

Clinical Classifications: Getting to know ‘the new kid on the QRS block’!

Soumya Rajesh, IQVIA
Michael Wise, Apellis Pharmaceuticals

ABSTRACT

Questionnaires, Ratings, and Scales (QRS) encompass 3 main concepts: Questionnaires (QS), Functional Tests (FT), and Clinical Classifications (RS) - the new kid on the QRS block. As with all things new, there may be some confusion in mapping Clinical Classifications, versus the other members of the QRS family. To add to this confusion, Clinical Classifications have recently been moved from QS to RS - a domain that was originally developed just for Oncology (Disease Response). Knowing the distinction between a Questionnaire and Functional Test, as well as what distinguishes them from a Clinical Classification is critical here. This presentation begins by introducing the members of the QRS family, and provides differences among them, by using a few published instruments for illustration. The Six Minute Walk and AUDIT-SR show how FT differs from QS. Then we introduce AIMS as a rather straightforward clinical classification, (one that was recently moved from QS to RS), and ATLAS is discussed to illustrate how clinical classifications utilize data from multiple domains. The paper also outlines the rules that should be followed to map a clinical classification that sources data from multiple domains. Finally, we present a sponsor-created VAS as another example of an instrument that, despite appearances, does not conform to QRS standards and is not mapped to QS. The general guidance for mapping, a decision tree map, and references that allow a more detailed understanding of clinical classifications sum up this paper on the QRS family.

INTRODUCTION

‘Questionnaires, Ratings, and Scales’ (QRS) is a series of questions, tasks, or assessments used in clinical research to provide a qualitative or quantitative assessment of a clinical concept or task-based observation. QRS instruments have a defined standard structure, format, and content, and consist of conceptually related items that are typically scored. They also have documented methods for administration and analysis. Most often, the primary purpose of a questionnaire is the generation of a quantitative statistic to assess a qualitative concept.

Since the release of SDTM IG v3.3 QRS are now split into three domains - FT, QS, and RS - to distinguish the different types of instruments/assessments. There are supplements and controlled terminology (CT) developed by CDISC for individual questionnaires, ratings, and scales when the instrument is in the public domain or permission is granted by the copyright holder. Since it was first released, QRS guidance has evolved into a full suite of resources including Description, Supplements, FAQs, etc. that are available on the CDISC Website and Wiki. Over the last few years QRS guidance has become more streamlined, and things are more comprehensive now (i.e. the organization of QRS instruments, mappings, controlled terminology, etc.). Here’s a link to the standards: <https://www.cdisc.org/standards/foundational/qrs>

DIFFERENCES BETWEEN QS, FT, AND RS:

QS: A findings domain that contains data for named, stand-alone instruments designed to provide an assessment of a concept. Questionnaires consist of defined questions with a defined set of potential answers. They are conceptually related items that have a defined structure, format, and content, and are typically scored. The short name of the instrument is stored in QSCAT. Each question is stored in QSTEST, which provides a longer more informative label; while QSTESTCD houses the CDISC CT naming conventions for the code that identifies the instrument, version, and item number. The original result in QSORRES corresponds to the responses printed on the instrument or CRF. The numeric values of these responses are the standard numeric QSSTRESN and character QSSTRESC. The QRS supplements that describe this information can be found on the QRS page: <https://www.cdisc.org/standards/foundational/qrs> - filter the “SDTM Domain/ADaM Dataset” box by “QS”.

FT: A findings domain that contains data for named, standalone task-based evaluations, designed to provide an assessment of mobility, dexterity, and/or cognitive ability. It differs from questionnaires in that tasks performed by the subject are objectively assessed by trained observers. The QRS CT naming rules mentioned above for QS, also apply to FT. FT examples can be found on the QRS page: <https://www.cdisc.org/standards/foundational/qrs> by filtering “SDTM Domain/ADaM Dataset” by “FT”.

RS: A findings domain that contains data for the assessment of disease response to therapy, or clinical classification based on published criteria. Clinical Classifications are named measures whose output is an ordinal or categorical score that serves as a surrogate for, or ranking of, disease status, symptoms, or other physiological or biological status. Clinical Classifications may be based solely on objective data from clinical records, or they may involve a clinical judgment or interpretation of the directly observable signs, behaviors, or other physical manifestations related to a condition or subject status. RS supplement examples can be found on the QRS page: <https://www.cdisc.org/standards/foundational/qrs> by filtering “SDTM Domain/ADaM Dataset” by “RS”.

Clinical classifications, the new kid on the QRS block, differs from Questionnaires and Functional Tests in several ways. Clinical classifications:

1. Provide a surrogate for or ranking of disease status, or physiological or biological processes.
2. Can consist of composite ratings, laboratory results, vital signs measurements or any other aspect of disease / physiological / biological status, or any other predictive data source - as with the AIMS.
3. May appear less intuitive than questionnaires since the relation among predictors may be less obvious.

The QRS instrument definition and usage determine whether any instrument is really a Clinical Classification; that would help you decide which CDISC domain it should map to. If a QRS instrument is used to provide status for a disease, disease severity or clinical endpoint, then it could be wholly or a part of a Clinical Classification. This may make Clinical Classifications more challenging to identify by appearance than the other two.

MAPPING CLINICAL CLASSIFICATIONS:

If you were using one of the previous versions of the SDTM IG - v3.2 or earlier, Clinical Classifications would have been mapped to the QS domain. The Abnormal Involuntary Movement Scale – Anchored (AIMS) provides a good example of such a clinical classification. However, that has changed with SDTM IG v3.3 wherein Clinical Classifications now map to the RS domain, which is now called ‘Disease Response and Clin Classifications’.

The AIMS is a 12-item instrument originally developed in the 1970s to measure Tardive Dyskinesia (TD), a disorder that develops as a side effect of long-term use with neuroleptic medications in treating some psychiatric conditions. It can easily be integrated into a routine clinical evaluation, with a score of 2 or more classifying the patient as having TD.

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute of Mental Health

NAME: _____
DATE: _____
Prescribing Practitioner: _____

CODE 0=None
1=Minimal, may be extreme normal
2=Mild
3=Moderate
4=Severe

INSTRUCTIONS:
Complete Examination procedure (attachment d.)
Before making ratings

MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously. Circle movement as well as code number that applies.		RATER	RATER	RATER	RATER
		Date	Date	Date	Date
Facial and Oral Movements	1. Muscles of Facial Expression e.g. movements of forehead, eyebrows, periorbital area, cheeks, including frowning, blinking, smiling, grimacing	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	2. Lips and Perioral Area e.g., puckering, pouting, smacking	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	3. Jaw e.g. biting, clenching, chewing, mouth opening, lateral movement	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	4. Tongue Rate only increases in movement both in and out of mouth. NOT inability to sustain movement. Darting in and out of mouth.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Extremity Movements	5. Upper (arms, wrists, hands, fingers) Include choreic movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT INCLUDE TREMOR (i.e., repetitive, regular, rhythmic)	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	6. Lower (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Trunk Movements	7. Neck, shoulders, hips e.g., rocking, twisting, squirming, pelvic gyrations	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Global Judgments	8. Severity of abnormal movements overall	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	9. Incapacitation due to abnormal movements	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	10. Patient's awareness of abnormal movements Rate only patient's report No awareness 0 Aware, no distress 1 Aware, mild distress 2 Aware, moderate distress 3 Aware, severe distress 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Dental Status	11. Current problems with teeth and/or dentures?	No Yes	No Yes	No Yes	No Yes
	12. Are dentures usually worn?	No Yes	No Yes	No Yes	No Yes
	13. Edentia?	No Yes	No Yes	No Yes	No Yes
	14. Do movements disappear in sleep?	No Yes	No Yes	No Yes	No Yes

- AIMS as it was mapped to QS prior to SDTM IG v3.3:

QS.XPT

Row	STUDYID	DOMAIN	USUBJID	QSEQ	QTESTCD	QTEST	QSCAT	QSSCAT	QSORRES	QSSTRESC	QSTRESN
1	STUDYX	QS	P0001	1	AIMS0101	AIMS01-Muscles of Facial Expression	AIMS	FACIAL AND ORAL MOVEMENTS	minimal (may be extreme normal)	1	1
2	STUDYX	QS	P0001	2	AIMS0102	AIMS01-Lips and Perioral Area	AIMS	FACIAL AND ORAL MOVEMENTS	none	0	0
3	STUDYX	QS	P0001	3	AIMS0103	AIMS01-Jaw	AIMS	FACIAL AND ORAL MOVEMENTS	mild	2	2
4	STUDYX	QS	P0001	4	AIMS0104	AIMS01-Tongue	AIMS	FACIAL AND ORAL MOVEMENTS	moderate	3	3
5	STUDYX	QS	P0001	5	AIMS0105	AIMS01-Upper Extremities	AIMS	EXTREMITY MOVEMENTS	severe	4	4
6	STUDYX	QS	P0001	6	AIMS0106	AIMS01-Lower Extremities	AIMS	EXTREMITY MOVEMENTS	mild	2	2
7	STUDYX	QS	P0001	7	AIMS0107	AIMS01-Neck, Shoulders, Hips	AIMS	TRUNK MOVEMENTS	severe	4	4
8	STUDYX	QS	P0001	8	AIMS0108	AIMS01-Severity of Abnormal Movements	AIMS	GLOBAL JUDGMENTS	minimal (may be extreme normal)	1	1
9	STUDYX	QS	P0001	9	AIMS0109	AIMS01-Incapacitation due Abn Movements	AIMS	GLOBAL JUDGMENTS	none, normal	0	0
10	STUDYX	QS	P0001	10	AIMS0110	AIMS01-Patient Awareness Abn Movements	AIMS	GLOBAL JUDGMENTS	aware, mild distress	2	2
11	STUDYX	QS	P0001	11	AIMS0111	AIMS01-Current Problems Teeth/Dentures	AIMS	DENTAL STATUS	no	0	0
12	STUDYX	QS	P0001	12	AIMS0112	AIMS01-Patient Usually Wear Dentures	AIMS	DENTAL STATUS	yes	1	1

- After the release of SDTM IG v3.3, this is what it looks like mapped to RS:

rs.xpt

Row	STUDYID	DOMAIN	USUBJID	RSSEQ	RSTESTCD	RSTEST	RSCAT	RSSCAT	RSORRES	RSSTRESC	RSSTRESN	RSSTAT	VISITNUM	RSBTC
1	STUDYX	RS	P0001	1	AIMS0101	AIMS01-Muscles of Facial Expression	AIMS	FACIAL AND ORAL MOVEMENTS	Minimal, may be extreme normal	1	1		2	
2	STUDYX	RS	P0001	2	AIMS0102	AIMS01-Lips and Perioral Area	AIMS	FACIAL AND ORAL MOVEMENTS	None	0	0		2	2013-04-18
3	STUDYX	RS	P0001	3	AIMS0103	AIMS01-Jaw	AIMS	FACIAL AND ORAL MOVEMENTS	Mild	2	2		2	2013-04-18
4	STUDYX	RS	P0001	4	AIMS0104	AIMS01-Tongue	AIMS	FACIAL AND ORAL MOVEMENTS	Moderate	3	3		2	2013-04-18
5	STUDYX	RS	P0001	5	AIMS0105	AIMS01-Upper Extremities	AIMS	EXTREMITY MOVEMENTS	Severe	4	4		2	2013-04-18
6	STUDYX	RS	P0001	6	AIMS0106	AIMS01-Lower Extremities	AIMS	EXTREMITY MOVEMENTS	Mild	2	2		2	2013-04-18
7	STUDYX	RS	P0001	7	AIMS0107	AIMS01-Neck, Shoulders, Hips	AIMS	TRUNK MOVEMENTS	Severe	4	4		2	2013-04-18
8	STUDYX	RS	P0001	8	AIMS0108	AIMS01-Severity of Abnormal Movements	AIMS	GLOBAL JUDGMENTS	Minimal	1	1		2	2013-04-18
9	STUDYX	RS	P0001	9	AIMS0109	AIMS01-Incapacitation due Abn Movements	AIMS	GLOBAL JUDGMENTS	None, normal	0	0		2	2013-04-18

CLINICAL CLASSIFICATIONS BASED ON MULTIPLE DATA SOURCES:

The Age Treatment with Systemic Antibiotics, Leukocyte Count, Serum Albumin, and Serum Creatinine as a Measure of Renal Function (ATLAS) is a clinical classification using data from Multiple Domains:

Age, treatment with systemic antibiotics, leukocyte count, serum albumin, and serum creatinine.

Parameter	RSSTRESC/RSSTRESN			RSORRES
	0 Points	1 Point	2 Points	
Age RSTESTCD=ATLAS101	< 60 years	60 - 79 years	>= 80 years	
Treatment with systemic antibiotics during CDI therapy (>= 1 day)	No	RSTESTCD=ATLAS102	Yes	
Leukocyte count (total)	< 16,000	16,000 – 25,000	>25,000 RSTESTCD=ATLAS103	
Albumin (serum) RSTESTCD=ATLAS104	>35 g/L	26 - 35 g/L	<= 25 g/L	
Serum creatinine (as a measure of renal function) RSTESTCD=ATLAS105	<= 120 umol/L	121 – 179 umol/L	>= 180 umol/L	

Total Points: RSTESTCD=ATLAS106

rs.xpt

Row	STUDYID	DOMAIN	USUBJID	RSSEQ	RSTESTCD	RSTEST	RSCAT	RSORRES	RSSTRESC	RSSTRESN	RSLOBXFL	VISITNUM	RSDTC
1	STUDYX	RS	STUDYX-123	1	ATLAS101	ATLAS1-Age	ATLAS	60-79 years	1	1	Y	1	2015-05-15
2	STUDYX	RS	STUDYX-123	2	ATLAS102	ATLAS1-Treatment With Antibiotics	ATLAS	Yes	2	2	Y	1	2015-05-15
3	STUDYX	RS	STUDYX-123	3	ATLAS103	ATLAS1-Leukocyte Count	ATLAS	< 16,000	0	0	Y	1	2015-05-15
4	STUDYX	RS	STUDYX-123	4	ATLAS104	ATLAS1-Albumin	ATLAS	26 - 35 g/L	1	1	Y	1	2015-05-15
5	STUDYX	RS	STUDYX-123	5	ATLAS105	ATLAS1-Serum Creatinine	ATLAS	>= 180 umol/L	2	2	Y	1	2015-05-15
6	STUDYX	RS	STUDYX-123	6	ATLAS106	ATLAS1-Score	ATLAS	6	6	6	Y	1	2015-05-15

This section is used for reference regarding the CRF data capture and to understand the alignment of the instrument to the SDTM RS domain. It also provides guidance on how the result variables (RSORRES, RSSTRESC, and RSSTRESN) should be populated.

RSTESTCD = "ATLAS101" RSTEST = "ATLAS1-Age"

RSORRES	RSSTRESC	RSSTRESN
< 60 years	0	0
60-79 years	1	1
>= 80 years	2	2

RSTESTCD = "ATLAS102" RSTEST = "ATLAS1-Treatment With Antibiotics"

RSORRES	RSSTRESC	RSSTRESN
No	0	0
Yes	2	2

RSTESTCD = "ATLAS103" RSTEST = "ATLAS1-Leukocyte Count"

RSORRES	RSSTRESC	RSSTRESN
< 16,000	0	0
16,000 - 25,000	1	1
> 25,000	2	2

RSTESTCD = "ATLAS104" RSTEST = "ATLAS1-Albumin"

RSORRES	RSSTRESC	RSSTRESN
> 35 g/L	0	0
26 - 35 g/L	1	1
<= 25 g/L	2	2

RSTESTCD = "ATLAS105" RSTEST = "ATLAS1-Serum Creatinine"

RSORRES	RSSTRESC	RSSTRESN
<= 120 umol/L	0	0
121 - 179 umol/L	1	1
>= 180 umol/L	2	2

GUIDELINES FOR MAPPING CLINICAL CLASSIFICATIONS TO RS:

When using the RS domain to represent Clinical Classification measures that incorporate data from other domains (as in ATLAS):

- All source data must be represented in the topic-based domain(s) to which they pertain. For example, if a lab test is collected on the CRF and scored for a Clinical Classification, the lab test result must be recorded in LB and follow LB compliance rules.
- If the source value is directly collected on the Clinical Classification instrument, then the values from the source record may be transcribed to the corresponding RS record.
- If a Clinical Classification uses a source value by comparing it to a range (e.g., "2-5" or ">3"), then the source value will exist only in the source domain; the range is represented in the corresponding RS record in RSORRES.
- RSEVALID can be used in conjunction with RSEVAL for Clinical Classifications to provide additional detail of who is providing the assessment. When used with Clinical Classification data, RSEVALID may represent free text values. However, note that RSEVAL is not to be used in Disease Response criteria of RS.
- Totals and sub-totals in Clinical Classifications are considered collected data if recorded by an assessor.

WHEN TO MAP TO RS VERSUS FA OR A BODY SYSTEM DOMAIN:

Deciding where to map data could present a dilemma. Again, usage defines a Clinical Classification and should be the guide to mapping data. When the data collected on a CRF pertains to morphological measurements or physical assessments then the appropriate Body system domain should be mapped. However, when the assessment is about whether or how a subject performs a specific set of activities that help the investigator

determine the rank of, classify disease status, symptoms, or another physiological or biological status, then it should get mapped to RS as a Clinical Classification.

The Duchenne Muscular Dystrophy Therapeutic Area User Guide (TAUG) has 3 Clinical Classifications that provide a ranking or status of disease status:

- North Star Ambulatory Assessment (NSAA),
- Brooke Upper Extremity Rating Scale (BUERS)
- Vignos Lower Extremity Rating Scale (VLERS)

This TAUG also provides other measures that could be confused with a Clinical Classification:

- Bone Mineral Density Z-Score → MK (Musculoskeletal System Findings)
- Body Fat Percentage → MK (Musculoskeletal System Findings)
- Lean Body Mass → MK (Musculoskeletal System Findings)
- Raw maximal inspiratory pressure → RE (Respiratory System Findings)
- Percent predicted maximal inspiratory pressure → RE (Respiratory System Findings)

However, none of these provide a proxy for the status or ranking of a disease or physiological biological process. They provide a measure of a biological process and can be used by a Clinical Classification, but by themselves are not Clinical Classifications. These results are instead mapped to the appropriate body system domain rather than RS.

Prior to the release of SDTM IG 3.3, if a procedure was done and there was a disease status or a finding from the procedure, then this result - being inappropriate for PR domain, would map to FA. Another situation would be, if a sponsor developed a Visual Analog Scale (VAS - that are like QRS but would not be mapped to or not defined as a QRS domain) to provide a ranking of a disease then it would map to FA. For example, in the Psoriasis TAUG: Pgs. 20 & 21 show how a VAS instrument is mapped to FA - instead of RS:

face.xpt

Row	STUDYID	DOMAIN	USUBJID	FASEQ	FATESTCD	FATEST	FAOBJ	FACAT	FAORRES	FAORRESU	FASTRESC	FASTRESU	FALOC	FAMETHOD	FALOBXFL	FAEVAL	VISITNUM	FADTC	FAEVLINT	FAANTXLO	FAANVLLLO	FAANTXHI	FAANVHLHI
1	PS006	FA	001	1	SEV	SEVERITY/INTENSITY	ITCHING	PSORIASIS SYMPTOM ASSESSMENTS	8		8		SKIN	NUMERIC RATING SCALE 11-POINT	Y	PATIENT	1	2015-06-15	-P24H	No Itch	0	Worst Itch Imaginable	10
2	PS006	FA	001	2	SEV	SEVERITY/INTENSITY	ITCHING	PSORIASIS SYMPTOM ASSESSMENTS	2		2		SKIN	NUMERIC RATING SCALE 11-POINT		PATIENT	12	2016-07-15	-P24H	No Itch	0	Worst Itch Imaginable	10
3	PS006	FA	001	3	QOLIMP	QOL IMPACT	PSORIASIS	QOL ASSESSMENTS	45	mm	45	mm		VISUAL ANALOG SCALE (50 MM)	Y	PATIENT	1	2015-06-15	-P7D	No Influence	0	A lot of Influence	50
4	PS006	FA	001	4	QOLIMP	QOL IMPACT	PSORIASIS	QOL ASSESSMENTS	20	mm	20	mm		VISUAL ANALOG SCALE (50 MM)		PATIENT	12	2016-07-15	-P7D	No Influence	0	A lot of Influence	50

FACE NSV Metadata

Variable	Label	Type	Role	Origin
FAANTXLO	Anchor Text Low	text	Non-standard Variable Qualifier of --TEST/--TESTCD	CRF
FAANVLLLO	Anchor Value Low	integer	Non-standard Variable Qualifier of --TEST/--TESTCD	CRF
FAANTXHI	Anchor Text High	text	Non-standard Variable Qualifier of --TEST/--TESTCD	CRF
FAANVHLHI	Anchor Value High	integer	Non-standard Variable Qualifier of --TEST/--TESTCD	CRF

With the advent of RS falling within QRS, any direct results / measurement pertaining to a certain body system would map to the respective findings domain and the classification would map to RS; for example: In a spirometry, the procedure, date and details about the procedure would map to PR, but the results from the procedure would map to a body system domain, and the objective measure or classification would map to RS. Depending on what kind of results are collected it could map to RE or MK or OE, depending on the information that's being collected. An objective measure (based on observation) or classification of the disease state or condition or risk that is measured and scored, should be mapped to RS. If the procedure (Echocardiogram or Spirometry or Lung function test, etc.) hasn't enough information to create PR, then it may map to the --METHOD variable within the body system domain. Alzheimer's TAUG: Occurrences of PET or PET/CT procedures are recorded in the PR domain.

Rows 1-2: Show PET/CT head scans for two subjects using the same PET/CT scanner, as defined in SPDEVID. Row 3: Shows a PET scan of the head for a third subject.

Row	STUDYID	DOMAIN	USUBJID	SPDEVID	PRSEQ	PRLNKID	PRTRT	PRLOC	PREFAST	PRSTDTC
1	ABC123	PR	AD01-101	22	1	03	PET/CT	HEAD	Y	2012-05-22T09:30:00
2	ABC123	PR	AD01-102	22	1	04	PET/CT	HEAD	Y	2012-05-22T08:00:00
3	ABC123	PR	AD01-103	44	1	05	PET	HEAD	Y	2012-05-22T09:00:00

EXAMPLES OF CLINICAL CLASSIFICATIONS (RS) THAT SPAN MULTIPLE BODY SYSTEMS:

(You would need to log in or create an account on the CDISC website to access these links)

- ATLAS: <https://www.cdisc.org/system/files/members/standard/foundational/qrs/SDTM%20RS%20-%20ATLAS%20v1.0%20Public%20Domain.pdf>

The table represents the questions from the ATLAS form. The ATLAS score is the sum of all the scale points and is represented in row 6.

rs.xpt

Row	STUDYID	DOMAIN	USUBJID	RSSEQ	RSTESTCD	RSTEST	RSCAT	RSORRES	RSSTRESC	RSSTRESN	RSLOBXFL	VISITNUM	RSDTC
1	STUDYX	RS	STUDYX-123	1	ATLAS101	ATLAS1-Age	ATLAS	60-79 years	1	1	Y	1	2015-05-15
2	STUDYX	RS	STUDYX-123	2	ATLAS102	ATLAS1-Treatment With Antibiotics	ATLAS	Yes	2	2	Y	1	2015-05-15
3	STUDYX	RS	STUDYX-123	3	ATLAS103	ATLAS1-Leukocyte Count	ATLAS	< 16,000	0	0	Y	1	2015-05-15
4	STUDYX	RS	STUDYX-123	4	ATLAS104	ATLAS1-Albumin	ATLAS	26 - 35 g/L	1	1	Y	1	2015-05-15
5	STUDYX	RS	STUDYX-123	5	ATLAS105	ATLAS1-Serum Creatinine	ATLAS	>= 180 umol/L	2	2	Y	1	2015-05-15
6	STUDYX	RS	STUDYX-123	6	ATLAS106	ATLAS1-Score	ATLAS	6	6	6	Y	1	2015-05-15

- ASSIGN is another Clinical Classification that spans multiple body systems, however the difference here is that only composite score is captured in RS, whereas the data that is used for input to the scores remain in their original domain. The relationship between RS and the parent domain should be defined using RELREC: <https://www.cdisc.org/standards/foundational/qrs/assign-risk-score>

Rows 1-2: Represent one subject who had a risk score calculated at two different visits.

Row 3: Represents one subject who had a risk score calculated at only one visit.

rs.xpt

Row	STUDYID	DOMAIN	USUBJID	RSSEQ	RSLNKID	RSTESTCD	RSTEST	RSCAT	RSORRES	RSORRESU	RSSTRESC
1	1001	RS	1001-001	1	1	ASSG0101	ASSG01-ASSIGN CVD Risk Score	ASSIGN CVD 10-YEAR RISK	3	%	3
2	1001	RS	1001-001	2	2	ASSG0101	ASSG01-ASSIGN CVD Risk Score	ASSIGN CVD 10-YEAR RISK	8	%	8
3	1001	RS	1001-002	1	1	ASSG0101	ASSG01-ASSIGN CVD Risk Score	ASSIGN CVD 10-YEAR RISK	55	%	55

Row	RSSTRESN	RSSTRESU	RSBLFL	RSEVAL	VISITNUM	VISIT	RSDTC
1 (cont)	3	%	Y	INVESTIGATOR	1	Visit 1	2012-05-10
2 (cont)	8	%		INVESTIGATOR	5	Visit 5	2012-10-08
3 (cont)	55	%	Y	INVESTIGATOR	1	Visit 1	2012-04-30

Rows 1-4: Represent lab values used to calculate the risk scores for subject 1001-001 shown in the RS domain above.

Rows 5-6: Represent lab values used to calculate the risk score for subject 1001-002 shown in the RS domain above.

lb.xpt

Row	STUDYID	DOMAIN	USUBJID	LBSEQ	LBLNKID	LBTESTCD	LBTEST	LBORRES	LBORRESU	LBSTRESC	LBSTRESN
1	1001	LB	1001-001	1	1	CHOL	Cholesterol	8.7	mmol/L	8.7	8.7
2	1001	LB	1001-001	2	1	CHOLHDL	HDL Cholesterol	1.7	mmol/L	1.7	1.7
3	1001	LB	1001-001	3	2	CHOL	Cholesterol	8.3	mmol/L	8.3	8.3
4	1001	LB	1001-001	4	2	CHOLHDL	HDL Cholesterol	2.0	mmol/L	2.0	2.0
5	1001	LB	1001-002	1	1	CHOL	Cholesterol	6.5	mmol/L	6.5	6.5
6	1001	LB	1001-002	2	1	CHOLHDL	HDL Cholesterol	2.1	mmol/L	2.1	2.1

EXAMPLES OF FA AND OTHER BODY SYSTEM DOMAINS:

Another example of FA versus RS is, if you have a rash over the last 3 days and you want to measure the intensity of pain at its peak, or if there is an AE of interest then it would still reside in FA. On the other hand, if this were a clinical classification based on objective criteria from a published instrument, then the data would reside in RS.

ae.xpt

Row	STUDYID	DOMAIN	USUBJID	AESQ	AESPID	AETERM	...	AEBODSYS	...	AELOC	AELAT	AESV	AESER	AEACN	AESTDTC	...
1	XYZ	AE	XYZ-789	47869	5	Injection site rash	...	General disorders and administration site conditions	...	ARM	LEFT	MILD	N	NOT APPLICABLE	2007-05-10	...

fa.xpt

Row	STUDYID	DOMAIN	USUBJID	FASEQ	FASPID	FATESTCD	FATEST	FAOBJ	FAORRES	FAORRESU	FASTRESC	FASTRESU	VISITNUM	EPOCH	FADTC
1	XYZ	FA	XYZ-789	123451	5	DIAM	Diameter	Injection Site Rash	2.5	IN	2.5	IN	3	TREATMENT	2007-05-12
2	XYZ	FA	XYZ-789	123452	5	COUNT	Count	Macules	26 to 100		26 to 100		3	TREATMENT	2007-05-12
3	XYZ	FA	XYZ-789	123453	5	COUNT	Count	Papules	1 to 25		1 to 25		3	TREATMENT	2007-05-12
4	XYZ	FA	XYZ-789	123454	5	COUNT	Count	Vesicles	0		0		3	TREATMENT	2007-05-12

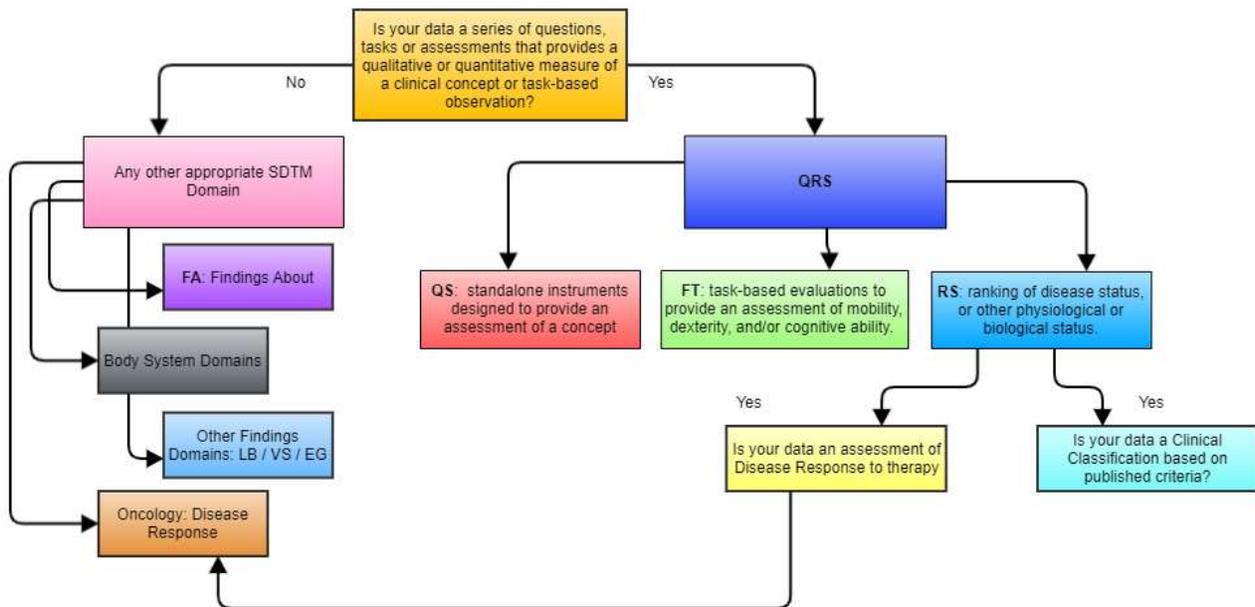
TAUGs for Asthma and others show examples of data mapped to different body system domains like RE, MK, etc. See below an example from the Asthma TAUG for RE domain: This example shows results from several spirometry tests using either a spirometer or a peak flow meter where only the best result is available:

re.xpt

Row	STUDYID	DOMAIN	USUBJID	SPDEVID	RESEQ	RETESTCD	RETEST	REORRES	REORRESU	REORREF	...	VISITNUM	VISIT	REDTC
1	XYZ	RE	XYZ-001-001	ABC001	1	FEV1	Forced Expiratory Volume in 1 Second	2.73	L	3.37	...	2	VISIT 2	2013-06-30
2	XYZ	RE	XYZ-001-001	ABC001	2	FVC	Forced Vital Capacity	3.91	L	3.86	...	2	VISIT 2	2013-06-30
3	XYZ	RE	XYZ-001-001	ABC001	3	FEV1PP	Percent Predicted FEV1	81	%		...	2	VISIT 2	2013-06-30
4	XYZ	RE	XYZ-001-001	ABC001	4	FVCP	Percent Predicted FVC	101.3	%		...	2	VISIT 2	2013-06-30
5	XYZ	RE	XYZ-001-001	DEF999	5	PEF	Peak Expiratory Flow	6.11	L/s	7.33	...	4	VISIT 4	2013-07-17

If the above results were used to provide a disease status for Asthma or physiological status for lung capacity, this could be mapped as a Clinical Classification.

THE QRS DECISION TREE MAP:



CONCLUSION:

This should now give you a good idea of how to distinguish Clinical Classifications from a Questionnaire or Functional Test. You should also be able to map the information to the appropriate domain(s) in SDTM. Remember, that the usage of data collected and the version of the SDTM IG determines whether an instrument or series of questions is a Clinical Classification. Now that you've met 'the new kid' on the QRS block, you'll hopefully be more comfortable working with this type of data.

ADDITIONAL INFORMATION, LINKS, AND RESOURCES:

- CDISC Controlled Terminology: Package 46 update: Use of QSMETHOD – for example, VAS (Visual Analog Scale) is a method added to the QRSMETHOD codelist. The QRSMETHOD codelist will support the --METHOD variable in QRS supplements and datasets, specifically the FTMETHOD, QSMETHOD and RSMETHOD variables in FT, QS and RS domains.
- The QRS Main page contains general information about the topic and is split into tabs for easy reference on various sub-topics: <https://www.cdisc.org/standards/foundational/qrs>
- The 'QRS Naming Rules' can be downloaded from the "QRS Resources" tab on the QRS Standards page: (you would need to log in to your CDISC account to access this link): https://www.cdisc.org/sites/default/files/2021-03/QRS_Naming_Rules_2021-03-05.xls
- The QRS Supplement request form – where sponsors can request new supplements to be added, by providing a reference paper as background information for the QRS instrument being requested: https://www.cdisc.org/sites/default/files/2020-11/CDISC_QRS_Supplement_Request_Form.docx
- The FACIT Item Bank: https://www.cdisc.org/sites/default/files/2020-11/FACIT_Item_Bank_QRS_Controlled_Terminology_2019-03-14_P37.xlsx
- The QRS Supplements lists which established questionnaires fall under what domain and provides a link to referenced documents and CRFs (if available). It would help understand what kind of rating scales or questionnaires fall under what domain: <https://www.cdisc.org/public-review/qrs-supplements-0>
- **PANSS** (Positive and Negative Syndrome Scale - used as an efficacy endpoint in clinical trials of acute schizophrenia to measure severity of psychopathology) - Clinical Classifications Supplement mapped to RS: <https://www.cdisc.org/standards/foundational/qrs/positive-and-negative-syndrome-scale>
- **VIGNOS** Rating Scale: <https://www.cdisc.org/system/files/members/standard/foundational/qrs/VLERS%20v1%20Annotated%20CRF.pdf>
- **AIMS**: Clinical Classification mapped to RS (Clinician-rated scale to assess the severity of dyskinesias in patients taking neuroleptic medications):
 - <https://wiki.cdisc.org/pages/viewpage.action?pageId=73145757>
 - <https://www.cdisc.org/standards/foundational/qrs/abnormal-involuntary-movement-scale>

QRS SECTION LINKS AND REFERENCES:

- CDISC Wiki: QRS Sub-team: <https://wiki.cdisc.org/display/QRSSUPP/SDS+QRS+Supplements+Home>
- QRS Sub-team Charter on CDISC Wiki (you would need a separate account to the CDISC Wiki and access to the QRS sub-team space to access this link): <https://wiki.cdisc.org/display/CDISCTC/Questionnaires%2C+Ratings+and+Scales+%28QRS%29+SubTeam+Charter>
- CDISC Wiki: QRS Public Review: <https://wiki.cdisc.org/display/QRSSUPP/Public+Review>
- COVID-19 Interim User Guide: Pg. 33 - section on QRS: https://www.cdisc.org/system/files/members/standard/ta/Interim_User_Guide_for_COVID-19.pdf
- Muscular Dystrophy TAUG: <https://www.cdisc.org/standards/therapeutic-areas/duchenne-muscular-dystrophy>

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CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

Soumya Rajesh, IQVIA
+1 (484) 467-0484
soumya.rajesh@iqvia.com

Michael Wise, Apellis Pharmaceuticals
+1 (847) 436-3700
michael.wise@apellis.com