



Cross-Relating WHODrug ATC Codes and MedDRA SOCs

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Thesaurus Management System

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Acknowledgements

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- Thanks to the audience members for attending.

Assumptions and Scope

- Assumptions: Audience is familiar with TMS, TMS Lite Browser, WHODrug and MedDRA
- Scope: Mapping of MedDRA SOCs to WHODrug ATC Level 1



Why attempt to relate WHODrug and MedDRA

- Many organizations are coding medications based upon indication in a study. Indications can generally be coded to MedDRA SOCs while medications can be coded to ATCs. A mapping between SOCs and ATCs would then allow an additional consistency check between the medication and indication.
- In some cases, concomitant medications are associated with specific AEs. Some organizations may not consider an AE to be a “true” AE until some medication was provided for the AE. Having AEs associated to Conmeds provides an ideal use for a mapping of SOCs and ATCs.



Mapping SOCs to ATC Level 1

- Not a clear-cut mapping process and subject to lots of interpretation
- Small number of SOCs (26) and Level 1 ATCs (14) so it is easier to map
- Does not affect any coding from TMS perspective
- Minimal impact on Dictionary updates as the MedDRA SOCs and WHODrug ATC Level 1 have been very stable
- Mapping can be viewed in the TMS Lite Browser
- Mapping can also be interrogated if customized views of the WHODrug/MedDRA dictionaries are used in SAS analysis



A Possible Mapping of MedDRA SOC to WHODrug ATC 1

1	SOC	ATC	Alternate ATC
2	Blood and lymphatic system disorders	BLOOD AND BLOOD FORMING ORGANS	
3	Cardiac disorders	CARDIOVASCULAR SYSTEM	BLOOD AND BLOOD FORMING ORGANS
4	Congenital, familial and genetic disorders		
5	Ear and labyrinth disorders	SENSORY ORGANS	
6	Endocrine disorders	SYSTEMIC HORMONAL PREP., EXCL. SEX HORM. AND INSULIN	
7	Eye disorders	SENSORY ORGANS	
8	Gastrointestinal disorders	ALIMENTARY TRACT AND METABOLISM	
9	General disorders and administration site conditions	VARIOUS	
10	Hepatobiliary disorders	ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	VARIOUS
11	Immune system disorders	ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	RESPIRATORY SYSTEM
12	Infections and infestations	ANTIPARASITIC PRODUCTS, INSECTICIDES AND REPELLENTS	ANTIINFECTIVES FOR SYSTEMIC USE
13	Injury, poisoning and procedural complications	ANTIINFECTIVES FOR SYSTEMIC USE	NERVOUS SYSTEM
14	Investigations		

A Possible Mapping of MedDRA SOCs to WHODrug ATC 1



	SOC	ATC	Alternate_ATC
14	Investigations		
15	Metabolism and nutrition disorders	ALIMENTARY TRACT AND METABOLISM	
16	Musculoskeletal and connective tissue disorders	MUSCULO-SKELETAL SYSTEM	
17	Neoplasms benign, malignant and unspecified (incl cysts and polyps)	ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	SYSTEMIC HORMONAL PREP., EXCL. SEX HORM. AND INSULIN
18	Nervous system disorders	NERVOUS SYSTEM	
19	Pregnancy, puerperium and perinatal conditions		
20	Psychiatric disorders	NERVOUS SYSTEM	
21	Renal and urinary disorders	GENITO URINARY SYSTEM AND SEX HORMONES	
22	Reproductive system and breast disorders	GENITO URINARY SYSTEM AND SEX HORMONES	
23	Respiratory, thoracic and mediastinal disorders	RESPIRATORY SYSTEM	
24	Skin and subcutaneous tissue disorders	DERMATOLOGICALS	
25	Social circumstances		
26	Surgical and medical procedures	NERVOUS SYSTEM	
27	Vascular disorders	BLOOD AND BLOOD FORMING ORGANS	



Building the MedDRA/WHODrug Relationships in TMS

- Define Cross Dictionary Links
 - TMS => Definition => Define Dictionaries => Dictionary Link Tab
- Define a Named Relationship
 - TMS => Definition => Define Named Relationships
- Define SOC Term to ATC Level 1 Term Relationships in Repository Authoring
 - TMS => Repository Maintenance => Repository Authoring
- Alternatively, the use the TMS API `tms_load_dictionary.LoadRelation` `pDefDictionaryId` and `pDefDictionaryRefId` equal to the separate WHODrug and MedDRA dictionary IDs



Define Cross Dictionary Links: MedDRA to WHODrug

- TMS => Definition => Define Dictionaries => Dictionary Link Tab

Link Type	To Dictionary
Cross Dictionary Link	WHODrug B2 Format, MAX ATC



Define Cross Dictionary Links: WHODrug to MedDRA

- TMS => Definition => Define Dictionaries => Dictionary Link Tab

Link Type	To Dictionary
Cross Dictionary Link	MedDRA Primary Path

Define a Named Relationship

- TMS => Definition => Define Named Relationships

Define Named Relationships

Named Relationship Multi Display Named Relationships

Indicator

Name: WHODRUG_MEDDRA

Many Cardinality?

Reciprocal Indicator

Name: MEDDRA_WHODRUG

Many Cardinality?

Details

Relationship Code: WHODRUG ATC TO MEDDRA SOC/MEDDRA SOC TO WHODRUG ATC MAPPING

Type: Standard

Short Name: N102 Internal Id: 121

Activation Rule:

Category:

Description:

Define SOC Term to ATC Level 1 Term Relationships in Repository Authoring

- TMS => Repository Maintenance => Repository Authoring
 - Set the Domain, Dictionary and Level, and query for the MedDRA SOC in the upper block.
 - Note that both the WHODrug and MedDRA dictionary must share a common domain

Repository Authoring

Master Query: Terms, Currency: Current, Source: All Data, Rel. Level: SOC-System Organ ...
Group: MEDDRA_AG, Domain: MEDDRA_DOM, Dictionary: MedDRA Primary Path, Level: SOC-System Organ ...

Terms: Cardiac disorders

Code: , Id: , Alt. Code: , DML:
Comment Text:
Level: , Category: , Status: , Trans.id:
Approved? , Global? , Type: , SubType:
Value_1: , Value_2: , Value_3: , Value_4:
Error Msg:
Created By: , Creation: , Valid until: , Deleted By:



Define SOC Term to ATC Level 1 Term Relationships in Repository Authoring

- Insert a new record in the lower block
 - Set the dictionary to WHODrug
 - Set the direction to "To"
 - Set the Relationship to MedDRA-WHODrug (created in Define Named Relationships)
 - Set the level to ATC1
- Choose the corresponding ATC 1 term
- Save record and press Transfer Data
- Re-Query to verify that Transfer was successful



Define SOC Term to ATC Level 1 Term Relationships in Repository Authoring

Terms Multi Display Terms

Term: Cardiac disorders
 Code: 10007541 Id: 618 Alt. Code: 6.0 DML: [v]
 Comment Text: []
 Level: SOC-System Organ ... Category: [] Status: [] Trans.id: []
 Approved? Global? Type: Dictionary Term SubType: External
 Value_1: Card Value_2: [] Value_3: [] Value_4: []
 Error Msg: []
 Created By: TMS Creation: 01-SEP-2003 17:05:04 Valid until: 15-AUG-3501 00:00:00 Deleted By: []

Relations Multi Display Relations

Dictionary: WHODrug B2 Format... Direction: To Relationship: MEDDRA_WHODRU... Level: ATC1-ATC1

Relation: CARDIOVASCULAR SYSTEM [...]
 Code: C Id: 947632 Alt. Code: [] DML: Insert
 Dictionary: [] Level: [] Status: []
 Comment Text: [] Error Msg: []
 PL? DPL? Global? Type: Dictionary Term SubType: Company Trans.id: []
 Created By: [] Creation: [] Valid until: [] Deleted By: []

Approved? DML: Insert Glb? Status: [] Category: [] Trans.id: []
 Value 1: [] Value 2: [] Value 3: [] Value 4: []
 Error Msg: [] Created By: [] Creation: []

Maintenance Wizard High Level Oms Check Data Informative Notes **Transfer Data**

Examination of the WHODrug MedDRA relation in TMS Lite Browser

[Terminology Search](#) > Term Details

Term (Today)

Term **Cardiac disorders**
 Terminology **MedDRA Primary Path**
 Approved **Yes**

Level **System Organ Class**
 Term subtype **External**

Terms Viewed

- Cardiac disorders

[▶ Term Details](#)

[▼ Related terms](#)

Level	Term	Relation	Domain	Related term	Level
	Cardiac disorders	Strong		Cardiac neoplasms	HLGT
	Cardiac disorders	Strong		Cardiac arrhythmias	HLGT
	Cardiac disorders	Strong		Coronary artery disorders	HLGT
	Cardiac disorders	Strong		Congenital cardiac disorders	HLGT
	Cardiac disorders	Strong		Endocardial disorders	HLGT
	Cardiac disorders	Strong		Cardiac disorder signs and symptoms	HLGT
	Cardiac disorders	Strong		Pericardial disorders	HLGT
	Cardiac disorders	Strong		Heart failures	HLGT
	Cardiac disorders	Strong		Myocardial disorders	HLGT
	Cardiac disorders	Strong		Cardiac valve disorders	HLGT
	Cardiac disorders	WHODRUG_MEDDRA		CARDIOVASCULAR SYSTEM	WHOB2PL-ATC1

[Terminology Search](#) > [Term Details](#)

Term (Today)

Term **CARDIOVASCULAR SYSTEM**
 Terminology **WHODrug B2 Format, MAX**
 Approved **ATC PL 2001Q1**
 Level **ATC1**
 Term subtype **External**

Terms Viewed

- CARDIOVASCULAR SYSTEM
- Cardiac disorders

Term Details

Related terms

Level	Term	Relation	Domain	Related term	Level
	CARDIOVASCULAR SYSTEM	Strong		SERUM LIPID REDUCING AGENTS	ATC2
	CARDIOVASCULAR SYSTEM	Strong		CARDIAC THERAPY	ATC2
	CARDIOVASCULAR SYSTEM	Strong		AGENTS ACTING ON THE RENIN-ANGIOTENSIN SYSTEM	ATC2
	CARDIOVASCULAR SYSTEM	Strong		ANTIHYPERTENSIVES	ATC2
	CARDIOVASCULAR SYSTEM	Strong		CALCIUM CHANNEL BLOCKERS	ATC2
	CARDIOVASCULAR SYSTEM	Strong		DIURETICS	ATC2
	CARDIOVASCULAR SYSTEM	Strong		BETA BLOCKING AGENTS	ATC2
	CARDIOVASCULAR SYSTEM	Strong		PERIPHERAL VASODILATORS	ATC2
	CARDIOVASCULAR SYSTEM	Strong		VASOPROTECTIVES	ATC2
	CARDIOVASCULAR SYSTEM	Strong		CARDIOVASCULAR SYSTEM DRUGS	PN
	CARDIOVASCULAR SYSTEM	Strong		CIRCOVEGETALIN COMPOSITUM	PN
	CARDIOVASCULAR SYSTEM	Strong		VENO-ELAN DRAGEES	PN
	CARDIOVASCULAR SYSTEM	Strong		CARDIOSERPIN	PN
	CARDIOVASCULAR SYSTEM	Strong		ENIPORIDE	PN
	CARDIOVASCULAR SYSTEM	Strong		CARDANAT /OLD FORM/	PN
	CARDIOVASCULAR SYSTEM	Strong		VENO-ELAN DROPS ORAL	PN
	CARDIOVASCULAR SYSTEM	Strong		DUXOR	PN
	CARDIOVASCULAR SYSTEM	Strong		RUTIBAL	PN
	CARDIOVASCULAR SYSTEM	Strong		ATRIAL NATRIURETIC PEPTIDE	PN
	CARDIOVASCULAR SYSTEM	MEDDRA_WHODRUG		Cardiac disorders	MEDDRA-SOC



Possible ways of Extending the WHODrug/MedDRA Mapping

- There are 19 exact matches between WHODrug ATC level 3 descriptions and MedDRA HLGTS (WHODrug 1Q2006 and MedDRA 9.0). But these mappings do not make logical sense because they are coincidental matches (such as Zinc, Vitamin K, etc)
 - Any such mapping has to be reviewed for medical and logical consistency
- However, a comparative analysis could be made of all of the HLGTS in MedDRA with the ATC text descriptions.
- There are potentially many more matches if the join criteria between WHODrug and MedDRA terms can be extended.
- This could be accomplished by using Oracle Text searching and matching, such as fuzzy matches or CONTAINS matching, which uses an English lexer for context-based matching by definition.



Conclusions

- Some additional study data validation relating to AEs and medications can be facilitated with mapping MedDRA SOCs and ATCs.
- More careful studying of possible mappings may lead to more precise study data validation checks in the future.



Question and Answers

All follow-up questions, please contact:

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