_RR
MDC	2:7168	PR interval per lead	MDC_ECG_TIME_PD_PR_<lead>
MDC	2:8192	QT interval per lead	MDC_ECG_TIME_PD_QT_<lead>
MDC	2:7936	QRS duration per lead	MDC_ECG_TIME_PD_QRS_<lead>
MDC	2:6656	P duration per lead	MDC_ECG_TIME_PD_P_<lead>
MDC	2:32768	PP interval per lead	MDC_ECG_TIME_PD_PP_<lead>
MDC	2:33024	RR interval per lead	MDC_ECG_TIME_PD_RR_<lead>

CID 3229 ECG Axis Measurements

Context ID 3229
ECG Axis Measurements
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	2:16132	QRS axis	MDC_ECG_ANGLE_QRS_FRONT
MDC	2:16128	P Axis	MDC_ECG_ANGLE_P_FRONT
MDC	2:16136	T axis	MDC_ECG_ANGLE_T_FRONT

CID 3230 ECG Findings

Context ID 3230
ECG Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
SRT	F-000B7	Normal	MDC_ECG_BEAT_NORMAL
SRT	D3-30A03	Atrial premature contraction	MDC_ECG_BEAT_ATR_P_C
SRT	D3-31740	Ventricular premature contraction	MDC_ECG_BEAT_V_P_C
SRT	D3-31520	Atrial Fibrillation	MDC_ECG_RHY_ATR_FIB
SRT	D3-31290	Supraventricular Tachycardia	MDC_ECG_RHY_SV_TACHY
SRT	D3-31710	Non-sustained ventricular tachycardia	MDC_ECG_RHY_V_TACHY_PAROX
SRT	D3-31700	Ventricular tachycardia	MDC_ECG_RHY_V_TACHY
SRT	D3-31720	Ventricular fibrillation	MDC_ECG_RHY_V_FIB
SRT	D3-33000	Intraventricular conduction disturbance	MDC_ECG_BEAT_BLK_IVCD
SRT	D3-33120	Left bundle branch block	MDC_ECG_BEAT_LBB_BLK_COMP
SRT	D3-33110	Right bundle branch block	MDC_ECG_BEAT_RBB_BLK_COMP
SRT	D3-33122	Incomplete Left bundle branch block	MDC_ECG_BEAT_LBB_BLK_INCOMP
SRT	D3-33112	Incomplete Right bundle branch block	MDC_ECG_BEAT_RBB_BLK_INCOMP
SRT	D3-33200	Bifascicular Block	MDC_ECG_BEAT_BLK_BIFASC
SRT	D3-33140	Left anterior fascicular block	MDC_ECG_BEAT_BLK_ANT_L_HEMI
SRT	D3-33150	Left posterior fascicular block	MDC_ECG_BEAT_BLK_POS_L_HEMI
SRT	D3-30001	First degree Atrioventricular block	MDC_ECG_RHY_AV_HEART_BLK_DEG_1
SRT	R-F81AE	Second degree Atrioventricular block	MDC_ECG_RHY_AV_HEART_BLK_DEG_2
SRT	D3-32102	Third degree Atrioventricular block	MDC_ECG_RHY_AV_HEART_BLK_DEG_3
SRT	D3-31351	Ventricular pre-excitation	MDC_ECG_BEAT_PREX
SRT	F-38278	ST depression	
SRT	F-38277	ST elevation	
SRT	F-380B3	Early repolarization	
SRT	F-38794	Nonspecific ST-T abnormality	

SRT	F-38793	Secondary ST-T abnormality	

CID 3231 ST Segment Findings

Context ID 3231
ST Segment Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	F-000C3	ST Interval Normal
DCM	122750	Non-diagnostic – low heart rate
DCM	122751	Non-diagnostic – resting ST abnormalities
DCM	122752	Non-diagnostic – ventricular pacing or LBBB
SRT	G-A205	Weakly positive
SRT	G-A200	Positive
DCM	122755	Strongly positive
DCM	122756	Strongly positive – ST elevation

CID 3232 ST Segment Location

Context ID 3232
ST Segment Location
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	T-3260A	Left ventricle anterior segment
SRT	T-3260C	Left ventricle inferior segment
SRT	T-3260D	Left ventricle lateral segment
SRT	T-32615	Left ventricle posterior segment

CID 3233 ST Segment Morphology

Context ID 3233
ST Segment Morphology
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122757	ST Depression – Horizontal

DCM	122758	ST Depression – Upsloping
DCM	122759	ST Depression – Downsloping
SRT	F-38277	ST Elevation
SRT	F-38278	ST Depression

CID 3234 Ectopic Beat Morphology

Context ID 3234
Ectopic Beat Morphology
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	D3-31700	Ventricular tachycardia
SRT	F-33750	Ventricular bigeminy
SRT	D3-31744	Multifocal PVCs
SRT	D3-31742	Unifocal PVCs
SRT	D3-31704	Ventricular tachycardia, polymorphic

CID 3235 Perfusion Comparison Findings

Context ID 3235
Perfusion Comparison Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-4075C	No change
SRT	R-215D9	New ischemia
SRT	R-215DE	Less ischemia
SRT	R-215D5	Resolution of ischemia
SRT	R-215E1	More ischemia
SRT	R-215E0	New infarction

CID 3236 Tolerance Comparison Findings

Context ID 3236
Tolerance Comparison Findings
Type: Extensible Version: 20080827

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-4075C	No change
SRT	F-00454	Decreased tolerance
SRT	F-00453	Increased tolerance

CID 3237 Wall Motion Comparison Findings

Context ID 3237
Wall Motion Comparison Findings
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-4075C	No change
SRT	R-215DC	New wall motion abnormality
SRT	R-215D6	Improvement of wall motion

CID 3238 Stress Scoring Scales

Context ID 3238
Stress Scoring Scales
Type: Extensible Version: 20070927

Coding Scheme Designator	Code Value	Code Meaning
SRT	G-E002	Duke treadmill score
DCM	122770	Ratio of achieved to predicted maximal oxygen
DCM	122771	Ratio of achieved to predicted functional capacity
DCM	122772	Aerobic index
DCM	122773	ST/HR Index

CID 3239 Perceived Exertion Scales

Context ID 3239
Perceived Exertion Scales
Type: Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
DCM	122734	Borg RPE Scale
DCM	122735	Borg CR10 Scale

CID 3463 Ventricle Identification

Context ID 3463
Ventricle Identification
Type: Non-Extensible Version: 20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	T-32600	Left Ventricle
SRT	T-32500	Right Ventricle

Modify the following context groups in Annex C

CID 3001 ECG Leads

This Context Group comprises the ECG lead identifiers of ISO/IEEE 11073-10101, including human and canine leads. The terms included in the table below may not constitute the complete list; see the ISO/IEEE Standard.

Note to editor – replace entire CID 3001 table with the following. This change also associated with CP729.

Context ID 3001
ECG Leads

Type: Extensible Version: ~~20020904~~20080927

Coding Scheme	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	2:71	Lead A (Nehb – Anterior)	MDC_ECG_LEAD_A
MDC	2:75	Auxiliary unipolar lead 1	MDC_ECG_LEAD_A1
MDC	2:76	Auxiliary unipolar lead 2	MDC_ECG_LEAD_A2
MDC	2:77	Auxiliary unipolar lead 3	MDC_ECG_LEAD_A3
MDC	2:78	Auxiliary unipolar lead 4	MDC_ECG_LEAD_A4
MDC	2:127	Auxiliary bipolar lead 1	MDC_ECG_LEAD_AB1
MDC	2:128	Auxiliary bipolar lead 2	MDC_ECG_LEAD_AB2
MDC	2:129	Auxiliary bipolar lead 3	MDC_ECG_LEAD_AB3
MDC	2:130	Auxiliary bipolar lead 4	MDC_ECG_LEAD_AB4
MDC	2:133	EASI Lead AI	MDC_ECG_LEAD_AI
MDC	2:132	EASI Lead AS	MDC_ECG_LEAD_AS
MDC	2:64	aVF, augmented voltage, foot	MDC_ECG_LEAD_AVF
MDC	2:63	aVL, augmented voltage, left	MDC_ECG_LEAD_AVL
MDC	2:62	aVR, augmented voltage, right	MDC_ECG_LEAD_AVR
MDC	2:65	–aVR	MDC_ECG_LEAD_AVRneg
MDC	2:26	Chest lead	MDC_ECG_LEAD_C
MDC	2:124	negative: low right scapula Lead	MDC_ECG_LEAD_CB5
MDC	2:98	Chest lead (symmetric placement)	MDC_ECG_LEAD_CC
MDC	2:99	Chest lead per V1 and V1R placement	MDC_ECG_LEAD_CC1
MDC	2:100	Chest lead per V2 and V2R placement	MDC_ECG_LEAD_CC2
MDC	2:101	Chest lead per V3 and V3R placement	MDC_ECG_LEAD_CC3
MDC	2:102	Chest lead per V4 and V4R placement	MDC_ECG_LEAD_CC4
MDC	2:19	Chest lead per V5 and V5R placement	MDC_ECG_LEAD_CC5
MDC	2:103	Chest lead per V6 and V6R placement	MDC_ECG_LEAD_CC6
MDC	2:104	Chest lead per V7 and V8R placement	MDC_ECG_LEAD_CC7
MDC	2:122	Lead CH5	MDC_ECG_LEAD_CH5

MDC	2:105	Chest-manubrium lead	MDC_ECG_LEAD_CM
MDC	2:106	Chest-manubrium lead per V1 placement	MDC_ECG_LEAD_CM1
MDC	2:107	Chest-manubrium lead per V2 placement	MDC_ECG_LEAD_CM2
MDC	2:108	Chest-manubrium lead per V3 placement	MDC_ECG_LEAD_CM3
MDC	2:109	Chest-manubrium lead per V4 placement	MDC_ECG_LEAD_CM4
MDC	2:19	Chest-manubrium lead per V5 placement	MDC_ECG_LEAD_CM5
MDC	2:110	Chest-manubrium lead per V6 placement	MDC_ECG_LEAD_CM6
MDC	2:121	Chest-manubrium lead per V7 placement	MDC_ECG_LEAD_CM7
MDC	2:125	Lead CR5	MDC_ECG_LEAD_CR5
MDC	2:123	negative: right infraclavicular fossa	MDC_ECG_LEAD_CS5
MDC	2:148	Canine, fifth right intercostal space near edge of sternum	MDC_ECG_LEAD_CV5RL
MDC	2:149	Canine, sixth left intercostal space near edge of sternum	MDC_ECG_LEAD_CV6LL
MDC	2:150	Canine, sixth left intercostal space at costochondral junction	MDC_ECG_LEAD_CV6LU
MDC	2:70	Lead D (Nehb – Dorsal)	MDC_ECG_LEAD_D
MDC	2:114	Derived Lead aVF	MDC_ECG_LEAD_daVF
MDC	2:113	Derived Lead aVL	MDC_ECG_LEAD_daVL
MDC	2:112	Derived Lead aVR	MDC_ECG_LEAD_daVR
MDC	2:73	Defibrillator lead: anterior-lateral	MDC_ECG_LEAD_DEFIB
MDC	2:31	Derived Lead I	MDC_ECG_LEAD_dI
MDC	2:32	Derived Lead II	MDC_ECG_LEAD_dII
MDC	2:111	Derived Lead III	MDC_ECG_LEAD_dIII
MDC	2:33	Derived Lead V1	MDC_ECG_LEAD_dV1
MDC	2:34	Derived Lead V2	MDC_ECG_LEAD_dV2
MDC	2:35	Derived Lead V3	MDC_ECG_LEAD_dV3
MDC	2:36	Derived Lead V4	MDC_ECG_LEAD_dV4
MDC	2:37	Derived Lead V5	MDC_ECG_LEAD_dV5
MDC	2:38	Derived Lead V6	MDC_ECG_LEAD_dV6
MDC	2:131	EASI Lead ES	MDC_ECG_LEAD_ES
MDC	2:74	External pacing lead: anterior-posterior	MDC_ECG_LEAD_EXTERN
MDC	2:27	Frank Lead A	MDC_ECG_LEAD_fA
MDC	2:26	Frank Lead C	MDC_ECG_LEAD_fC
MDC	2:25	Frank Lead E	MDC_ECG_LEAD_fE
MDC	2:29	Frank Lead F	MDC_ECG_LEAD_fF
MDC	2:30	Frank Lead H	MDC_ECG_LEAD_fH
MDC	2:24	Frank Lead I	MDC_ECG_LEAD_fI
MDC	2:28	Frank Lead M	MDC_ECG_LEAD_fM

MDC	2:1	Lead I	MDC_ECG_LEAD_I
MDC	2:2	Lead II	MDC_ECG_LEAD_II
MDC	2:3	Lead III	MDC_ECG_LEAD_III
MDC	2:72	Lead J (Nehb – Inferior)	MDC_ECG_LEAD_J
MDC	2:21	Left Arm Lead	MDC_ECG_LEAD_LA
MDC	2:23	Left Leg Lead	MDC_ECG_LEAD_LL
MDC	2:91	Modified chest lead (left arm indifferent)	MDC_ECG_LEAD_MCL
MDC	2:92	Modified chest lead per V1 placement	MDC_ECG_LEAD_MCL1
MDC	2:93	Modified chest lead per V2 placement	MDC_ECG_LEAD_MCL2
MDC	2:94	Modified chest lead per V3 placement	MDC_ECG_LEAD_MCL3
MDC	2:95	Modified chest lead per V4 placement	MDC_ECG_LEAD_MCL4
MDC	2:96	Modified chest lead per V5 placement	MDC_ECG_LEAD_MCL5
MDC	2:97	Modified chest lead per V6 placement	MDC_ECG_LEAD_MCL6
MDC	2:126	Modified limb lead	MDC_ECG_LEAD_ML
MDC	2:22	Right Arm Lead	MDC_ECG_LEAD_RA
MDC	2:147	Right Leg Lead	MDC_ECG_LEAD_RL
MDC	2:134	EASI upper sternum lead	MDC_ECG_LEAD_S
MDC	2:87	Precordial lead	MDC_ECG_LEAD_V
MDC	2:3	Lead V1	MDC_ECG_LEAD_V1
MDC	2:151	Canine, over dorsal spinous process of 7th thoracic vertebra	MDC_ECG_LEAD_V10
MDC	2:4	Lead V2	MDC_ECG_LEAD_V2
MDC	2:10	Lead V2R	MDC_ECG_LEAD_V2R
MDC	2:5	Lead V3	MDC_ECG_LEAD_V3
MDC	2:11	Lead V3R	MDC_ECG_LEAD_V3R
MDC	2:6	Lead V4	MDC_ECG_LEAD_V4
MDC	2:12	Lead V4R	MDC_ECG_LEAD_V4R
MDC	2:7	Lead V5	MDC_ECG_LEAD_V5
MDC	2:13	Lead V5R	MDC_ECG_LEAD_V5R
MDC	2:8	Lead V6	MDC_ECG_LEAD_V6
MDC	2:14	Lead V6R	MDC_ECG_LEAD_V6R
MDC	2:9	Lead V7	MDC_ECG_LEAD_V7
MDC	2:15	Lead V7R	MDC_ECG_LEAD_V7R
MDC	2:66	Lead V8	MDC_ECG_LEAD_V8
MDC	2:68	Lead V8R	MDC_ECG_LEAD_V8R
MDC	2:67	Lead V9	MDC_ECG_LEAD_V9
MDC	2:69	Lead V9R	MDC_ECG_LEAD_V9R
MDC	2:90	Lead VF, nonaugmented voltage, vector of LL	MDC_ECG_LEAD_VF

MDC	2:89	Lead VL, nonaugmented voltage, vector of LA	MDC_ECG_LEAD_VL
MDC	2:88	Lead VR, nonaugmented voltage, vector of RA	MDC_ECG_LEAD_VR
MDC	2:16	Lead X	MDC_ECG_LEAD_X
MDC	2:17	Lead Y	MDC_ECG_LEAD_Y
MDC	2:18	Lead Z	MDC_ECG_LEAD_Z
MDC	2:0	Unspecified lead	MDC_ECG_LEAD_CONFIG

Note: A prior version of this context group used codes from the SCP-ECG vocabulary.

Note: CID 3261 also modified in CP817

CID 3261 Stress Protocols

Context ID 3261
Stress Protocols

Type: Extensible Version: ~~20020904~~20080927

Coding Scheme Designator	Code Value	Code Meaning
SRT	P2-7131C	Balke protocol
SRT	P2-7131A	Bruce protocol
SRT	P2-7131D	Ellestad protocol
SRT	P2-7131B	Modified Bruce protocol
SRT	P2-713A1	Modified Naughton protocol
SRT	P2-713A0	Naughton protocol
SRT	P2-7131F	Pepper protocol
SRT	P2-7131E	Ramp protocol
SRT	**P2-31102**	**Stress test using Bicycle Ergometer**
SRT	**P2-31107**	**Pharmacologic Stress protocol**
SRT	**P2-3110A**	**Dipyridamole Stress protocol**
SRT	**P2-31109**	**Adenosine Stress protocol**
SRT	**P2-31108**	**Dobutamine Stress protocol**
SRT	**P2-31011**	**Pharmacologic and exercise stress test**
SRT	**P2-3110B**	**Stress test using cardiac pacing**

CID 3263 Electrode Placement Values

This Context Group comprises the ECG lead placement system identifiers of ISO/IEEE 11073-10102. The terms included in the table below may not constitute the complete list; see the ISO/IEEE Standard.

Context ID 3263
Electrode Placement Values

Type: Extensible Version: ~~20020904~~20080927

Note to editor – replace entire CID 3263 table with the following. This change also associated with CP729.

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	10:11264	Unspecified 12-lead system	MDC_ECG_LDSYS_12LD_UNSPECIFIED
MDC	10:11265	Standard 12-lead positions, electrodes placed individually	MDC_ECG_LDSYS_12LD_STD
MDC	10:11266	Mason-Likar lead positions, electrodes placed individually	MDC_ECG_LDSYS_12LD_MASON_LIKAR
MDC	10:11267	Mason-Likar lead positions, V1-V6 in electrode pad	MDC_ECG_LDSYS_12LD_VPAD
MDC	10:11268	12-lead electrode pad	MDC_ECG_LDSYS_12LD_PAD
MDC	10:11269	12-lead derived from Frank XYZ leads	MDC_ECG_LDSYS_12LD_FROM_FRANK
MDC	10:11270	12-lead derived from non-standard leads	MDC_ECG_LDSYS_12LD_NON_STANDARD
MDC	10:11271	12-lead for bicycle exercise testing, limb leads on back of patient	MDC_ECG_LDSYS_12LD_BICYCLE
MDC	10:11272	Standard 12-lead positions one intercostal space higher	MDC_ECG_LDSYS_12LD_RAISED_INTERCOSTAL
MDC	10:11273	Unspecified XYZ lead system	MDC_ECG_LDSYS_XYZ_UNSPECIFIED
MDC	10:11274	Frank XYZ lead system	MDC_ECG_LDSYS_XYZ_FRANK
MDC	10:11275	McFee-Parungao XYZ lead system	MDC_ECG_LDSYS_XYZ_MCFEE_PARUNAGO
MDC	10:11276	Cube XYZ lead system	MDC_ECG_LDSYS_XYZ_CUBE
MDC	10:11277	Bipolar uncorrected XYZ lead system	MDC_ECG_LDSYS_XYZ_BIPOLAR
MDC	10:11278	Pseudo-orthogonal XYZ lead system	MDC_ECG_LDSYS_XYZ_PSEUDO_ORTH
MDC	10:11279	XYZ leads derived from standard 12-lead	MDC_ECG_LDSYS_XYZ_FROM_12LD
MDC	10:11280	NEHB lead system	MDC_ECG_LDSYS_3LD_NEHB

MDC	10:11281	3-lead system, CC5-CM5-ML	MDC_ECG_LDSYS_3LD_CC5_CM5_ML
MDC	10:11282	3-lead system, CC5-CM5-CH5	MDC_ECG_LDSYS_3LD_CM5_CC5_CH5
MDC	10:11283	12-lead from Frank leads XYZ leads by Dower transformation	MDC_ECG_LDSYS_12LD_FROM_DOWER
MDC	10:11284	12-lead from EASI leads (ES, AS, AI) by Dower/EASI transformation	MDC_ECG_LDSYS_12LD_FROM_EASI
MDC	10:11285	12-lead from Limb Leads (I, II) and one or more V leads	MDC_ECG_LDSYS_12LD_FROM_LIMB
MDC	10:11286	Standard 12-lead and XYZ	MDC_ECG_LDSYS_12LD_STD_AND_XYZ
MDC	10:11287	Standard 12-lead and NEHB	MDC_ECG_LDSYS_12LD_STD_AND_NEHB
MDC	10:11288	Standard 12-lead and CC5-CM5-ML	MDC_ECG_LDSYS_12LD_STD_AND_CC5_CM5_ML
MDC	10:11289	Standard 12-lead and CM5-CC5-CH5	MDC_ECG_LDSYS_12LD_STD_AND_CM5_CC5_CH5
MDC	10:11290	Standard 12-lead with extra leads to the right and/or left sides	MDC_ECG_LDSYS_12LD_STD_EXTD
MDC	10:11291	Standard 12-lead extended to the right by V5R, V4R, V3R	MDC_ECG_LDSYS_12LD_STD_EXTD_RIGHT
MDC	10:11292	Standard 12-lead extended to the left by V7, V8, V9	MDC_ECG_LDSYS_12LD_STD_EXTD_LEFT

Note: A prior version of this context group used codes from the SCP-ECG vocabulary.

650 **CID 3415 Cardiac Rhythms**

Context ID 3415
Cardiac Rhythms
Type: Extensible Version: ~~20030327~~20080927

Note to editor – replace entire CID 3415 table with the following. This change also associated with CP729.

Coding Scheme Designator	Code Value	Code Meaning	IEEE 11073 MDC Equivalent Reference ID (informative)
MDC	10:9216	Sinus Rhythm	MDC_ECG_RHY_SINUS_RHY
MDC	10:9232	Normal Sinus Rhythm	MDC_ECG_RHY_SINUS_NORMAL_RHY
MDC	10:9248	Sinus Bradycardia	MDC_ECG_RHY_SINUS_BRADY
MDC	10:9264	Sinus Tachycardia	MDC_ECG_RHY_SINUS_TACHY
MDC	10:9280	Sinus Arrhythmia	MDC_ECG_RHY_SINUS_ARRHY

MDC	10:9296	Respiratory Sinus Arrhythmia	MDC_ECG_RHY_RESP_ARRHY
MDC	10:9312	Non-Respiratory Sinus Arrhythmia	MDC_ECG_RHY_NON_RESP_ARRHY
MDC	10:9328	Wandering Sinus Pacemaker within the sinus node	MDC_ECG_RHY_WANDP_ARRHY
MDC	10:9344	Wandering Pacemaker between the sinus node and the A-V node	MDC_ECG_RHY_WANDPAV_ARRHY
MDC	10:9360	Atrial Ectopic Rhythm	MDC_ECG_RHY_ATR_ECT_RHY
MDC	10:9376	Atrial Bigeminy	MDC_ECG_RHY_ATR_BIGEM
MDC	10:9392	Atrial Tachycardia	MDC_ECG_RHY_ATR_TACHY
MDC	10:9408	Paroxsysmal Atrial Tachycardia	MDC_ECG_RHY_ATR_TACHY_PAROX
MDC	10:9424	Multifocal Atrial Tachycardia	MDC_ECG_RHY_ATR_TACHY_MF
MDC	10:9440	Automatic Atrial Tachycardia	MDC_ECG_RHY_ATR_TACHY_AUTO
MDC	10:9456	Atrial flutter	MDC_ECG_RHY_ATR_FLUT
MDC	10:9472	Atrial fibrillation	MDC_ECG_RHY_ATR_FIB
MDC	10:9488	Supraventricular (atrial or junctional) Ectopic Rhythm	MDC_ECG_RHY_SV_ECT_RHY
MDC	10:9504	Supraventricular Tachycardia (atrial or junctional)	MDC_ECG_RHY_SV_TACHY
MDC	10:9520	Supraventricular Paroxsysmal Tachycardia	MDC_ECG_RHY_SV_TACHY_PAROX
MDC	10:9536	AV junctional (nodal) rhythm	MDC_ECG_RHY_JUNC_RHY
MDC	10:9552	AV junctional (nodal) escape rhythm	MDC_ECG_RHY_JUNC_ESC_BEATS
MDC	10:9568	Accelerated AV junctional (nodal) rhythm	MDC_ECG_RHY_JUNC_ACCEL
MDC	10:9584	Junctional Tachycardia	MDC_ECG_RHY_JUNC_TACHY
MDC	10:9600	AV reciprocating tachycardia	MDC_ECG_RHY_AV_TACHY_RECIP
MDC	10:9616	Reentrant AV nodal tachycardia	MDC_ECG_RHY_AV_TACHY_REENTRANT
MDC	10:9632	First Degree AV Block	MDC_ECG_RHY_AV_HEART_BLK_DEG_1
MDC	10:9648	Second Degree AV Block	MDC_ECG_RHY_AV_HEART_BLK_DEG_2
MDC	10:9664	Second Degree AV Block Type I (Wenckebach, or Mobitz Type I)	MDC_ECG_RHY_AV_HEART_BLK_DEG_2_I
MDC	10:9680	Second Degree AV Block Type II (Mobitz Type II)	MDC_ECG_RHY_AV_HEART_BLK_DEG_2_II
MDC	10:9696	Third Degree AV Block (complete AV block)	MDC_ECG_RHY_AV_HEART_BLK_DEG_3
MDC	10:9712	AV Dissociation	MDC_ECG_RHY_AV_DISSOC
MDC	10:9728	AV dissociation with interference	MDC_ECG_RHY_AV_DISSOC_INT
MDC	10:9744	Isorhythmic AV dissociation	MDC_ECG_RHY_AV_DISSOC_ISO
MDC	10:9760	Complete AV dissociation	MDC_ECG_RHY_AV_DISSOC_COMP
MDC	10:9776	First Degree SA Block	MDC_ECG_RHY_SA_HEART_BLK_DEG_1
MDC	10:9792	Second Degree SA Block Type I (Wenckebach)	MDC_ECG_RHY_SA_HEART_BLK_DEG_2_I

MDC	10:9808	Second Degree SA Block Type II	MDC_ECG_RHY_SA_HEART_BLK_DEG_2_II
MDC	10:9824	Third Degree SA Block (complete SA block)	MDC_ECG_RHY_SA_HEART_BLK_DEG_3
MDC	10:9840	Ventricular rhythm	MDC_ECG_RHY_V_RHY
MDC	10:9856	Idioventricular (ventricular escape) rhythm	MDC_ECG_RHY_V_IDIO_RHY
MDC	10:9872	Ventricular Parasystole	MDC_ECG_RHY_V_PARA
MDC	10:9888	Accelerated idioventricular rhythm	MDC_ECG_RHY_V_AIVR
MDC	10:9904	Slow Ventricular Tachycardia (Idioventricular Tachycardia)	MDC_ECG_RHY_V_IDIO_TACHY
MDC	10:9920	Ventricular Bigeminy	MDC_ECG_RHY_V_BIGEM
MDC	10:9936	Ventricular Trigeminy	MDC_ECG_RHY_V_TRIGEM
MDC	10:9952	Ventricular Couplet	MDC_ECG_RHY_V_P_C_CPLT
MDC	10:9968	Ventricular Run	MDC_ECG_RHY_V_P_C_RUN
MDC	10:9984	Ventricular Tachycardia (nonparoxysmal)	MDC_ECG_RHY_V_TACHY
MDC	10:10000	Ventricular Flutter	MDC_ECG_RHY_V_FLUT
MDC	10:10016	Ventricular Fibrillation	MDC_ECG_RHY_V_FIB
MDC	10:10032	Nonsustained Ventricular Tachycardia (paroxysmal)	MDC_ECG_RHY_V_TACHY_PAROX
MDC	10:10048	Sustained Monomorphic Ventricular Tachycardia	MDC_ECG_RHY_V_TACHY_MONO
MDC	10:10064	Polymorphic Ventricular Tachycardia	MDC_ECG_RHY_V_TACHY_POLY
MDC	10:10080	Torsades de Pointes Ventricular Tachycardia	MDC_ECG_RHY_V_TACHY_TDP
MDC	10:10096	pre-excitation	MDC_ECG_RHY_PREX
MDC	10:10112	Wolf-Parkinson-White syndrome	MDC_ECG_RHY_WPW_UNK
MDC	10:10128	Wolf-Parkinson type A	MDC_ECG_RHY_WPW_A
MDC	10:10144	Wolf-Parkinson type B	MDC_ECG_RHY_WPW_B
MDC	10:10160	Lown-Ganong-Levine syndrome	MDC_ECG_RHY_LGL
MDC	10:10336	Asystole	MDC_ECG_RHY_ASYSTOLE
MDC	10:10352	Irregular rhythm	MDC_ECG_RHY_IRREG
MDC	10:10368	Low Heart Rate Variability	MDC_ECG_RHY_LHRV
MDC	10:10416	T-wave alternans	MDC_ECG_RHY_TALT
MDC	10:10432	Bradycardia	MDC_ECG_RHY_BRADY
MDC	10:10448	Calibration signal (sustained)	MDC_ECG_RHY_CALS
MDC	10:10176	Atrial Demand Mode Pacing	MDC_ECG_RHY_EPADM
MDC	10:10240	Ventricular Demand Mode Pacing	MDC_ECG_RHY_EPVDM
MDC	10:10304	Anti-Tachycardia Pacing	MDC_ECG_RHY_EPAVT

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Note: A prior version of this context group used codes from the SCP-ECG vocabulary.

CID 3678 QT Correction Algorithms

Context ID 3678
QT Correction Algorithms
Type: Extensible Version: ~~20030327~~20081029

Note to editor – replace entire CID 3678 table with the following

Coding Scheme Designator	Code Value	Code Meaning
DCM	122730	Bazett QTc Algorithm
DCM	122731	Hodges QTc Algorithm
DCM	122732	Fridericia QTc Algorithm
DCM	122733	Framingham QTc Algorithm

Note: A prior version of this context group used codes from the SCP-ECG vocabulary.

CID 3716 Severity

Context ID 3716
Severity
Type: Extensible Version: ~~20030327~~20081029

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-40775	None
SRT	R-404FA	Mild
SRT	R-00329	Mild to Moderate
SRT	G-A002	Moderate
SRT	R-00330	Moderate to Severe
SRT	G-A003	Severe
SRT	**R-4099D**	**Fatal**

Annex D DICOM Controlled Terminology Definitions (Normative)

Add the following codes and definitions to Part 16 Annex D

Code Value (008,0100)	Code Meaning (008,0104)	Definition	Notes
109095	*Peak stress state*	*Peak Cardiac stress state*	*Retired, replaced by (F-05028, SRT, "Peak stress state")*
109096	*Recovery state*	*Recovery from cardiac stress*	*Retired, replaced by (F-05018, SRT, "Cardiac stress Recovery state")*
122700	Indications for Pharmacological Stress	Indications for Pharmacological Stress	
122701	Procedure time base	Reference time for measurement of elapsed time in a procedure	
122702	Treadmill speed	Treadmill speed	
122703	Treadmill gradient	Treadmill gradient	
122704	Ergometer power	Ergometer power	
122705	Pharmacological Stress Agent Dose Rate	Pharmacological Stress Agent Dose Rate	
122706	Rating of Perceived Exertion	Rating of Perceived Exertion	
122707	Number of Ectopic Beats	Number of ectopic beats during a period of collection	
122708	Double Product	Heart rate times systolic blood pressure	
122709	Activity workload	Physical activity workload (intensity) measurement	
122710	Time since start of stage	Elapsed time at stage	
122711	Exercise duration after stress agent injection	Exercise duration after stress agent injection	
122712	Imaging Start Time	Imaging Start Time	
122713	Attenuation correction method	Attenuation correction method	
122715	Pharmacological Stress Agent Dose	Pharmacological Stress Agent Dose	
122716	Maximum Power Output Achieved	Maximum power output achieved during course of procedure	
122717	Peak activity workload	Peak physical activity intensity measurement during course of procedure	
122718	Peak Double Product	Peak Double Product measurement during course of procedure	
122720	OSEM algorithm	Ordered subsets expectation maximization reconstruction algorithm	

Code Value (008,0100)	Code Meaning (008,0104)	Definition	Notes
122721	Chang method	Chang attenuation correction method	
122726	Algorithmic attenuation correction	Attenuation correction not based on image-based attenuation maps	
122727	NM transmission attenuation correction	NM transmission attenuation correction	
122728	CT–based attenuation correction	CT–based attenuation correction	
122729	No Attenuation Correction	No attenuation correction	
122730	Bazett QTc Algorithm	Bazett QT Correction Algorithm; QT/(RR ^ 0.5); Bazett HC. "An analysis of the time-relations of electrocardiograms" *Heart* 7:353-370 (1920).	
122731	Hodges QTc Algorithm	Hodges QT Correction Algorithm; QT + 1.75 (heart rate-60); Hodges M, Salerno Q, Erlien D. “Bazett's QT correction reviewed. Evidence that a linear QT correction for heart rate is better.” *J Am Coll Cardiol* 1:694 (1983)	
122732	Fridericia QTc Algorithm	Fridericia QT Correction Algorithm; QT/(RR ^ 0.333); Fridericia LS. "The duration of systole in the electrocardiogram of normal subjects and of patients with heart disease" *Acta Med Scand* 53:469-486 (1920)	
122733	Framingham QTc Algorithm	Framingham QT Correction Algorithm; QT + 0.154 (1- RR); Sagie A, Larson MG, Goldberg RJ, *et al*. “An improved method for adjusting the QT interval for heart rate (the Framingham Heart Study).” *Am J Cardiol* 70:797-801(1992)	
122734	Borg RPE Scale	Borg Rating of Perceived Exertion Scale, range 6:20	
122735	Borg CR10 Scale	Borg category ratio scale, open ended range with nominal range 0:10	
122739	Overall study quality	Overall study quality	
122740	Excellent image quality	Excellent image quality	
122741	Good image quality	Good image quality	
122742	Poor image quality	Poor image quality	
122743	Body habitus attentuation	Image attenuation due to body physique (overweight)	
122744	Breast attenuation	Image attenuation due to breast tissue	
122745	Diaphragmatic attenuation	Image attenuation due to diaphragm	
122748	False positive defect finding	Finding of a defect (e.g., from automated analysis) is incorrect	
122750	Non-diagnostic - low heart rate	ECG is non-diagnostic due to low heart rate	

Code Value (008,0100)	Code Meaning (008,0104)	Definition	Notes
122751	Non-diagnostic - resting ST abnormalities	ECG is non-diagnostic due to resting ST abnormalities	
122752	Non-diagnostic - ventricular pacing or LBBB	ECG is non-diagnostic due to ventricular pacing or Left Bundle Branch Block	
122755	Strongly positive	Strongly positive finding	
122756	Strongly positive - ST elevation	Strongly positive finding - ST elevation	
122757	ST Depression – Horizontal	Finding of ST segment depression with no slope	
122758	ST Depression – Upsloping	Finding of ST segment depression with upslope	
122759	ST Depression – Downsloping	Finding of ST segment depression with downslope	
122760	Stress test score	Stress test score	
122762	Number of diseased vessel territories	Number of diseased vessel territories	
122764	Weight exceeds equipment limit	Patient weight exceeds equipment limit	
122768	Difference in Ejection Fraction	Difference in Ejection Fraction	
122769	Difference in ED LV Volume	Difference in End Diastolic Left Ventricular Volume	
122770	Ratio of achieved to predicted maximal oxygen consumption	Ratio of achieved to predicted maximal oxygen consumption	
122771	Ratio of achieved to predicted functional capacity	Ratio of achieved to predicted functional capacity	
122772	Aerobic index	Workload (Watts) at target heart rate divided by body weight	
122773	ST/HR Index	ST depression at peak exercise divided by the exercise-induced increase in heart rate [Kligfield P, Ameisen O, Okin PM. “Heart rate adjustment of ST segment depression for improved detection of coronary artery disease.” Circulation 1989;79:245-55.]	
122775	Agreement with prior findings	Agreement with prior findings	
122776	Disagreement with prior findings	Disagreement with prior findings	
122781	Rest thallium/stress technetium procedure	Nuclear Medicine Rest thallium/stress technetium procedure	
122782	Rest technetium/stress technetium 1 day procedure	Nuclear Medicine Rest technetium/stress technetium 1 day procedure	

Code Value (008,0100)	Code Meaning (008,0104)	Definition	Notes
122783	Rest technetium/stress technetium 2 day procedure	Nuclear Medicine Rest technetium/stress technetium 2 day procedure	
122784	Stress technetium/rest technetium 1 day procedure	Nuclear Medicine Stress technetium/rest technetium 1 day procedure	
122785	NM Myocardial Viability procedure	Nuclear Medicine Myocardial Viability procedure	
122791	PET Myocardial Perfusion, Rest only	Positron Emission Tomography Perfusion Imaging procedure, rest only	
122792	PET Myocardial Perfusion, Stress only	Positron Emission Tomography Perfusion Imaging procedure, stress only	
122793	PET Myocardial Perfusion, Rest and Stress	Positron Emission Tomography Perfusion Imaging procedure, rest and stress	
122795	PET Myocardial Viability, Rest only	Positron Emission Tomography Myocardial Viability procedure, rest only	
122796	PET Myocardial Viability, Stress only	Positron Emission Tomography Myocardial Viability procedure, stress only	
122797	PET Myocardial Viability, Rest and Stress	Positron Emission Tomography Myocardial Viability procedure, rest and stress	
122799	Anginal Equivalent	Group of symptoms heralding angina pectoris that does not include chest pain (dyspnea, diaphoresis, profuse vomiting in a diabetic patient, or arm or jaw pain).	

The following codes and definitions to be replaced with SNOMED codes, or alternatively added to Part 16 Annex D

F-04F92	Target HR	Target Heart Rate
F-38287	T wave alternans	T wave alternans
P5-D300B	Stress thallium procedure	Nuclear Medicine Stress thallium procedure
F-33019	Cannot reach target heart rate	Patient cannot reach target heart rate by exercise
F-38279	ST Depression	ST Depression (observable entity)
F-04FA6	Maximum HR Achieved	Maximum heart rate achieved during course of procedure
F-04F9F	HR Response	Heart Rate Response
F-04F74	BP Response	Blood Pressure Response
F-04FCC	Functional capacity	Assessment of patient's functional capacity
F-04FCA	Heart rate recovery time	Heart rate recovery time
F-04F76	Perfusion defect extent	Perfusion defect extent
F-04FCD	Stress ischemia extent	Stress ischemia extent
D4-31124	Transient cavitary dilatation	Transient cavitary dilatation
F-04FB4	Transient cavitary dilatation ratio	Ratio of Transient cavitary dilatation value at stress to value at rest
F-04FD3	Subdiaphragmatic uptake	Significant radiopharmaceutical tracer uptake in the abdomen
F-04FA0	Normal extracardiac uptake	Normal radiopharmaceutical tracer uptake in the chest other than the heart
F-04FB8	Increased lung uptake	Increased radiopharmaceutical tracer uptake in the lung
F-04FE3	Abnormal extracardiac uptake	Abnormal radiopharmaceutical tracer uptake in the chest other than the heart, e.g., due to a breast tumor
D3-10711	Mixed Ischemia and Infarction	Mixed Ischemia and Infarction
G-4045	Low to moderate risk	Low to moderate risk
G-4046	Moderate to high risk	Moderate to high risk
G-4044	Normal risk	Normal risk
P2-31011	Pharmacologic and exercise stress test	Pharmacologic and exercise stress test
P2-3110B	Paced stress test	Paced stress test
D3-13037	Typical Angina	Typical Angina
P7-00044	Occupational requirement	Procedure is a requirement for the patient's occupation
A-1002A	Arm ergometer	Arm ergometer
C-80012	Adenosine A2 receptor agonist	Adenosine A2 receptor agonist

G-044D	Recent Myocardial infarction	Recent Myocardial infarction
R-40AA8	accentuated	Physiological response quicker or more intense than normal
R-40AA7	blunted	Physiological response slower or less intense than normal
D3-0400A	Exertional hypotension	Exertional hypotension
D3-0200B	Exertional hypertension	Exertional hypertension
F-380B2	Chronotropic incompetence	Inability of the sinus node to react adequately to exercise or other metabolic stress with an increase in heart rate
F-380B3	Early repolarization	Early repolarization
F-38794	Nonspecific ST-T abnormality	Nonspecific ST-T abnormality
F-38793	Secondary ST-T abnormality	Secondary ST-T abnormality
R-215D9	New ischemia	New ischemia since prior or comparison exam
R-215DE	Less ischemia	Less ischemia since prior or comparison exam
R-215D5	Resolution of ischemia	Resolution of ischemia since prior or comparison exam
R-215E1	More ischemia	More ischemia since prior or comparison exam
R-215E0	New infarction	New infarction since prior or comparison exam
R-215DC	New wall motion abnormality	New wall motion abnormality since prior or comparison exam
R-215D6	Improvement of wall motion	Improvement of wall motion since prior or comparison exam

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Part 6 Addendum

Add the following to Annex A

Table A-3
CONTEXT GROUP UID VALUES

Context UID	Context Identifier	Context Group Name
…		
1.2.840.10008.6.1.735	252	S-M-L Size Descriptor
1.2.840.10008.6.1.736	3016	Major Coronary Arteries
1.2.840.10008.6.1.737	3083	Units of Radioactivity
1.2.840.10008.6.1.738	3102	Rest-Stress
1.2.840.10008.6.1.739	3106	PET Cardiology Protocols
1.2.840.10008.6.1.740	3107	PET Cardiology Radiopharmaceuticals
1.2.840.10008.6.1.741	3108	NM/PET Procedures
1.2.840.10008.6.1.742	3110	Nuclear Cardiology Protocols
1.2.840.10008.6.1.743	3111	Nuclear Cardiology Radiopharmaceuticals
1.2.840.10008.6.1.744	3112	Attenuation Correction
1.2.840.10008.6.1.745	3113	Types of Perfusion Defects
1.2.840.10008.6.1.746	3114	Study Quality
1.2.840.10008.6.1.747	3115	Stress Imaging Quality Issues
1.2.840.10008.6.1.748	3116	NM Extracardiac Findings
1.2.840.10008.6.1.749	3117	Attenuation Correction Methods
1.2.840.10008.6.1.750	3118	Level of Risk
1.2.840.10008.6.1.751	3119	LV Function
1.2.840.10008.6.1.752	3120	Perfusion Findings
1.2.840.10008.6.1.753	3121	Perfusion Morphology
1.2.840.10008.6.1.754	3122	Ventricular Enlargement
1.2.840.10008.6.1.755	3200	Stress Test Procedure
1.2.840.10008.6.1.756	3201	Indications for Stress Test
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1.2.840.10008.6.1.761	3206	Non-invasive Cardiac Imaging Procedures
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1.2.840.10008.6.1.766	3211	BP Response
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1.2.840.10008.6.1.773	3227	QTc Measurements
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1.2.840.10008.6.1.781	3235	Perfusion Comparison Findings
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1.2.840.10008.6.1.784	3238	Stress Scoring Scales
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