



IHS Distributed Terminology System (DTS) Reports Orientation

IHS-OIT Terminology Program

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Brief SNOMED CT[®] and Map Review

What is SNOMED CT[®]?

Systematized **NO**menclature of **MED**icine **C**linical **T**erms (SNOMED CT[®]) is a comprehensive multilingual clinical terminology that provides clinical content and expressivity for clinical documentation.

Clinical language to document clinical impressions, findings and diagnoses.



SNOMED CT[®] use in RPMS



SNOMED CT[®] for clinical conditions

Data	Stored in File
IPL entries	Problem file
Prenatal entries	Problem file, V Ob file
POV	V POV
Pick Lists	Available to import from DTS
Superbills	
Clinical Indications	Order file, consults
Family History conditions	Family History file
Education for clinical conditions	V Patient Education file

SNOMED CT[®] selection lists in EHR

Component	Selection Field	Stored in File
Allergies	Sign/Symptom; Event code	Patient allergy
AMI	EKG finding	V Ami file
Chart review	Clinical Action SNOMED field	V Updated/Reviewed
Consults	Type of consult	Consult request
IPL	Qualifiers (Severity, Clinical Course)	Problem, V POV
IPL (and POV dialog)	Qualifiers (Episodicity)	V POV
IPL (and POV dialog)	Treatment/Regimen/FU	V Treatment/Regimen
Personal Health	Reason not done	Patient Refusal/NMI file
RCIS	Type of referral	V Referral
Stroke	Signs/Symptom	V Stroke

Logic to expose prompts in EHR

Application	Subset	EHR Action
EHR – POV	EHR IPL PROMPT ABN FINDINGS	If SNOMED term in subset, prompts user for “with abnormal findings” or “without abnormal findings”
EHR – IPL, PIP	EHR IPL PROMPT LATERALITY	If SNOMED term in subset, prompts user for laterality when selected
EHR – IPL, PIP	EHR IPL ASTHMA DXS	If SNOMED term in subset, when selected, exposes “asthma classification” prompt on Add/Edit dialog
EHR – POV	EHR IPL ASTHMA DXS	If SNOMED term in subset, when selected as POV, exposes “asthma control” prompt on Add/Edit dialog and POV dialog



Determine default IPL status and drive IPL tabs

Application	Subset	EHR Action
EHR – IPL	EHR IPL DEFAULT STATUS *	If SNOMED term in subset, assigns default status in IPL (and display on IPL tab)
EHR – IPL	EHR DEFAULT EYE FILTER	If SNOMED term in subset, suppresses entry from CORE problem and displays on EYE tab

* One subset for each status (episodic is default status if term is not in a EHR IPL DEFAULT STATUS subset).

SNOMED CT[®] stored in background

Component	Field	File
Chart review	Clinical Action SNOMED field	V Updated/Reviewed
Consults	Type of consult	Consult request
Health Factor	SNOMED	V Health Factor
Immunization	SNOMED	V Immunization
Measurements	SNOMED	V Measurement
Patient Education	SNOMED	V Patient Education
Visit File	Various	Visit

These use SNOMED CT[®] “**indirectly**” meaning IHS has manually mapped IHS terms to an RPMS table of SNOMED concepts – very difficult to develop and maintain, and is inefficient and approximate at best.



SNOMED in CDS and Measures

Application	Subsets
Clinical (EHR) Reminders	PXRM subsets
iCare community alerts	PXRM and PXRM BQI subsets
PCC/iCare best practice prompts	PXRM, PXRM BQI, PXRM BGP subsets
Health Maintenance Reminders	PXRM, PXRM BQI, PXRM BGP subsets
Clinical Reporting System (CRS)	PXRM, PXRM BQI, PXRM BGP subsets
Clinical Quality Measures (CQM)	VSAC subsets
HL7 info button (“I” button)	SNOMED CT codes sent via HL7 message



SNOMED Search optimization

Subset	Action
IHS Problem List	SNOMED terms in this subset are accessible on the default “IHS SNOMED” search
IHS PROBLEM ALL SNOMED	SNOMED terms in this subset are accessible on “ALL SNOMED” search
SRCH Common Terms	<p>SNOMED terms in this subset are pushed to the top of the list returned on a search</p> <p>Example: Severe persistent asthma would be very low in the list of terms returned for a search of “asthma”. After adding term to this subset, the term “severe persistent asthma” returns higher on the list on the first page</p>



SNOMED CT[®] to ICD map review

Problem (IPL) vs Visit Diagnosis (POV) overview

Problem:

- *Patient centric*
- **SNOMED CT[®] encoded**
- Unconditional ICD-10 maps are displayed for information

Visit diagnosis:

- *Encounter centric*
- **ICD-10 encoded**
- Problem SNOMED CT[®] and qualifiers from problem also store to POV
- Stores conditional maps if present, otherwise unconditional maps or ZZZ999 if no maps assigned to selection



Mapping

Maps are from SNOMED CT[®] to ICD-10.

The goal is for most commonly used terms selected by the EHR user to have an automatically assigned ICD-10 for the POV

ICD-10 codes are billing codes based on the entire encounter

Similar to pre-SNOMED, there will be some POVs left for coders to assign ICD code



Map types

- Unconditional maps
- Conditional maps
- Equivalence rules

Unconditional maps

- Unconditional maps automatically assign an ICD code based on a SNOMED term and ***do not consider any other patient, qualifier (laterality), or visit entered data***
- The ICD-10 target code may be 1:1 match or may be less specific
- Many, but not all SNOMED terms, will have unconditional maps
- How unconditional maps are used:
 - ***IPL*** – displays the unconditional map for SNOMED term selected
 - ***POV*** – unconditional maps stored if a conditional map is not present or cannot be derived from existing data

Conditional maps

- Conditional maps consider additional patient, qualifier, and encounter data from RPMS in map rules used to assign an ICD-10 code when set as V POV
- These were developed based on NLM map algorithms and will leverage data in RPMS to derive ICD-10 for POV
- ***Only used for POVs***
- How conditional maps are used:
 - When a user sets a visit diagnosis (POV) the system checks for Conditional Maps and looks for the following and retrieves the ICD-10 based on the conditional map rules

Patient data	Problem qualifiers	Encounter qualifiers	Encounter data
Sex	Laterality	Episodicity, NL/ABN findings	Estimated gestational age, BMI, Age at visit



FAQ

- FAQ: I selected laterality but the IPL ICD-10 column still lists an unspecified code?
- Answer: This is expected behavior. The conditional maps are not invoked until a problem is set as POV.

Equivalence rules

Equivalence rules are used to prevent duplication on the IPL

- Recognizes the pre-coordinated and post-coordinated expressions of the same concept and prevents this from creating duplicate entries on the IPL

Pre-coordination vs Post-coordination

Pre-coordinated expression: single code represents a clinical expression

Expression: acute left otitis media

Code(s): 194288009

Post-coordinated expression: ≥ 2 codes to represent a clinical expression

Expression: acute otitis media + laterality + left

Codes(s): 3110003:272741003=7771000

These mean the same thing. More importantly, the computer can recognize these as the same because of the coding.

Laterality equivalence rules

Selected SNOMED term (coded data)	Selected laterality (coded data)	Provider text (free text)	Display
Acute right otitis media		Test	Acute right otitis media Test
Acute otitis media	Right	Test	Acute otitis media, right Test
This is not equivalent to the computer			The laterality is free text, not code
Acute otitis media		Right Test	Acute otitis media Right Test

- Everything to the left of the “|” is coded.
- Everything to the right of the “|” is free text.
- ***The computer can use coded data to determine duplicates***
- Acute right otitis media = Acute otitis media, right \neq Acute otitis media | *Right*



Reports



IHS Terminology Reports

- Help users answer frequently asked questions
- Assist CACs in troubleshooting problems
- Assist in identifying enhancement requests (additions/removals from subsets, new terms, etc.)
- Inform users of additions, deletions, and movement of terms within the DTS
- Help to understand logic of decision support tools and measures
- Download (Excel) picklist content for review by clinicians to assist with modifying imported picklists for facility use
- Review PXRMM subsets for use in local reminders



EHR IPL Default Status Report Cycle N_Date

- Contains content of the following subsets
- Includes conditional and unconditional maps

Subset	EHR action
EHR IPL DEFAULT STATUS ADMIN	If SNOMED term in subset, when selected and stored, assigns default status “routine/admin” in IPL
EHR DEFAULT STATUS CHRONIC	If SNOMED term in subset, when selected and stored, assigns default status “chronic” in IPL
EHR DEFAULT STATUS PHX	If SNOMED term in subset, when selected and stored, assigns default status of “inactive” and flags as “Past Medical History” in IPL
EHR DEFAULT STATUS SOCIAL	If SNOMED term in subset, when selected and stored, assigns default status “social/environmental” in IPL
EHR DEFAULT EYE FILTER	If SNOMED term in subset, suppresses entry from CORE problem and displays on EYE tab



EHR IPL PROMPT Report Cycle N_Date

- Contains list of SNOMED terms that when selected, prompts user for more information
- Includes conditional and unconditional maps

EHR IPL PROMPT ABN FINDINGS: when term set as POV, user is prompted to document with abnormal findings, without abnormal findings

EHR IPL PROMPT LATERALITY: when term is selected, user is prompted for laterality

New & Updated SNOMED to ICD-10 Maps Report Cycle N_Date

- Contains SNOMED terms for which new or updated conditional or unconditional maps were generated.
- SNOMED term has conditional maps, user will see a SNOMED term for each condition with rule and target code

sctid	icd10_code	fsn	icd10_name	group_prio_predicate	c_or_uc	rulesource	maprule
100941000119100	O99.351	Epilepsy in mother complicating pregnancy	"Diseases of the nervous system complicating pregnancy, first trimester"	1 1 TRI = First;	conditional	rule based maps, IFA records, IHS Adds	IHS RULE EXTENSION: IF TRI = FIRST; CHOOSE O99.351
100941000119100	O99.352	Epilepsy in mother complicating pregnancy	"Diseases of the nervous system complicating pregnancy, second trimester"	1 1 TRI = Second;	conditional	rule based maps, IFA records, IHS Adds	IHS RULE EXTENSION: IF TRI = SECOND; CHOOSE O99.352
100941000119100	O99.353	Epilepsy in mother complicating pregnancy	"Diseases of the nervous system complicating pregnancy, third trimester"	1 1 TRI = Third;	conditional	rule based maps, IFA records, IHS Adds	IHS RULE EXTENSION: IF TRI = THIRD; CHOOSE O99.353
100941000119100	O99.350	Epilepsy in mother complicating pregnancy (disorder)	"Diseases of the nervous system complicating pregnancy, unspecified trimester"	1 20	unconditional	201509 GP rule based maps, unconditional exacts - NLM	
100941000119100	G40.909	Epilepsy in mother complicating pregnancy (disorder)	"Epilepsy, unspecified, not intractable, without status epilepticus"	2 20	unconditional	201509 GP rule based maps, unconditional exacts - NLM	



PICK report Cycle N_Date

- Contains lists of SNOMED terms contained in each National Picklist Subset
- Includes conditional and unconditional maps



New SNOMED Terms Report Cycle N_Date

- Contains content moved into the IHS SNOMED Data sets
 - Examples include
 - New SNOMED term(s)
 - New Synonym(s)
 - Content not previously used by IHS

PXRM Reports Cycle N_Date

- Contains content of PXRM, PXRM BQI, PXRM BGP subsets used as logic in Clinical Reminders, Best Practice Prompts, Health Maintenance Reminders, iCare and Clinical Reporting System
- See PXRM Subset List with Descriptions YYYYMMDD for more information about how the subsets are used in nationally distributed RPMS applications and which subsets were developed for local use as field requests



PXRM Subset List with Descriptions Report Cycle N_Date

This report provides a list of all PXRM subsets in use and includes how and in what applications they are being used.

- PXRM subsets are used in many areas:

Clinical Reminders

CRS logic

iCare HIV Management System logic

iCare Community Alerts logic

Health Maintenance Reminder logic

Best Practice Prompt logic

Although various PXRM subsets were initially developed for specific decision support tools and measures, they can be used by other applications if they meet their needs.



PXRM Subset List with Descriptions Report Cycle N_Date (cont.)

Subset name	Description/Intent	Current use	Released	Updated
PXRM AGE RELATED MACULAR DEGENERATION	List of age related macular degeneration concepts to include patients in a cohort for decision support tools	Local use - intended to cohort patients	June-16	June-16
PXRM ASTHMA	Comprehensive list of asthma diagnoses intended to identify a group of patients to INCLUDE in cohort for use in decision support tools	National Reminder Cohort Logic (inclusion) in National Asthma Reminder logic	April-15	December-15
PXRM ASTHMA CLASSIFIED	List of terms for classified asthma (eg. Mild persistent) to identify patients who have asthma classification documented	Best Practice Prompt (PCC) (resolution)	December-15	December-15
PXRM ASTHMA INTERMITTENT	List of terms for intermittent asthma terms (specific terms used in HBLI asthma guidelines) for use in decision support tools	Best Practice Prompt (PCC) (exclusion)	December-15	December-15
PXRM ASTHMA PERSISTENT	List of terms for mild, moderate and severe persistent asthma terms	Best Practice Prompt (PCC) (inclusion)	December-15	December-15
PXRM BGP ACUTE ETOH HEPATITIS	List of terms for patients with acute alcoholic hepatitis	CRS Measures CRS measures Used in Statin Therapy to Reduce Cardiovascular Disease Risk in Patients with Diabetes, Statin Therapy for the Prevention and Treatment of Cardiovascular Disease, Appropriate Medication Therapy after a Heart Attack	May-16	May-16

Deciphering the reports – unconditional map

A	B	C	D
sctid	fsn	UC Codes	UC Terms
237288003	Abnormal weight gain in pregnancy (disorder)	O26.00	"Excessive weight gain in pregnancy, unspecified trimester"

Sctid – SNOMED concept ID

FSN – SNOMED fully specified name

UC Codes/UC Terms – unconditional ICD-10 mapped target codes and description

Deciphering the reports – conditional map

E	F	G
C Codes	C Terms	C Factors
O26.01, O26.02, O26.03	"Excessive weight gain in pregna tri	

C Codes/C Terms – conditional ICD-10 mapped target codes and description

C Factors – data considered, this example is “tri” (trimester which is calculated from EGA if entered in Vital Signs

Deciphering the reports – previous map

H	I	J	K
UC Prev Codes	UC Prev Terms	C Prev Codes	C Prev Terms
O26.00	"Excessive weight gain in pregnancy, unspecified trimester"		

UC Prev codes/UC prev term – if updated/corrected, displays previous code

C Prev Codes/C Prev Terms – if updated/corrected, displays previous code

Deciphering the reports – search optimization

	L	M	N
Optimized for search		IHS-SNOMED	ALL-SNOMED
-		X	X

Optimized for search – in “SRCH COMMON TERMS” subset

IHS-SNOMED – returned in default search

ALL-SNOMED – requires broader search in ALL SNOMED

Questions?

