

**OMOP
Standardized Vocabulary Queries**

**Version 4.0**

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# Introduction

This document contains a library of open-source standard queries to the OMOP Standard Vocabulary version 4.0. It is complementary to the Standard Vocabulary Specification document available at <http://omop.fnih.org/CDMvocabV4>.

The queries are designed to work in an OMOP CDM environment. The queries were tested on an Oracle database. While the queries are meant to be generic, they may need minor syntax modifications to work on other environments.

## Glossary

|  |  |
| --- | --- |
| **Term** | **Description** |
| Concept | Unique record in a Standard Vocabulary |
| Concept Class | Subsection within a vocabulary or domain |
| Concept ID | Unique identifier across vocabularies and domains for each concept |
| Domain | DRUG, CONDITION, PROCEDURE, VISIT, PATIENT STATUS and DEMOGRAPHIC |
| Entity | Any unique record in a vocabulary. These vocabularies could be Standard Vocabulary with concepts, or mapped vocabularies without concepts |
| Entity Code | Identifier in original source, e.g., a SNOMED-CT identifier. All entities have an entity code. |
| Entity Type | Whether an entity is a 'Concept' in a Standard Vocabulary, ‘Synonym’ or a 'Mapped Code' in a vocabulary mapped to a standard one |
| Vocabulary | Set of entities in a certain domain curated and maintained by a dedicated organization. For example, RxNorm and Multum for drugs, ICD-9 and SNOMED-CT for conditions. For a list of vocabularies, see the Standard Vocabulary Specification |

# General Queries

## G1. Find a concept by concept ID

This is the most generic lookup for obtaining concept details associated with a concept identifier. The query is intended as a tool for quick reference for the name, class, level and source vocabulary details associated with a concept identifier.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 192671 | Yes | Concept Identifier for "GI - Gastrointestinal hemorrhage" |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run**:

The following is a sample run of the query to run a search for concept ID of 192671 for the current date. The input parameters are highlighted in blue.

SELECT C.concept\_id,

C.concept\_name,

C.concept\_code,

C.concept\_class,

C.concept\_level,

C.vocabulary\_id,

V.vocabulary\_name

FROM vocabulary.concept C,

vocabulary.vocabulary V

WHERE C.concept\_id = **192671**

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** between valid\_start\_date and valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Concept\_ID | Concept Idenitifer entered as input |
| Concept\_Name | Name of the standard concept |
| Concept\_Code | Concept code of the standard concept in the source vocabulary |
| Concept\_Class | Concept class of standard vocabulary concept |
| Concept\_Level | Level of the concept if defined as part of a hierarchy |
| Vocabulary\_ID | Vocabulary the standard concept is derived from as vocabulary code |
| Vocabulary\_Name | Name of the vocabulary the standard concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Concept\_ID | 192671 |
| Concept\_Name | GI - Gastrointestinal haemorrhage |
| Concept\_Code | 74474003 |
| Concept\_Class | Clinical finding |
| Concept\_Level | 2 |
| Vocabulary\_ID | 1 |
| Concept\_Vocabulary\_Name | SNOMED-CT |

## G2. Find a concept by code from a source vocabulary

This query obtains the concept details associated with a concept code, such as name, class, level and source vocabulary.

Note that only concepts from the Standard Vocabularies can be searched using this query. If you want to translate codes from other Source Vocabularies to Standard Vocabularies use G6.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept Code | 74474003 | Yes | SNOMED-CT code for "GI - Gastrointestinal hemorrhage". Concept code can be alpha-numeric and should be enclosed in single quotes. |
| Vocabulary ID | 1 | Yes | The vocabulary ID as listed in the VOCABULARY table. Code 1 represents SNOMED-CT |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run**:

The following is a sample run of the query to extract details for concept code of ‘74474003’ from concept vocabulary ID of ‘1’ (for SNOMED-CT) for the current date. The input parameters are highlighted in blue. Note that in contrast to concept ID the concept codes are not unique across different vocabularies. If you don't specify the vocabulary, you might get results for the same code in different vocabularies.

SELECT C.concept\_id,

 C.concept\_name,

 C.concept\_code,

 C.concept\_class,

 C.concept\_level,

 C.vocabulary\_id,

 V.vocabulary\_name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.concept\_code = **'74474003'**

AND C. vocabulary\_id = 1

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** between valid\_start\_date and valid\_end\_date

**Output:**

Output field list

| **Field** | **Description** |
| --- | --- |
| Concept\_ID | Concept Idenitifer for the standard concept |
| Concept\_Name | Name of the standard concept |
| Concept\_Code | Concept code from the source vocabulary entered as input |
| Concept\_Class | Concept class of standard vocabulary concept |
| Concept\_Level | Level of the concept if defined as part of a hierarchy |
| Vocabulary\_ID | Vocabulary the concept is derived from as vocabulary ID |
| Vocabulary\_Name | Name of the vocabulary the standard concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Concept\_ID | 192671 |
| Concept\_Name | GI - Gastrointestinal hemorrhage |
| Concept\_Code | 74474003 |
| Concept\_Class | Clinical finding |
| Concept\_Level | 2 |
| Vocabulary\_ID | 1 |
| Vocabulary\_Name | SNOMED-CT |

## G3. Find concepts by keyword anywhere in the vocabulary (concepts, source code descriptions, synonyms)

This query enables search of vocabulary entities by keyword irrespective where in the vocabulary the entity is situated. The keyword search is run against the following entities in the vocabulary:

* Standard concept names in the vocabulary
* Synonyms for standard concepts
* Descriptions of mapped concepts

A list of the resulting entities is then presented as output with entity details including identifiers, domain and names.

This is a comprehensive query to screen the entire vocabulary for a term of interest, if it is not clear where it could be found. The query returns only records that have a precise string match. There is no white space manipulation or removal of stop words or signs.

To constrain, additional clauses can be added to the query. However, it is recommended to do a filtering after the result set is produced to avoid syntactical mistakes.

Note: The query only returns concepts that are part of the Standard Vocabulary, ie. those having concept level that is not 0. If all concepts are needed, including the non-standard ones, the clause can be modified accordingly.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Key word | ‘myocardial infarction’ | Yes | Keyword string should be enclosed with a single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run a search for keyword ‘myocardial infarction’. The input parameters are highlighted in blue.

SELECT DISTINCT

 T.Entity\_Concept\_Id,

 T.Entity\_Name,

 T.Entity\_Code,

 T.Entity\_Type,

 T.Entity\_concept\_class,

 T.Entity\_vocabulary\_id,

 T.Entity\_vocabulary\_name,

 (

 CASE T.Entity\_vocabulary\_id

 WHEN 0 THEN 'No matching concept'

 WHEN 1 THEN (

 CASE UPPER(T.Entity\_concept\_class)

 WHEN 'CLINICAL FINDING' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 WHEN 'PATIENT STATUS' THEN 'PATIENT STATUS'

 ELSE 'OTHER'

 END

 )

 WHEN 2 THEN 'CONDITION'

 WHEN 3 THEN 'PROCEDURE'

 WHEN 4 THEN 'PROCEDURE'

 WHEN 5 THEN 'PROCEDURE'

 WHEN 6 THEN 'OBSERVATION'

 WHEN 7 THEN 'DRUG'

 WHEN 8 THEN 'DRUG'

 WHEN 9 THEN 'DRUG'

 WHEN 10 THEN 'DRUG'

 WHEN 11 THEN 'OBSERVATION UNIT'

 WHEN 12 THEN 'DEMOGRAPHIC'

 WHEN 13 THEN 'DEMOGRAPHIC'

 WHEN 14 THEN 'VISIT'

 WHEN 15 THEN 'CONDITION'

 WHEN 16 THEN 'DRUG'

 WHEN 17 THEN (

 CASE UPPER(T.Entity\_mapping\_type)

 WHEN 'CONDITION' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 ELSE 'OTHER'

 END

 )

 WHEN 18 THEN (

 CASE UPPER(T.Entity\_mapping\_type)

 WHEN 'CONDITION' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 ELSE 'OTHER'

 END

 )

 WHEN 19 THEN 'DRUG'

 WHEN 20 THEN 'DRUG'

 WHEN 21 THEN 'DRUG'

 WHEN 22 THEN 'DRUG'

 WHEN 24 THEN 'VISIT'

 WHEN 25 THEN 'DEMOGRAPHIC'

 WHEN 26 THEN 'DEMOGRAPHIC'

 WHEN 27 THEN 'DEMOGRAPHIC'

 WHEN 28 THEN 'DRUG'

 WHEN 31 THEN 'COHORT'

 WHEN 32 THEN 'DRUG'

 WHEN 33 THEN 'COHORT'

 WHEN 34 THEN 'CONDITION'

 WHEN 35 THEN 'PROCEDURE'

 WHEN 36 THEN 'DRUG'

 WHEN 37 THEN 'CONDITION'

 WHEN 38 THEN 'PROCEDURE'

 WHEN 39 THEN 'OBSERVATION'

 WHEN 40 THEN 'COST'

 WHEN 41 THEN 'COST'

 WHEN 42 THEN 'COST'

 WHEN 43 THEN 'COST'

 WHEN 44 THEN 'DEMOGRAPHIC'

 WHEN 45 THEN 'DEATH'

 WHEN 46 THEN 'DRUG'

 WHEN 47 THEN 'PROVIDER'

 WHEN 48 THEN 'PROVIDER'

 WHEN 49 THEN 'OBSERVATION'

 WHEN 50 THEN 'DRUG'

 WHEN 51 THEN 'DRUG'

 WHEN 53 THEN 'DRUG'

 END

 ) Entity\_Domain

FROM (

 SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 C.concept\_level Entity\_Concept\_level,

 NULL Entity\_Mapping\_Type,

 valid\_start\_date,

 valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.vocabulary V

 WHERE C.vocabulary\_id = V.vocabulary\_id

 UNION

 SELECT DISTINCT

 NULL Entity\_Concept\_Id,

 SC.source\_code\_description Entity\_Name,

 SC.SOURCE\_CODE Entity\_Code,

 'Mapped Code' Entity\_Type,

 NULL Entity\_concept\_class,

 SC.source\_vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 NULL Entity\_Concept\_level,

 SC.mapping\_type Entity\_Mapping\_Type,

 valid\_start\_date,

 valid\_end\_date

 FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.vocabulary V

 WHERE SC.SOURCE\_vocabulary\_id = V.vocabulary\_id

 UNION ALL

 SELECT C.concept\_id Entity\_Concept\_Id,

 S.concept\_synonym\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept Synonym' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 C.concept\_level Entity\_Concept\_level,

 NULL Entity\_Mapping\_Type,

 valid\_start\_date,

 valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.concept\_synonym S,

 vocabulary.vocabulary V

 WHERE S.concept\_id = C.concept\_id

 AND C.vocabulary\_id = V.vocabulary\_id

 ) T

WHERE INSTR(LOWER(T.Entity\_name), LOWER(**'myocardial infarction'**), 1, 1) > 0

AND (T.Entity\_concept\_class IS NULL

OR T.Entity\_Concept\_level <> 0)

AND **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

ORDER BY 8, 4, 6, 5, 2

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Entity\_Concept\_ID | Concept ID of entity with keyword match. Applicable to entities that are concepts and concept synonyms |
| Entity\_Name | Name of entity with keyword match |
| Entity\_Code | Appropriate code for the matching entity. They are one of the following:* Concept code for matching concepts and synonyms
* Mapped codes for matching mapped source codes
 |
| Entity\_Type | Type of entity with keyword match, includes one of the following:* Concept
* Concept Synonym
* Mapped Code
 |
| Entity\_Concept\_Class | Concept class of entity with keyword match. Applicable to entities that are concepts and concept synonyms |
| Entity\_Vocabulary\_ID | Vocabulary the entity with string match is derived from as vocabulary code  |
| Entity\_Vocabulary\_Name | Name of the Vocabulary the entity with string match is derived from |
| Entity\_Domain | Vocabulary domain that includes the entity. The domains include:DRUG, CONDITION, PROCEDURE, OBSERVATION, OBSERVATION, VISIT, DEMOGRAPHIC, COST, DEATH, PROVIDER, COHORT, OBSERVATION UNIT |

Sample output record 1:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Entity\_Concept\_ID | 312327 |
| Entity\_Name | Acute Myocardial Infarction |
| Entity\_Code | 57054005 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | Clinical finding |
| Entity\_Vocabulary\_ID | 1 |
| Entity\_Vocabulary\_Name | SNOMED-CT |
| Entity\_Domain | CONDITION |

Sample output record 2:

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept\_ID | 2617496 |
| Entity\_Name | ACUTE MYOCARDIAL INFARCTION: PATIENT DOCUMENTED TO HAVE RECEIVED ASPIRIN AT ARRIVAL |
| Entity\_Code | G8006 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | HCPCS |
| Entity\_Vocabulary\_ID | 5 |
| Entity\_Vocabulary\_Name | HCPCS |
| Entity\_Domain | PROCEDURE |

Sample output record 3:

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept\_ID |  |
| Entity\_Name | Acute myocardial infarction of anterolateral wall |
| Entity\_Code | 410.0 |
| Entity\_Type | Mapped Code |
| Entity\_Concept\_Class |  |
| Entity\_Vocabulary\_ID | 2 |
| Entity\_Vocabulary\_Name | ICD-9-CM |
| Entity\_Domain | CONDITION |

## G4. Find synonyms for a given concept

This query extracts all synonyms in the vocabulary for a given Concept ID.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Concept ID | 192671 | Yes | GI - Gastrointestinal hemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract synonyms for the concept named “GI - Gastrointestinal hemorrhage”. The input parameters are highlighted in blue.

SELECT C.concept\_id,

S.concept\_synonym\_name

FROM vocabulary.concept C,

 vocabulary.concept\_synonym S,

 vocabulary.vocabulary V

WHERE C.concept\_id = **192671**

AND C.concept\_id = S.concept\_id

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Concept\_Id | Unique identifier of the concept related to the input concept |
| Concept\_Synonym\_Name | Synonym of the concept |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Concept\_Id | 192671 |
| Concept\_Synonym\_Name | 'GI bleeding' |

## G5. Translate a code from a source to a standard vocabulary

This query allows enables search of all Standard Vocabulary concepts that are mapped to a code from a speicified source vocabulary. It will return all possible concepts that are mapped to it, as well as the target vocabulary. The source code could be obtained using queries G2 or G3.

Note that to unambiguously identify a source code, the vocabulary id has to be provided, as source codes are not unique identifiers across different vocabularies.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Source Code List | '070' | Yes | Source codes are alphanumeric. |
| Source Vocabulary ID | 2 | Yes | The source vocabulary ID is mandatory, because the source code is not unique **across** different vocabularies.The list of vocabulary codes is listed in the VOCABULARY table. Vocabulary ID of 2 represents ICD9-CM |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract mapped concepts for the set of example codes in the parameter list. The input parameters are highlighted in blue.

SELECT DISTINCT

SC.mapping\_type,

C.concept\_id as Concept\_Id,

C.concept\_name as Concept\_Name,

C.concept\_code as Concept\_Code,

C.concept\_class as Concept\_Class,

C.vocabulary\_id as Concept\_Vocabulary\_ID,

VT.vocabulary\_name as Concept\_Vocabulary\_Name,

(

CASE sc.target\_vocabulary\_ID

 WHEN 0 THEN 'No matching concept'

 WHEN 1 THEN (

 CASE UPPER(c.concept\_class)

 WHEN 'CLINICAL FINDING' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 WHEN 'PATIENT STATUS' THEN 'PATIENT STATUS'

 ELSE 'OTHER'

 END

 )

 WHEN 2 THEN 'CONDITION'

 WHEN 3 THEN 'PROCEDURE'

 WHEN 4 THEN 'PROCEDURE'

 WHEN 5 THEN 'PROCEDURE'

 WHEN 6 THEN 'OBSERVATION'

 WHEN 7 THEN 'DRUG'

 WHEN 8 THEN 'DRUG'

 WHEN 9 THEN 'DRUG'

 WHEN 10 THEN 'DRUG'

 WHEN 11 THEN 'OBSERVATION UNIT'

 WHEN 12 THEN 'DEMOGRAPHIC'

 WHEN 13 THEN 'DEMOGRAPHIC'

 WHEN 14 THEN 'VISIT'

 WHEN 15 THEN 'CONDITION'

 WHEN 16 THEN 'DRUG'

 WHEN 17 THEN (

 CASE UPPER(sc.mapping\_type)

 WHEN 'CONDITION' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 ELSE 'OTHER'

 END

 )

 WHEN 18 THEN (

 CASE UPPER(sc.mapping\_type)

 WHEN 'CONDITION' THEN 'CONDITION'

 WHEN 'PROCEDURE' THEN 'PROCEDURE'

 ELSE 'OTHER'

 END

 )

 WHEN 19 THEN 'DRUG'

 WHEN 20 THEN 'DRUG'

 WHEN 21 THEN 'DRUG'

 WHEN 22 THEN 'DRUG'

 WHEN 24 THEN 'VISIT'

 WHEN 25 THEN 'DEMOGRAPHIC'

 WHEN 26 THEN 'DEMOGRAPHIC'

 WHEN 27 THEN 'DEMOGRAPHIC'

 WHEN 28 THEN 'DRUG'

 WHEN 31 THEN 'COHORT'

 WHEN 32 THEN 'DRUG'

 WHEN 33 THEN 'COHORT'

 WHEN 34 THEN 'CONDITION'

 WHEN 35 THEN 'PROCEDURE'

 WHEN 36 THEN 'DRUG'

 WHEN 37 THEN 'CONDITION'

 WHEN 38 THEN 'PROCEDURE'

 WHEN 39 THEN 'OBSERVATION'

 WHEN 40 THEN 'COST'

 WHEN 41 THEN 'COST'

 WHEN 42 THEN 'COST'

 WHEN 43 THEN 'COST'

 WHEN 44 THEN 'DEMOGRAPHIC'

 WHEN 45 THEN 'DEATH'

 WHEN 46 THEN 'DRUG'

 WHEN 47 THEN 'PROVIDER'

 WHEN 48 THEN 'PROVIDER'

 WHEN 49 THEN 'OBSERVATION'

 WHEN 50 THEN 'DRUG'

 WHEN 51 THEN 'DRUG'

 WHEN 53 THEN 'DRUG'

 END

 ) target\_Concept\_Domain

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.concept c,

 vocabulary.vocabulary VS,

 vocabulary.vocabulary VT

 WHERE SC.source\_vocabulary\_id = VS.vocabulary\_id

 AND SC.target\_concept\_id = C.concept\_id

 AND SC.target\_vocabulary\_id = VT.vocabulary\_id

AND sc.source\_code = **'070'**

AND sc.source\_vocabulary\_id = **2**

AND **sysdate** BETWEEN c.valid\_start\_date AND c.valid\_end\_date

order by 1, 5

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Mapping\_Type | Type of mapping from source code to target concept |
| Target\_Concept\_Id | Concept ID of mapped concept |
| Target\_Concept\_Name | Name of mapped concept |
| Target\_Concept\_Code | Concept code of mapped concept |
| Target\_Concept\_Class | Class of the mapped concept |
| Target\_Concept\_Vocab\_ID | Vocabulary ID of the target vocabulary  |
| Target\_Concept\_Vocab\_Name | Name of the vocabulary the target concept is part of |
| Target\_Concept\_Domain | Vocabulary domain that includes the entity. The domains include:DRUG, CONDITION, PROCEDURE, OBSERVATION, OBSERVATION UNIT, VISIT, DEMOGRAPHIC, DEATH, COST, PROVIDER |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Mapping\_Type | CONDITION-MEDDRA |
| Target\_Concept\_Id | 35909589 |
| Target\_Concept\_Name | Hepatitis viral |
| Target\_Concept\_Code | 10019799 |
| Target\_Concept\_Class | Preferred Term |
| Target\_Concept\_Vocab\_ID | 15 |
| Target\_Concept\_Vocab\_Name | MedDRA |
| Target\_Concept\_Domain | CONDITION |

## G6. Find concepts and their descendants that are covered by a given source code

This query returns all concepts that are direct maps and the descendants of these directly mapped concepts. This is useful if the target standard vocabulary is organized in a tall hierarchy, while the source vocabulary organization is flat.

Additional constraints can be added at the end of the query if only a specific target domain or target vocabulary is desired. For example, if only SNOMED-CT as the standard vocabulary for conditions needs be returned, the target vocabulary can be set to 1.

Note: In the query only FDB indications and contraindications are returned, but not NDF-RT indications or contraindications. That is because no direct mapping between ICD-9-CM and NDF-RT exists. In order to query for drug indications please see queries D12 to D18.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Source Code List | '410' | Yes | Source codes are alphanumeric.  |
| Source Vocabulary ID | 2 | Yes | 2 represents ICD9-CM. The list of vocabulary codes can be found in the VOCABULARY table.  |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract mapped concepts and descendants for the set of example codes in the parameter list. The input parameters are highlighted in blue.

SELECT T.mapping\_type,

 T.target\_concept\_id,

 T.target\_Concept\_Name,

 T.target\_concept\_code,

 T.target\_Concept\_Class,

 T.target\_Concept\_Vocab\_ID,

 T.target\_Concept\_Vocab\_Name,

 T.target\_Type

FROM (

-- collect direct maps

SELECT SC.source\_code,

 SC.source\_vocabulary\_id,

 SC.mapping\_type,

 C.concept\_id as target\_concept\_id,

 C.concept\_name as target\_Concept\_Name,

 C.concept\_code as target\_concept\_code,

 C.concept\_class as target\_Concept\_Class,

 C.vocabulary\_id as target\_Concept\_Vocab\_ID,

 VT.vocabulary\_name target\_Concept\_Vocab\_Name,

 'Direct map' as target\_Type,

 SC.valid\_start\_date,

 SC.valid\_end\_date

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.concept c,

 vocabulary.vocabulary VT

WHERE SC.target\_concept\_id = C.concept\_id

AND SC.target\_vocabulary\_id = VT.vocabulary\_id

-- collect descendants

UNION

SELECT SC.source\_code,

 SC.source\_vocabulary\_id,

 SC.mapping\_type,

 CD.concept\_id as target\_concept\_id,

 CD.concept\_name as target\_Concept\_Name,

 CD.concept\_code as target\_concept\_code,

 CD.concept\_class as target\_Concept\_Class,

 CD.vocabulary\_id as target\_Concept\_Vocab\_ID,

 VT.vocabulary\_name as target\_Concept\_Vocab\_Name,

 'Descendant of direct map' as target\_Type,

 SC.valid\_start\_date,

 SC.valid\_end\_date

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.concept c,

 vocabulary.vocabulary VT,

 vocabulary.concept\_ancestor CA,

 vocabulary.concept CD

WHERE SC.target\_concept\_id = C.concept\_id

AND C.concept\_id = CA.ancestor\_concept\_id

AND CA.descendant\_concept\_id = CD.concept\_id

AND CD.vocabulary\_id = VT.vocabulary\_id

AND CA.ancestor\_concept\_id <> CA.descendant\_concept\_id

) T

WHERE T.source\_code = **'410'**

AND T.source\_vocabulary\_id = **2**

AND **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

ORDER by 6,8

**Output:**

Output field list

| **Field** | **Description** |
| --- | --- |
| Mapping\_Type | Type of mapping from source code to target concept |
| Target\_Concept\_ID | Concept ID of mapped concept |
| Target\_Concept\_Name | Concept name of mapped concept |
| Target\_Concept\_Code | Concept Code of mapped concept |
| Target\_Concept\_Class | Concept class of mapped concept |
| Target\_Concept\_Vocab\_ID | ID of the target vocabulary  |
| Target\_Concept\_Vocab\_Name | Name of the vocabulary the target concept is part of  |
| Target\_Type | Type of result, indicates how the target concepts was extracted. Includes:* Concepts that are direct maps
* Concepts that are descendants of direct maps
 |

Sample output record 1:

| **Field** | **Value** |
| --- | --- |
| Mapping\_Type | CONDITION |
| Target\_Concept\_ID | 312327 |
| Target\_Concept\_Name |  Acute myocardial infarction |
| Target\_Concept\_Code | 57054005 |
| Target\_Concept\_Class | Clinical finding |
| Target\_Concept\_Vocab\_ID | 1 |
| Target\_Concept\_Vocab\_Name | SNOMED-CT |
| Target\_Type | Direct map |

Sample output record 2:

| **Field** | **Value** |
| --- | --- |
| Mapping\_Type | CONDITION |
| Target\_Concept\_ID | 434376 |
| Target\_Concept\_Name | Acute myocardial infarction of anterior wall |
| Target\_Concept\_Code | 54329005 |
| Target\_Concept\_Class | Clinical finding |
| Target\_Concept\_Vocab\_ID | 1 |
| Target\_Concept\_Vocab\_Name | SNOMED-CT |
| Target\_Type | Descendant of direct map |

## G7. Find concepts that have a relationship with a given concept

For a concept identifier entered as the input parameter, the query lists all existing relationships with other concepts. The resulting output includes:

* Type of relationship (including both relationship ID and description)
* Details of the other concept to which the relationship has been defined
* Polarity of the relationship.
	+ Polarity of “Relates to” implies the input concept is the first concept or CONCEPT\_ID\_1 of the relationship
	+ Polarity of “Is Related by” implies the input concept is the second concept or CONCEPT\_ID\_2 of the relationship

Note that in vocabulary Version 4.0 and above all relationships are bi-directional, ie. all relationships are repeated as a mirrored version, where CONCEPT\_ID\_1 and CONCEPT\_ID\_2 are swapped and the inverse relationship ID is provided.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Concept ID | 192671 | Yes | GI - Gastrointestinal hemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract all relationships of the input concept. The input parameters are highlighted in blue.

SELECT T.relationship\_polarity,

 T.relationship\_ID,

 T.relationship\_name,

 T.concept\_ID,

 T.concept\_name,

 T.concept\_code,

 T.concept\_class,

 T.concept\_vocab\_ID,

 T.concept\_vocab\_name

FROM (

SELECT A.concept\_id Input\_concept\_id,

 'Relates to' relationship\_polarity,

 CR.relationship\_ID,

 RT.relationship\_name,

 D.concept\_Id concept\_id,

 D.concept\_Name concept\_name,

 D.concept\_Code concept\_code,

 D.concept\_Class concept\_class,

 D.vocabulary\_id concept\_vocab\_ID,

 VS.vocabulary\_name concept\_vocab\_name,

 CR.valid\_start\_date,

 CR.valid\_end\_date

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA,

 vocabulary.vocabulary VS,

 vocabulary.relationship RT

WHERE CR.concept\_id\_1 = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CR.concept\_id\_2 = D.concept\_id

AND D.vocabulary\_id = VS.vocabulary\_id

AND CR.relationship\_id = RT.relationship\_ID

UNION ALL

SELECT D.concept\_id Input\_concept\_id,

 'Is related by' relationship\_polarity,

 CR.relationship\_ID,

 RT.relationship\_name,

 A.concept\_Id concept\_id,

 A.concept\_name concept\_name,

 A.concept\_code concept\_code,

 A.concept\_class concept\_class,

 A.vocabulary\_id concept\_vocab\_ID,

 VA.Vocabulary\_Name concept\_vocab\_name,

 CR.valid\_start\_date,

 CR.valid\_end\_date

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA,

 vocabulary.vocabulary VS,

 vocabulary.relationship RT

WHERE CR.concept\_id\_1 = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CR.concept\_id\_2 = D.concept\_id

AND D.vocabulary\_id = VS.vocabulary\_id

AND CR.relationship\_id = RT.relationship\_ID

) T

Where T.Input\_concept\_id = **192671**

AND **sysdate** BETWEEN VALID\_START\_DATE AND VALID\_END\_DATE

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Relationship\_Polarity | Polarity of the relationship with the input concept as a reference:“Relates to”: Indicates input concept is CONCEPT\_ID\_1 or the first concept of the relationship“Is Related by”: Indicates input concept  |
| Relationship\_ID | Identifier for the type of relationship |
| Relationship\_Name | Name of the type of relationship |
| Concept\_ID | Unique identifier of the concept related to the input concept |
| Concept\_Name | Name of the concept related to the input concept |
| Concept\_Code | Concept code of concept related to the input concept |
| Concept\_Class | Concept Class of concept related to the input concept |
| Concept\_Vocab\_ID | ID of the vocabulary the related concept is derived from |
| Concept\_Vocab\_Name | Name of the vocabulary the related concept is derived from  |

Sample output record 1:

| **Field** | **Value** |
| --- | --- |
| Relationship\_Polarity | Relates to |
| Relationship\_ID | 49 |
| Relationship\_Name | Has finding site (SNOMED-CT) |
| Concept\_ID | 4046957 |
| Concept\_Name | Gastrointestinal tract |
| Concept\_Code | 122865005 |
| Concept\_Class | Body structure |
| Concept\_Vocab\_ID | 1 |
| Concept\_Vocab\_Name | SNOMED-CT |

Sample output record 2:

| **Field** | **Value** |
| --- | --- |
| Relationship\_Polarity | Is Related by |
| Relationship\_ID | 125 |
| Relationship\_Name | MedDRA to SNOMED-CT equivalent (OMOP) |
| Concept\_ID | 35707864 |
| Concept\_Name | Gastrointestinal haemorrhage |
| Concept\_Code | 10017955 |
| Concept\_Class | Preferred Term |
| Concept\_Vocab\_ID | 15 |
| Concept\_Vocab\_Name | MedDRA |

## G8. Find ancestors for a given concept

For a concept identifier entered as the input parameter, the query lists all ancestors in the hierarchy of the domain. Ancestors are concepts have a relationship to the given concept that is defined as hierarchical in the relationship table, and any secondary, tertiary etc. concepts going up in the hierarchy. The resulting output provides the ancestor concept details and the minimum and maximum level of separation.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Concept ID | 192671 | Yes | GI - Gastrointestinal hemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract all relationships of the input concept. The input parameters are highlighted in blue.

SELECT C.concept\_id as ancestor\_concept\_id,

 C.concept\_name as ancestor\_concept\_name,

 C.concept\_code as ancestor\_concept\_code,

 C.concept\_class as ancestor\_concept\_class

 C.vocabulary\_id,

 VA.vocabulary\_name,

 A.min\_levels\_of\_separation,

 A.max\_levels\_of\_separation

FROM vocabulary.concept\_ancestor A,

 vocabulary.concept C,

 vocabulary.vocabulary VA

WHERE A.ancestor\_concept\_id = C.concept\_id

AND C.vocabulary\_id = VA.vocabulary\_id

AND A.ancestor\_concept\_id<>A.descendant\_concept\_id

AND A.descendant\_concept\_id = **192671**

AND **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

ORDER by 5,7

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Ancestor\_Concept\_ID | Unique identifier of the concept related to the ancestor concept |
| Ancestor\_Concept\_Name | Name of the concept related to the ancestor concept |
| Ancestor\_Concept\_Code | Concept code of concept related to the ancestor concept |
| Ancestor\_Concept\_Class | Concept Class of concept related to the ancestor concept |
| Vocababulary\_ID | ID of the vocabulary the ancestor concept is derived from |
| Vocabulary\_Name | Name of the vocabulary the ancestor concept is derived from  |
| Min\_Levels\_of\_Separation | The length of the shortest path between the concept and the ancestor |
| Max\_Levels\_of\_Separation | The length of the longest path between the concept and the ancestor |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Ancestor\_Concept\_ID | 4000610 |
| Ancestor\_Concept\_Name | Disease of gastrointestinal tract |
| Ancestor\_Concept\_Code | 119292006 |
| Ancestor\_Concept\_Class | Clinical finding |
| Vocababulary\_ID | 1 |
| Vocabulary\_Name | SNOMED-CT |
| Min\_Levels\_of\_Separation | 1 |
| Max\_Levels\_of\_Separation | 1 |

## G9. Find descendants for a given concept

For a concept identifier entered as the input parameter, the query lists all descendants in the hierarchy of the domain. Descendant are concepts have a relationship to the given concept that is defined as hierarchical in the relationship table, and any secondary, tertiary etc. concepts going down in the hierarchy. The resulting output provides the descendant concept details and the minimum and maximum level of separation.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Concept ID | 192671 | Yes | GI - Gastrointestinal hemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract all relationships of the input concept. The input parameters are highlighted in blue.

SELECT C.concept\_id as descendant\_concept\_id,

 C.concept\_name as descendant\_concept\_name,

 C.concept\_code as descendant\_concept\_code,

 C.concept\_class as descendant\_concept\_class,

 C.vocabulary\_id,

 VA.vocabulary\_name,

 A.min\_levels\_of\_separation,

 A.max\_levels\_of\_separation

FROM vocabulary.concept\_ancestor A,

 vocabulary.concept C,

 vocabulary.vocabulary VA

WHERE A.descendant\_concept\_id = C.concept\_id

AND C.vocabulary\_id = VA.vocabulary\_id

AND A.ancestor\_concept\_id<>A.descendant\_concept\_id

AND A.ancestor\_concept\_id = **192671**

AND **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

ORDER by 5,7

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Descendant\_Concept\_ID | Unique identifier of the concept related to the descendant concept |
| Descendant\_Concept\_Name | Name of the concept related to the descendant concept |
| Descendant\_Concept\_Code | Concept code of concept related to the descendant concept |
| Descendant\_Concept\_Class | Concept Class of concept related to the descendant concept |
| Vocababulary\_ID | ID of the vocabulary the descendant concept is derived from |
| Vocabulary\_Name | Name of the vocabulary the descendant concept is derived from  |
| Min\_Levels\_of\_Separation | The length of the shortest path between the concept and the descendant |
| Max\_Levels\_of\_Separation | The length of the longest path between the concept and the descendant |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Descendant\_Concept\_ID | 4318535 |
| Descendant\_Concept\_Name | Duodenal haemorrhage |
| Descendant\_Concept\_Code | 95533003 |
| Descendant\_Concept\_Class | Clinical finding |
| Vocababulary\_ID | 1 |
| Vocabulary\_Name | SNOMED-CT |
| Min\_Levels\_of\_Separation | 1 |
| Max\_Levels\_of\_Separation | 1 |

## G10. Find parents for a given concept

The query accepts a concept ID as the input and returns all concepts that are its immediate parents of that concept. Parents are concepts that have a hierarchical relationship to the given concepts. Hierarchical relationships are defined in the relationship table.

It should be noted that the query returns only the immediate parent concepts that are directly linked to the input concept and not all ancestors.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 192671 | Yes | GI - Gastrointestinal haemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract the parent concepts of the input concept. The input parameters are highlighted in blue.

SELECT A.concept\_id Parent\_concept\_id,

 A.concept\_name Parent\_concept\_name,

 A.concept\_code Parent\_concept\_code,

 A.concept\_class Parent\_concept\_class,

 A.vocabulary\_id Parent\_concept\_vocab\_ID,

 VA.vocabulary\_name Parent\_concept\_vocab\_name

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA

WHERE CA.descendant\_concept\_id = **192671**

AND CA.min\_levels\_of\_separation = 1

AND CA.ancestor\_concept\_id = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CA.descendant\_concept\_id = D.concept\_id

AND **sysdate** BETWEEN A.valid\_start\_date AND A.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Parent\_Concept\_ID | Concept ID of parent concept |
| Parent\_Concept\_Name | Name of parent concept |
| Parent\_Concept\_Code | Concept Code of parent concept |
| Parent\_Concept\_Class | Concept Class of parent concept |
| Parent\_Concept\_Vocab\_ID | Vocabulary parent concept is derived from as vocabulary code |
| Parent\_Concept\_Vocab\_Name | Name of the vocabulary the child concept is derived from  |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Parent\_Concept\_ID | 4000610 |
| Parent\_Concept\_Name | Disease of gastrointestinal tract |
| Parent\_Concept\_Code | 119292006 |
| Parent\_Concept\_Class | Clinical finding |
| Parent\_Concept\_Vocab\_ID | 1 |
| Parent\_Concept\_Vocab\_Name | SNOMED-CT |

## G12. Find children for a given concept

This query lists all standard vocabulary concepts that are child concepts of a given concept entered as input. The query accepts a concept ID as the input and returns all concepts that are its immediate child concepts.

It should be noted that the query returns only the immediate child concepts that are directly linked to the input concept and not all descendants.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Concept ID | 192671 | Yes | GI - Gastrointestinal hemorrhage |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract the parent concepts of the input concept. The input parameters are highlighted in blue.

SELECT D.concept\_id Child\_concept\_id,

 D.concept\_name Child\_concept\_name,

 D.concept\_code Child\_concept\_code,

 D.concept\_class Child\_concept\_class,

 D.vocabulary\_id Child\_concept\_vocab\_ID,

 VS.vocabulary\_name Child\_concept\_vocab\_name

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept D,

 vocabulary.vocabulary VS

WHERE CA.ancestor\_concept\_id = **192671**

AND CA.min\_levels\_of\_separation = 1

AND CA.descendant\_concept\_id = D.concept\_id

AND D.vocabulary\_id = VS.vocabulary\_id

AND **sysdate** BETWEEN D.valid\_start\_date AND D.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Child\_Concept\_ID | Concept ID of child concept entered as input |
| Child\_Concept\_Name | Name of child concept entered as input |
| Child\_Concept\_Code | Concept Code of child concept entered as input |
| Child\_Concept\_Class | Concept Class of child concept entered as input |
| Child\_Concept\_Vocab\_ID | ID of the vocabulary the child concept is derived from |
| Child\_Concept\_Vocab\_Name | Name of the vocabulary the child concept is derived from  |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Child Concept Id | 4128705 |
| Child Concept Name | Haemorrhagic enteritis |
| Child Concept Code | 235224000 |
| Child Concept Class | Clinical finding |
| Child Concept Vocab Code | 1 |
| Child Concept Vocab Name | SNOMED-CT |

# Queries for the Condition domain

## C1. Find condition by concept ID

This is the lookup for obtaining condition or disease concept details associated with a concept identifier. The query is intended as a tool for quick reference for the name, class, level and source vocabulary details associated with a concept identifier:

* SNOMED-CT clinical finding
* MedDRA

This query is equivalent to G1, but if the concept is not in the condition domain the query still returns the concept details with the Is\_Disease\_Concept\_Flag field set to ‘No’.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 192671 | Yes | Concept Identifier for ‘GI - Gastrointestinal haemorrhage’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run**:

The following is a sample run of the query to run a search for specific disease concept ID. The input parameters are highlighted in blue.

SELECT C.concept\_id Condition\_concept\_id,

 C.concept\_name Condition\_concept\_name,

 C.concept\_code Condition\_concept\_code,

 C.concept\_class Condition\_concept\_class,

 C.concept\_level Condition\_concept\_level,

 C.vocabulary\_id Condition\_concept\_vocab\_ID,

 V.vocabulary\_name Condition\_concept\_vocab\_name,

 (

 CASE C.vocabulary\_id

 WHEN 1 THEN

 CASE lower(C.concept\_class)

 WHEN 'clinical finding' THEN 'Yes'

 ELSE 'No'

 END

 WHEN 15 THEN 'Yes'

 ELSE 'No'

 END) Is\_Disease\_Concept\_flag

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.concept\_id = **192671**

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Condition\_Concept\_ID | Condition concept Identifier entered as input |
| Condition\_Concept\_Name | Name of the standard condition concept |
| Condition\_Concept\_Code | Concept code of the standard concept in the source vocabulary |
| Condition\_Concept\_Class | Concept class of standard vocabulary concept |
| Condition\_Concept\_Level | Level of the condition concept if defined as part of a hierarchy |
| Condition\_Concept\_Vocab\_ID | Vocabulary the standard concept is derived from as vocabulary ID |
| Condition\_Concept\_Vocab\_Name | Name of the vocabulary the standard concept is derived from |
| Is\_Disease\_Concept\_Flag | Flag indicating whether the Concept ID belongs to a disease concept‘Yes’ if disease concept, ‘No’ if not a disease concept |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Condition\_Concept\_ID | 192671 |
| Condition\_Concept\_Name | GI - Gastrointestinal hemorrhage |
| Condition\_Concept\_Code | 74474003 |
| Condition\_Concept\_Class | Clinical finding |
| Condition\_Concept\_Level | 2 |
| Condition\_Concept\_Vocab\_ID | 1 |
| Condition\_Concept\_Vocab\_Name | SNOMED-CT |
| Is\_Disease\_Concept\_Flag | Yes |

## C2. Find a condition by key word

This query enables search of vocabulary entities by keyword. The query does a search of standard concepts names in the CONDITION domain (SNOMED-CT clinical findings and MedDRA concepts) and their synonyms to return all related concepts.

It does not require prior knowledge of where in the logic of the vocabularies the entity is situated.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word | myocardial infarction | Yes | Key word should be placed in a single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run a search of the Condition domain for keyword ‘myocardial infarction’. The input parameters are highlighted in blue.

SELECT T.Entity\_Concept\_Id,

 T.Entity\_Name,

 T.Entity\_Code,

 T.Entity\_Type,

 T.Entity\_concept\_class,

 T.Entity\_vocabulary\_id,

 T.Entity\_vocabulary\_name

FROM (

 SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.CONCEPT\_CODE Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 NULL Entity\_Mapping\_Type,

 C.valid\_start\_date,

 C.valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.concept\_synonym S,

 vocabulary.vocabulary V

 WHERE (

 C.vocabulary\_id IN (2, 15)

 OR LOWER(C.concept\_class) = 'clinical finding'

 )

 AND C.concept\_class IS NOT NULL

 AND C.concept\_level <> 0

 AND C.concept\_id = S.concept\_id(+)

 AND (

 INSTR(LOWER(C.concept\_name), LOWER(**'myocardial infarction'**), 1, 1) > 0

 OR INSTR(LOWER(S.concept\_synonym\_name), LOWER(**'myocardial infarction'**), 1, 1) > 0

 )

 AND C.vocabulary\_id = V.vocabulary\_id

 ) T

WHERE **sysdate** BETWEEN valid\_start\_date AND valid\_end\_date

ORDER BY 6, 2

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Entity\_Concept\_ID | Concept ID of entity with string match on name or synonym concept |
| Entity\_Name | Concept name of entity with string match on name or synonym concept |
| Entity\_Code | Concept code of entity with string match on name or synonym concept |
| Entity\_Type | Concept type |
| Entity\_Concept\_Class | Concept class of entity with string match on name or synonym concept |
| Entity\_Vocabulary\_ID | ID of vocabulary associated with the concept |
| Entity\_Vocabulary\_Name | Name of the vocabulary associated with the concept |

Sample output record

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept\_ID | 35205180 |
| Entity\_Name | Acute myocardial infarction |
| Entity\_Code | 10000891 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | Preferred Term |
| Entity\_Vocabulary\_ID | 15 |
| Entity\_Vocabulary\_Name | MedDRA |

This is a comprehensive query to find relevant terms in the vocabulary. To constrain, additional clauses can be added to the query. However, it is recommended to do a filtering after the result set is produced to avoid syntactical mistakes.

Note: The query only returns concepts that are part of the Standard Vocabulary, ie. they have concept level that is not 0. If all concepts are needed, including the non-standard ones, the clause in the query restricting the concept level and concept class can be commented out..

The query returns only records that have a precise string match. There is no white space manipulation or removal of stop words or signs.

## C3. Translate a SNOMED-CT concept into a MedDRA concept

This query accepts a SNOMED-CT concept ID as input and returns details of the equivalent MedDRA concepts.

Note that the relationships in the vocabulary associate MedDRA ‘Preferred Term’ to SNOMED-CT ‘clinical findings’. The respective hierarchy for MedDRA and SNOMED-CT can then be used to traverse up and down the hierarchy of each of these individual vocabularies.

Also, not all SNOMED-CT clinical findings are mapped to a MedDRA concept in the vocabulary.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| SNOMED-CT Concept ID | 312327 | Yes | Concept Identifier for ‘Acute myocardial infarction’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list MedDRA equivalents for SNOMED-CT concept whose concept ID is entered as input. Sample parameter substitution is highlighted in blue:

SELECT D.concept\_id Snomed\_concept\_id,

 D.concept\_name Snomed\_concept\_name,

 D.concept\_code Snomed\_concept\_code,

 D.concept\_class Snomed\_concept\_class,

 CR.relationship\_id,

 RT.relationship\_name,

 A.Concept\_id MedDRA\_concept\_id,

 A.Concept\_name MedDRA\_concept\_name,

 A.Concept\_code MedDRA\_concept\_code,

 A.Concept\_class MedDRA\_concept\_class

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.relationship RT

WHERE CR.relationship\_id = 239

AND CR.concept\_id\_2 = A.concept\_id

AND CR.concept\_id\_1 = **312327**

AND CR.concept\_id\_1 = D.concept\_id

AND CR.relationship\_id = RT.relationship\_id

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| SNOMED-CT\_Concept\_ID | Concept ID of SNOMED-CT concept entered as input |
| SNOMED-CT\_Concept\_Name | Name of SNOMED-CT concept |
| SNOMED-CT\_Concept\_Code | Concept Code of SNOMED-CT concept |
| SNOMED-CT\_Concept\_Class | Concept class of SNOMED-CT concept |
| Relationship\_ID | Identifier for the type of relationship |
| Relationship\_Name | Description of the type of relationship |
| MedDRA\_Concept\_ID | Concept ID of matching MedDRA concept |
| MedDRA\_Concept\_Name | Concept name of matching MedDRA concept |
| MedDRA\_Concept\_Code | Concept code of matching MedDRA concept |
| MedDRA\_Concept\_Class | Concept class of matching MedDRA concept |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| SNOMED-CT\_Concept\_ID | 312327 |
| SNOMED-CT\_Concept\_Name | Acute myocardial infarction |
| SNOMED-CT\_Concept\_Code | 57054005 |
| SNOMED-CT\_Concept\_Class | Clinical finding |
| Relationship\_ID | 239 |
| Relationship\_Name | SNOMED-CT to MedDRA equivalent (OMOP) |
| MedDRA\_Concept\_ID | 35205180 |
| MedDRA\_Concept\_Name | Acute myocardial infarction |
| MedDRA\_Concept\_Code | 10000891 |
| MedDRA\_Concept\_Class | Preferred Term |

## C4. Translate a MedDRA concept into a SNOMED-CT concept

This query accepts a MedDRA concept ID as input and returns details of the equivalent SNOMED-CT concepts.

Noted that the existing relationships in the vocabulary associate MedDRA ‘Preferred Term’ to SNOMED-CT ‘clinical findings’. The respective hierarchy for MedDRA and SNOMED-CT can then be used to traverse up and down the hierarchy of each of these individual vocabularies.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| MedDRA Concept ID | 35205180 | Yes | Concept Identifier for ‘Acute myocardial infarction’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list all MedDRA concepts that have SNOMED-CT equivalents. Sample parameter substitution is highlighted in blue:

SELECT D.concept\_id MedDRA\_concept\_id,

 D.concept\_name MedDRA\_concept\_name,

 D.concept\_code MedDRA\_concept\_code,

 D.concept\_class MedDRA\_concept\_class,

 CR.relationship\_id,

 RT.relationship\_name,

 A.concept\_id Snomed\_concept\_id,

 A.concept\_name Snomed\_concept\_name,

 A.concept\_code Snomed\_concept\_code,

 A.concept\_class Snomed\_concept\_class

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.relationship RT

WHERE CR.relationship\_id = 125

AND CR.concept\_id\_2 = A.concept\_id

AND CR.concept\_id\_1 = **35205180**

AND CR.concept\_id\_1 = D.concept\_id

AND CR.relationship\_id = RT.relationship\_id

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| MedDRA\_Concept\_ID | Concept ID of MedDRA concept entered as input |
| MedDRA\_Concept\_Name | Concept name of MedDRA concept |
| MedDRA\_Concept\_Code | Concept code of MedDRA concept |
| MedDRA\_Concept\_Class | Concept class of MedDRA concept |
| Relationship\_ID | Identifier for the type of relationship |
| Relationship\_Name | Name of the type of relationship |
| SNOMED-CT\_Concept\_ID | Concept ID of matching SNOMED-CT concept |
| SNOMED-CT\_Concept\_Name | Name of matching SNOMED-CT concept |
| SNOMED-CT\_Concept\_Code | Concept Code of matching SNOMED-CT concept |
| SNOMED-CT\_Concept\_Class | Concept class of matching SNOMED-CT concept |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| MedDRA\_Concept\_ID | 35205180 |
| MedDRA\_Concept\_Name | Acute myocardial infarction |
| MedDRA\_Concept\_Code | 10000891 |
| MedDRA\_Concept\_Class | Preferred Term |
| Relationship\_ID | 125 |
| Relationship\_Name | MedDRA to SNOMED-CT equivalent (OMOP) |
| SNOMED-CT\_Concept\_ID | 312327 |
| SNOMED-CT\_Concept\_Name | Acute myocardial infarction |
| SNOMED-CT\_Concept\_Code | 57054005 |
| SNOMED-CT\_Concept\_Class | Clinical finding |

## C5. Translate a source code to condition concepts

This query enables search of all Standard SNOMED-CT concepts that are mapped to a condition (disease) source code. It can be used to translate e.g. ICD-9-CM, ICD-10-CM or Read codes to SNOMED-CT.

Note that source codes are not unique across different source vocabularies, therefore the source vocabulary ID should also be provided.

The following source vocabularies have condition/disease codes that map to SNOMED-CT concepts:

* ICD-9-CM, Vocabulary\_id=2
* Read, Vocabulary\_id=17
* OXMIS, Vocabulary\_id=18
* ICD-10-CM, Vocabulary\_id=34

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Source Code List | '070' | Yes | Source codes are alphanumeric and need to be entered as a string enclosed by a single quote. If more than one source code needs to be entered an IN clause or a JOIN can be used. |
| Source Vocabulary ID | 2 | Yes | The source vocabulary is mandatory, because the source ID is not unique across different vocabularies.  |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list SNOMED-CT concepts that a set of mapped codes entered as input map to. The sample parameter substitutions are highlighted in blue:

SELECT DISTINCT

 SC.source\_code,

 SC.source\_code\_description,

 SC.source\_vocabulary\_id,

 VS.vocabulary\_name source\_vocabulary\_description,

 SC.mapping\_type,

 C.concept\_id target\_concept\_id,

 C.concept\_name target\_Concept\_Name,

 C.concept\_code target\_Concept\_Code,

 C.concept\_class target\_Concept\_Class,

 C.vocabulary\_id target\_Concept\_Vocab\_ID,

 VT.vocabulary\_name target\_Concept\_Vocab\_Name

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.concept c,

 vocabulary.vocabulary VS,

 vocabulary.vocabulary VT

WHERE SC.source\_vocabulary\_id = VS.vocabulary\_id

AND SC.mapping\_type = 'CONDITION'

AND SC.target\_concept\_id = C.concept\_id

AND SC.target\_vocabulary\_id = VT.vocabulary\_id

AND SC.source\_code = **'070'**

AND SC.source\_vocabulary\_id = **2**

AND **sysdate** BETWEEN SC.valid\_start\_date AND SC.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Source\_Code | Source code for the disease entered as input |
| Source\_Code\_Description | Description of the source code entered as input |
| Source\_Vocabulary\_ID | Vocabulary the disease source code is derived from as vocabulary ID |
| Source\_Vocabulary\_Description | Name of the vocabulary the disease source code is derived from |
| Mapping\_Type | Type of mapping or mapping domain, from source code to target concept. Example Condition, Procedure, Drug etc. |
| Target\_Concept\_ID | Concept ID of the target condition concept mapped to the disease source code |
| Target\_Concept\_Name | Name of the target condition concept mapped to the disease source code |
| Target\_Concept\_Code | Concept code of the target condition concept mapped to the disease source code |
| Target\_Concept\_Class | Concept class of the target condition concept mapped to the disease source code |
| Target\_Concept\_Vocab\_ID | Vocabulary the target condition concept is derived from as vocabulary code |
| Target\_Concept\_Vocab\_Name | Name of the vocabulary the condition concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Source\_Code | 070 |
| Source\_Code\_Description | Viral hepatitis |
| Source\_Vocabulary\_ID | 2 |
| Source\_Vocabulary\_Description | ICD-9-CM |
| Mapping\_Type | CONDITION |
| Target\_Concept\_ID | 4291005 |
| Target\_Concept\_Name | VH - Viral hepatitis |
| Target\_Concept\_Code | 3738000 |
| Target\_Concept\_Class | Clinical finding |
| Target\_Concept\_Vocab\_ID | 1 |
| Target\_Concept\_Vocab\_Name | SNOMED-CT |

## C6. Translate a given condition to source codes

This query allows to search all source codes that are mapped to a SNOMED-CT clinical finding concept. It can be used to translate SNOMED-CT to ICD-9-CM, ICD-10-CM, Read or Oxmis codes.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| SNOMED-CT Concept ID  | 312327 | Yes | Concept IDs are numeric. If more than one concept code needs to be translated an IN clause or a JOIN can be used. |
| Source Vocabulary ID | 2 | Yes | 2 represents ICD9-CM.  |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list all source codes that map to a SNOMED-CT concept entered as input. The sample parameter substitutions are highlighted in blue:

SELECT SC.source\_code,

 SC.source\_code\_description,

 SC.source\_vocabulary\_id,

 VS.vocabulary\_name as source\_vocabulary\_description,

 SC.mapping\_type,

 C.concept\_id as target\_concept\_id,

 C.concept\_name as target\_Concept\_Name,

 C.concept\_code as target\_Concept\_Code,

 C.concept\_class as target\_Concept\_Class,

 C.vocabulary\_id as target\_Concept\_Vocab\_ID,

 VT.vocabulary\_name as target\_Concept\_Vocab\_Name

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.concept c,

 vocabulary.vocabulary VS,

 vocabulary.vocabulary VT

WHERE SC.source\_vocabulary\_id = VS.vocabulary\_id

AND SC.mapping\_type = 'CONDITION'

AND SC.target\_concept\_id = C.concept\_id

AND SC.target\_vocabulary\_id = VT.vocabulary\_id

and SC.target\_concept\_id = **312327**

AND SC.source\_vocabulary\_id=2

AND **sysdate** BETWEEN c.valid\_start\_date AND c.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Source\_Code | Source code for the disease entered as input |
| Source\_Code\_Description | Description of the source code entered as input |
| Source\_Vocabulary\_ID | Vocabulary the disease source code is derived from as vocabulary code |
| Source\_Vocabulary\_Description | Name of the vocabulary the disease source code is derived from |
| Mapping\_Type | Type of mapping or mapping domain, from source code to target concept. Example Condition, Procedure, Drug etc. |
| Target\_Concept\_ID | Concept ID of the SNOMED-CT concept entered as input |
| Target\_Concept\_Name | Name of the SNOMED-CT concept entered as input |
| Target\_Concept\_Code | Concept code of the SNOMED-CT concept entered as input |
| Target\_Concept\_Class | Concept class of the SNOMED-CT concept entered as input |
| Target\_Concept\_Vocab\_ID | Vocabulary of concept entered as input is derived from, as vocabulary ID |
| Target\_Concept\_Vocab\_Name | Name of vocabulary the concept entered as input is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Source\_Code | 410.92 |
| Source\_Code\_Description | Acute myocardial infarction, unspecified site, subsequent episode of care |
| Source\_Vocabulary\_ID | 2 |
| Source\_Vocabulary\_Description | ICD-9-CM |
| Mapping\_Type | CONDITION |
| Target\_Concept\_ID | 312327 |
| Target\_Concept\_Name | Acute myocardial infarction |
| Target\_Concept\_Code | 57054005 |
| Target\_Concept\_Class | Clinical finding |
| Target\_Concept\_Vocab\_ID | 1 |
| Target\_Concept\_Vocab\_Name | SNOMED-CT |

## C7. Find a pathogen by keyword

This query enables a search of all pathogens using a keyword as input. The resulting concepts could be used in query C9 to identify diseases caused by a certain pathogen.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word for pathogen | ' Trypanosoma' | Yes | Key word should be placed in a single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list all pathogens specified using a keyword as input. The sample parameter substitutions are highlighted in blue:

SELECT C.concept\_id Pathogen\_Concept\_ID,

 C.concept\_name Pathogen\_Concept\_Name,

 C.concept\_code Pathogen\_concept\_code,

 C.concept\_class Pathogen\_concept\_class,

 C.concept\_level Pathogen\_Concept\_Level,

 C.vocabulary\_id Pathogen\_Concept\_Vocab\_ID,

 V.vocabulary\_name Pathogen\_Concept\_Vocab\_Name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE LOWER(C.concept\_class) = 'organism'

AND INSTR(LOWER(c.concept\_name), LOWER(**'Trypanosoma'**), 1, 1) > 0

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Pathogen\_Concept\_ID | Concept ID of SNOMED-CT pathogen concept |
| Pathogen\_Concept\_Name | Name of SNOMED-CT pathogen concept with keyword entered as input |
| Pathogen\_Concept\_Code | Concept Code of SNOMED-CT pathogen concept |
| Pathogen\_Concept\_Class | Concept class of SNOMED-CT pathogen concept |
| Pathogen\_Concept\_Level | Concept level of SNOMED-CT pathogen concept |
| Pathogen\_Vocab\_ID | Vocabulary ID of the vocabulary from which the pathogen concept is derived from (1 for SNOMED-CT) |
| Pathogen\_Vocab\_Name | Name of the vocabulary from which the pathogen concept is derived from (SNOMED-CT) |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Pathogen\_Concept\_ID | 4085768 |
| Pathogen\_Concept\_Name | Trypanosoma brucei |
| Pathogen\_Concept\_Code | 243659009 |
| Pathogen\_Concept\_Class | Organism |
| Pathogen\_Concept\_Level | 0 |
| Pathogen\_Vocab\_ID | 1 |
| Pathogen\_Vocab\_Name | SNOMED-CT |

## C8. Find a disease causing agent by keyword

This query enables a search of various agents that can cause disease by keyword as input. Apart from pathogens (see query C7), these agents can be SNOMED-CT concepts of the following classes:

* Pharmaceutical / biologic product
* Physical object
* Special concept
* Event
* Physical force
* Substance

The resulting concepts could be used in query C9 to identify diseases caused by the agent.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word for pathogen | 'Radiation' | Yes | Key word should be placed in a single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list all pathogens specified using a keyword as input. The sample parameter substitutions are highlighted in blue:

SELECT C.concept\_id Agent\_Concept\_ID,

 C.concept\_name Agent\_Concept\_Name,

 C.concept\_code Agent\_concept\_code,

 C.concept\_class Agent\_concept\_class,

 C.concept\_level Agent\_Concept\_Level,

 C.vocabulary\_id Agent\_Concept\_Vocab\_ID,

 V.vocabulary\_name Agent\_Concept\_Vocab\_Name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE LOWER(C.concept\_class) in ('pharmaceutical / biologic product','physical object','Special concept','event','physical force','substance')

AND INSTR(LOWER(c.concept\_name), LOWER(**'Radiation'**), 1, 1) > 0

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Agent\_Concept\_ID | Concept ID of SNOMED-CT agent concept |
| Agent\_Concept\_Name | Name of SNOMED-CT concept  |
| Agent\_Concept\_Code | Concept Code of SNOMED-CT concept |
| Agent\_Concept\_Class | Concept class of SNOMED-CT concept |
| Agent\_Concept\_Level | Concept level of SNOMED-CT concept |
| Agent\_Vocab\_ID | Vocabulary ID of the vocabulary from which the pathogen concept is derived from (1 for SNOMED-CT) |
| Agent\_Vocab\_Name | Name of the vocabulary from which the pathogen concept is derived from (SNOMED-CT) |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Agent\_Concept\_ID | 4220084 |
| Agent\_Concept\_Name | Radiation |
| Agent\_Concept\_Code | 82107009 |
| Agent\_Concept\_Class | Physical force |
| Agent\_Concept\_Level | 0 |
| Agent\_Vocab\_ID | 1 |
| Agent\_Vocab\_Name | SNOMED-CT |

## C9. Find all SNOMED-CT condition concepts that can be caused by a given pathogen or causative agent

This query accepts a SNOMED-CT pathogen ID as input and returns all conditions caused by the pathogen or disease causing agent identified using queries C7 or C8.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| SNOMED-CT Concept ID | 4248851 | Yes | Concept Identifier for ‘Treponema pallidum’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list conditions caused by pathogen or causative agent. Sample parameter substitution is highlighted in blue:

SELECT A.concept\_Id Condition\_ID,

 A.concept\_Name Condition\_name,

 A.concept\_Code Condition\_code,

 A.concept\_Class Condition\_class,

 A.vocabulary\_id Condition\_vocab\_ID,

 VA.vocabulary\_name Condition\_vocab\_name,

 D.concept\_Id Causative\_agent\_ID,

 D.concept\_Name Causative\_agent\_Name,

 D.concept\_Code Causative\_agent\_Code,

 D.concept\_Class Causative\_agent\_Class,

 D.vocabulary\_id Causative\_agent\_vocab\_ID,

 VS.vocabulary\_name Causative\_agent\_vocab\_name

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA,

 vocabulary.vocabulary VS,

 vocabulary.relationship RT

WHERE CR.relationship\_ID = 55

AND CR.concept\_id\_1 = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CR.concept\_id\_2 = D.concept\_id

AND D.concept\_id = **4248851**

AND D.vocabulary\_id = VS.vocabulary\_id

AND CR.relationship\_ID = RT.relationship\_ID

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list

| **Field** | **Description** |
| --- | --- |
| Condition\_ID | Condition concept Identifier |
| Condition\_Name | Name of the standard condition concept |
| Condition\_Code | Concept code of the standard concept in the source vocabulary |
| Condition\_Class | Concept class of standard vocabulary concept |
| Condition\_ Vocab\_ID | Vocabulary the standard concept is derived from as vocabulary ID |
| Condition\_Vocab\_Name | Name of the vocabulary the standard concept is derived from |
| Causative\_Agent\_ID | Pathogen concept ID entered as input |
| Causative\_Agent\_Name | Pathogen Name |
| Causative\_Agent\_Code | Concept Code of pathogen concept |
| Causative\_Agent\_Class | Concept Class of pathogen concept |
| Causative\_Agent\_Vocab\_ID | Vocabulary the pathogen concept is derived from as vocabulary code |
| Causative\_Agent\_Vocab\_Name | Name of the vocabulary the pathogen concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Condition\_ID | 4326735 |
| Condition\_Name | Spastic spinal syphilitic paralysis |
| Condition\_Code | 75299005 |
| Condition\_Class | Clinical finding |
| Condition\_ Vocab\_ID | 1 |
| Condition\_Vocab\_Name | SNOMED-CT |
| Causative\_Agent\_ID | 4248851 |
| Causative\_Agent\_Name | Treponema pallidum |
| Causative\_Agent\_Code | 72904005 |
| Causative\_Agent\_Class | Organism |
| Causative\_Agent\_Vocab\_ID | 1 |
| Causative\_Agent\_Vocab\_Name | SNOMED-CT |

## C10. Find an anatomical site by keyword

This query enables a search of all anatomical sites using a keyword entered as input. The resulting concepts could be used in query C11 to identify diseases occurring at a certain anatomical site.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word for pathogen | ' Epiglottis' | Yes | Key word should be placed in a single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list all anatomical site concept IDs specified using a keyword as input. The sample parameter substitutions are highlighted in blue:

SELECT C.concept\_id Anatomical\_site\_ID,

 C.concept\_name Anatomical\_site\_Name,

 C.concept\_code Anatomical\_site\_Code,

 C.concept\_class Anatomical\_site\_Class,

 C.concept\_level Anatomical\_site\_Level,

 C.vocabulary\_id Anatomical\_site\_Vocab\_ID,

 V.vocabulary\_name Anatomical\_site\_Vocab\_Name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE LOWER(C.concept\_class) = 'body structure'

AND INSTR(LOWER(c.concept\_name), LOWER(**'Epiglottis'**), 1, 1) > 0

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Anatomical\_site\_ID | Concept ID of SNOMED-CT anatomical site concept  |
| Anatomical\_site\_Name | Name of SNOMED-CT anatomical site concept entered as input |
| Anatomical\_site\_Code | Concept Code of SNOMED-CT anatomical site concept  |
| Anatomical\_site\_Class | Concept class of SNOMED-CT anatomical site  |
| Anatomical\_site\_Level | Concept level of SNOMED-CT anatomical site |
| Anatomical\_site\_vocab\_ID | Vocabulary ID of the vocabulary from which the anatomical site concept is derived from |
| Anatomical\_site\_vocab\_name | Name of the vocabulary from which the anatomical site concept is derived from |

Sample output record:

|  **Field** | **Value** |
| --- | --- |
| Anatomical\_site\_ID | 4103720 |
| Anatomical\_site\_Name | Posterior epiglottis |
| Anatomical\_site\_Code | 2894003 |
| Anatomical\_site\_Class | Body structure |
| Anatomical\_site\_Level | 0 |
| Anatomical\_site\_vocab\_ID | 1 |
| Anatomical\_site\_vocab\_name | SNOMED-CT |

## C11. Find all SNOMED-CT condition concepts that are occurring at an anatomical site

This query accepts a SNOMED-CT body structure ID as input and returns all conditions occurring in the anatomical site, which can be identified using query C10.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| SNOMED-CT Concept ID | 4103720 | Yes | Concept Identifier for ‘Posterior epiglottis' |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to list conditions located in the anatomical site. Sample parameter substitution is highlighted in blue:

SELECT A.concept\_Id Condition\_ID,

 A.concept\_Name Condition\_name,

 A.concept\_Code Condition\_code,

 A.concept\_Class Condition\_class,

 A.vocabulary\_id Condition\_vocab\_ID,

 VA.vocabulary\_name Condition\_vocab\_name,

 D.concept\_Id Anatomical\_Site\_ID,

 D.concept\_Name Anatomical\_Site\_Name,

 D.concept\_Code Anatomical\_Site\_Code,

 D.concept\_Class Anatomical\_Site\_Class,

 D.vocabulary\_id Anatomical\_Site\_vocab\_ID,

 VS.vocabulary\_name Anatomical\_Site\_vocab\_name

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA,

 vocabulary.vocabulary VS,

 vocabulary.relationship RT

WHERE CR.relationship\_ID = 49

AND CR.concept\_id\_1 = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CR.concept\_id\_2 = D.concept\_id

AND D.concept\_id = **4103720**

AND D.vocabulary\_id = VS.vocabulary\_id

AND CR.relationship\_ID = RT.relationship\_ID

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list

| **Field** | **Description** |
| --- | --- |
| Condition\_ID | Condition concept Identifier |
| Condition\_Name | Name of the standard condition concept |
| Condition\_Code | Concept code of the standard concept in the source vocabulary |
| Condition\_Class | Concept class of standard vocabulary concept |
| Condition\_ Vocab\_ID | Vocabulary the standard concept is derived from as vocabulary ID |
| Condition\_Vocab\_Name | Name of the vocabulary the standard concept is derived from |
| Anatomical\_Site\_ID | Body Structure ID entered as input |
| Anatomical\_Site\_Name | Body Structure Name |
| Anatomical\_Site\_Code | Concept Code of the body structure concept |
| Anatomical\_Site\_Class | Concept Class of the body structure concept |
| Anatomical\_Site\_Vocab\_ID | Vocabulary the body structure concept is derived from as vocabulary code |
| Anatomical\_Site\_Vocab\_Name | Name of the vocabulary the body structure concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Condition\_ID | 4054522 |
| Condition\_Name | Neoplasm of laryngeal surface of epiglottis |
| Condition\_Code | 126700009 |
| Condition\_Class | Clinical finding |
| Condition\_ Vocab\_ID | 1 |
| Condition\_Vocab\_Name | SNOMED-CT |
| Anatomical\_Site\_ID | 4103720 |
| Anatomical\_Site\_Name | Posterior epiglottis |
| Anatomical\_Site\_Code | 2894003 |
| Anatomical\_Site\_Class | Body structure |
| Anatomical\_Site\_Vocab\_ID | 1 |
| Anatomical\_Site\_Vocab\_Name | SNOMED-CT |

# Queries for the Drug domain

## D1. Find drug concept by concept ID

This is the lookup for obtaining drug concept details associated with a concept identifier. The query is intended as a tool for quick reference for the name, class, level and source vocabulary details associated with a concept identifier.

This query is equivalent to G1, but if the concept is not in the drug domain the query still returns the concept details with the Is\_Drug\_Concept\_Flag field set to ‘No’.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 1545999 | Yes | Concept Identifier from RxNorm for ‘‘atorvastatin 20 MG Oral Tablet [Lipitor]’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run**:

The following is a sample run of the query to run a search for drug concept ID of 1545999. The input parameters are highlighted in blue.

SELECT C.concept\_id Drug\_concept\_id,

 C.concept\_name Drug\_concept\_name,

 C.concept\_code Drug\_concept\_code,

 C.concept\_class Drug\_concept\_class,

 C.concept\_level Drug\_concept\_level,

 C.vocabulary\_id Drug\_concept\_vocab\_id,

 V.vocabulary\_name Drug\_concept\_vocab\_code,

 (

 CASE C.vocabulary\_id

 WHEN 8 THEN

 CASE lower(C.concept\_class)

 WHEN 'clinical drug' THEN 'Yes'

 WHEN 'branded drug' THEN 'Yes'

 WHEN 'ingredient' THEN 'Yes'

 WHEN 'branded pack' THEN 'Yes'

 WHEN 'clinical pack' THEN 'Yes'

 ELSE 'No'

 END

 ELSE 'No'

 END) Is\_Drug\_Concept\_flag

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.concept\_id = **1545999**

AND C.vocabulary\_id = V.vocabulary\_id

AND **SYSDATE** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Drug\_Concept\_ID | Concept Identifier entered as input |
| Drug\_Concept\_Name | Name of the standard drug concept |
| Drug\_Concept\_Code | Concept code of the standard drug concept in the source vocabulary |
| Drug\_Concept\_Class | Concept class of standard drug concept |
| Drug\_Concept\_Level | Level of the concept if defined as part of a hierarchy |
| Drug\_Concept\_Vocab\_ID | Vocabulary the standard drug concept is derived from as vocabulary ID |
| Drug\_Concept\_Vocab\_Name | Name of the vocabulary the standard drug concept is derived from |
| Is\_Drug\_Concept\_Flag | Flag indicating whether the Concept ID belongs to a drug concept‘Yes’ if drug concept, ‘No’ if not a drug concept |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Drug\_Concept\_ID | 1545999 |
| Drug\_Concept\_Name | atorvastatin 20 MG Oral Tablet [Lipitor] |
| Drug\_Concept\_Code | 617318 |
| Drug\_Concept\_Class | Branded Drug |
| Drug\_Concept\_Level | 1 |
| Drug\_Concept\_Vocab\_ID | 8 |
| Drug\_Concept\_Vocab\_Name | RxNorm |
| Is\_Drug\_Concept\_Flag | No |

## D2. Find drug or class by key word

This query enables search of vocabulary entities in the drug domain by keyword. The query does a search of standard concepts names in the DRUG domain including the following:

* RxNorm standard drug concepts
* ETC, ATC therapeutic classes
* NDFRT mechanism of action, physiological effect, chemical structure concepts
* Synonyms of drug concepts
* Mapped drug codes from NDC, GPI, Multum, Multilex

It does not require prior knowledge of where in the vocabularies the entity is situated.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word | 'Lipitor' | Yes | Key word should be placed in single quote |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run a search of the Drug domain (drugs and drug classes) for keyword ‘Lipitor’. The input parameters are highlighted in blue.

SELECT T.Entity\_Concept\_Id,

 T.Entity\_Name,

 T.Entity\_Code,

 T.Entity\_Type,

 T.Entity\_concept\_class,

 T.Entity\_vocabulary\_id,

 T.Entity\_vocabulary\_name

FROM (

 SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 NULL Entity\_Mapping\_Type,

 C.valid\_start\_date,

 C.valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.vocabulary V

 WHERE C.vocabulary\_id IN (7,8,19,20,21,32,53)

 AND C.concept\_class IS NOT NULL

 AND C.concept\_level <> 0

 AND C.vocabulary\_id = V.vocabulary\_id

 UNION ALL

 SELECT NULL Entity\_Concept\_Id,

 SC.source\_code\_description Entity\_Name,

 SC.source\_code Entity\_Code,

 'Mapped Code' Entity\_Type,

 NULL Entity\_concept\_class,

 SC.source\_vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 SC.mapping\_type Entity\_Mapping\_Type,

 SC.valid\_start\_date,

 SC.valid\_end\_date

 FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.vocabulary V

 WHERE SC.source\_vocabulary\_id IN (9,10,16,22,28,46,50)

 AND SC.source\_vocabulary\_id = V.vocabulary\_id

 UNION ALL

 SELECT C.concept\_id Entity\_Concept\_Id,

 S.concept\_synonym\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept Synonym' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 NULL Entity\_Mapping\_Type,

 C.valid\_start\_date,

 C.valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.concept\_synonym S,

 vocabulary.vocabulary V

 WHERE S.concept\_id = C.concept\_id

 AND C.vocabulary\_id IN (7,8,19,20,21,32,53)

 AND C.concept\_class IS NOT NULL

 AND C.concept\_level <> 0

 AND C.vocabulary\_id = V.vocabulary\_id

 ) T

WHERE INSTR(LOWER(REPLACE(REPLACE(T.Entity\_name, ' ', ''), '-')),

 LOWER(REPLACE(REPLACE(**'Lipitor'**, ' ', ''), '-')), 1, 1) > 0

AND **sysdate** BETWEEN T.valid\_start\_date AND T.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Entity\_Concept\_ID | Concept ID of entity with string match on name or synonym concept |
| Entity\_Name | Concept name of entity with string match on name or synonym concept |
| Entity\_Code | Concept code of entity with string match on name or synonym concept |
| Entity\_Type | Type of entity with keyword match, includes one of the following:* Concept
* Concept Synonym
* Mapped Code
 |
| Entity\_Concept\_Class | Concept class of entity with string match on name or synonym concept |
| Entity\_Vocabulary\_ID | Vocabulary the concept with string match is derived from as vocabulary ID |
| Entity\_Vocabulary\_Name | Name of the vocabulary the concept with string match is derived from as vocabulary code  |

Sample output record 1:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Entity\_Concept\_ID | 1545999 |
| Entity\_Name | atorvastatin 20 MG Oral Tablet [Lipitor] |
| Entity\_Code | 617318 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | Branded Drug |
| Entity\_Vocabulary\_ID | 8 |
| Entity\_Vocabulary\_Name | RxNorm |

Sample output record 2:

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept\_ID |  |
| Entity\_Name | atorvastatin 20 MG Oral Tablet [Lipitor] |
| Entity\_Code | 60491080434 |
| Entity\_Type | Mapped Code |
| Entity\_Concept\_Class |  |
| Entity\_Vocabulary\_ID | 9 |
| Entity\_Vocabulary\_Name | NDC |

This is a comprehensive query to find relevant terms in the vocabulary. To constrain, additional clauses can be added to the query. However, it is recommended to do a filtering after the result set is produced to avoid syntactical mistakes.

Note: The query only returns concepts that are part of the Standard Vocabulary, ie. they have concept level that is not 0. If all concepts are needed, including the non-standard ones, the clause in the query restricting the concept level and concept class can be commented out.

## D3. Find ingredients of a drug

The query is designed to accept a drug concept (both clinical or branded) as input and return the list of ingredients that constitute them. Drug concept IDs can be obtained using query G3 or D2.

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| List of drug Concept ID | 1551894, 939355, 19102189, 19033566 | Yes | Includes both clinical and branded drug concepts |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all clinical ingredients associated with a set of drug concepts. The input parameters are highlighted in blue.

SELECT D.Concept\_Id drug\_concept\_id,

 D.Concept\_Name drug\_name,

 D.Concept\_Code drug\_concept\_code,

 D.Concept\_Class drug\_concept\_class,

 A.Concept\_Id ingredient\_concept\_id,

 A.Concept\_Name ingredient\_name,

 A.Concept\_Code ingredient\_concept\_code,

 A.Concept\_Class ingredient\_concept\_class

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CA.descendant\_concept\_id = **939355**

AND CA.descendant\_concept\_id = D.concept\_id

AND CA.ancestor\_concept\_id = A.concept\_id

AND LOWER(A.concept\_class) = 'ingredient'

AND **sysdate** BETWEEN A.VALID\_START\_DATE AND A.VALID\_END\_DATE

AND **sysdate** BETWEEN D.VALID\_START\_DATE AND D.VALID\_END\_DATE

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Drug\_Concept\_ID | Concept ID of drug (clinical/generic or branded) |
| Drug\_Name | Name of drug |
| Drug\_Concept\_Code | Concept code of the drug |
| Drug\_Concept\_Class | Concept class of the drug |
| Ingredient\_Concept\_ID | Concept ID of the clinical ingredient |
| Ingredient\_Name | Name of the clinical ingredient |
| Ingredient\_Concept\_Code | Concept code of the clinical ingredient |
| Ingredient\_Concept\_Class | Concept Class of the clinical ingredient |

Sample output record 1:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Drug\_Concept\_ID | 19102189 |
| Drug\_Name | Omeprazole 20 MG Enteric Coated Tablet |
| Drug\_Concept\_Code | 402014 |
| Drug\_Concept\_Class | Clinical Drug |
| Ingredient\_Concept\_ID | 923645 |
| Ingredient\_Name | Omeprazole |
| Ingredient\_Concept\_Code | 7646 |
| Ingredient\_Concept\_Class | Ingredient |

Sample output record 2:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | 19033566 |
| Drug\_Name | Lorazepam 0.5 MG Oral Tablet [Ativan] |
| Drug\_Concept\_Code | ‘206821’ |
| Drug\_Concept\_Class | ‘Branded Drug or Pack’ |
| Ingredient\_Concept\_ID | 791967 |
| Ingredient\_Name | Lorazepam |
| Ingredient\_Concept\_Code | 6470 |
| Ingredient\_Concept\_Class | Ingredient |

## D4. Find drugs by ingredient

The query is designed to extract all drugs that contain a specified ingredient. The query accepts an ingredient concept ID as the input and returns all drugs that have the ingredient. It should be noted that the query returns both generics that have a single ingredient (i.e. the specified ingredient) and those that are combinations which include the specified ingredient.

The query requires the ingredient concept ID as the input. A list of these ingredient concepts can be extracted by querying the concept table for concept class of ‘Ingredient’, e.g. using query D2.

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Ingredient Concept ID | 966991 | Yes | Concept ID for ‘Simethicone’Ingredient concepts can be extracted from CONCEPT table as records of concept class of ‘Ingredient’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all generic drugs that contain an ingredient the concept ID for which is entered as input. The input parameters are highlighted in blue.

SELECT A.concept\_id Ingredient\_concept\_id,

 A.concept\_Name Ingredient\_name,

 A.concept\_Code Ingredient\_concept\_code,

 A.concept\_Class Ingredient\_concept\_class,

 D.concept\_id Drug\_concept\_id,

 D.concept\_Name Drug\_name,

 D.concept\_Code Drug\_concept\_code,

 D.concept\_Class Drug\_concept\_class,

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CA.ancestor\_concept\_id = **966991**

AND CA.ancestor\_concept\_id = A.concept\_id

AND CA.descendant\_concept\_id = D.concept\_id

AND **sysdate** BETWEEN A.valid\_start\_date AND A.valid\_end\_date

AND **sysdate** BETWEEN D.valid\_start\_date AND D.valid\_end\_date

**Output:**

Output field list: Option

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient entered as input |
| Ingredient\_name | Name of the Ingredient |
| Ingredient\_Concept\_code | Concept code of the ingredient |
| Ingredient\_Concept\_class | Concept Class of the ingredient |
| Generic\_Concept\_ID | Concept ID of drug with the ingredient |
| Generic\_Name | Name of drug concept with the ingredient |
| Generic\_Concept\_Code | Concept code of the drug with the ingredient |
| Generic\_Concept\_Class | Concept class of drug with the ingredient |

Sample output record 1: Single ingredient generic

|  |  |
| --- | --- |
| **Field** | **Value** |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Generic\_Concept\_ID | 967306 |
| Generic\_Name | Simethicone 10 MG/ML Oral Solution |
| Generic\_Concept\_Code | 251293 |
| Generic\_Concept\_Class | Clinical Drug |

Sample output record 2: Combination generic

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Generic\_Concept\_ID | 19082312 |
| Generic\_Name | Aluminum Hydroxide 200 MG / Magnesium Hydroxide 200 MG / Simethicone 20 MG Chewable Tablet |
| Generic\_Concept\_Code | 317055 |
| Generic\_Concept\_Class | Clinical Drug |

## D5. Find generic drugs by ingredient

The query is designed to extract all generic drugs that have a specified ingredient. The query accepts an ingredient concept ID as the input and returns all generic (not branded) drugs that have the ingredient. It should be noted that the query returns both generics that have a single ingredient (i.e. the specified ingredient) and those that are combinations which include the specified ingredient.

The query requires the ingredient concept ID as the input. A list of these ingredient concepts can be extracted by querying the CONCEPT table for concept class of ‘Ingredient’

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Ingredient Concept ID | 966991 | Yes | Concept ID for ‘Simethicone’Ingredient concepts can be extracted from CONCEPT table as records of concept class of ‘Ingredient’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all generic drugs that contain an ingredient the concept ID for which is entered as input. The input parameters are highlighted in blue.

SELECT A.concept\_id Ingredient\_concept\_id,

 A.concept\_Name Ingredient\_name,

 A.concept\_Code Ingredient\_concept\_code,

 A.concept\_Class Ingredient\_concept\_class,

 D.concept\_id Generic\_concept\_id,

 D.concept\_Name Generic\_name,

 D.concept\_Code Generic\_concept\_code,

 D.concept\_Class Generic\_concept\_class

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CA.ancestor\_concept\_id = **966991**

AND CA.ancestor\_concept\_id = A.concept\_id

AND CA.descendant\_concept\_id = D.concept\_id

AND lower(D.concept\_class) = 'clinical drug'

AND **sysdate** BETWEEN A.valid\_start\_date AND A.valid\_end\_date

AND **sysdate** BETWEEN D.valid\_start\_date AND D.valid\_end\_date

**Output:**

Output field list: Option

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient entered as input |
| Ingredient\_name | Name of the Ingredient |
| Ingredient\_Concept\_code | Concept code of the ingredient |
| Ingredient\_Concept\_class | Concept Class of the ingredient |
| Generic\_Concept\_ID | Concept ID of drug with the ingredient |
| Generic\_Name | Name of drug concept with the ingredient |
| Generic\_Concept\_Code | Concept code of the drug with the ingredient |
| Generic\_Concept\_Class | Concept class of drug with the ingredient |

Sample output record 1: Single ingredient generic

|  |  |
| --- | --- |
| **Field** | **Value** |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Generic\_Concept\_ID | 967306 |
| Generic\_Name | Simethicone 10 MG/ML Oral Solution |
| Generic\_Concept\_Code | 251293 |
| Generic\_Concept\_Class | Clinical Drug |

Sample output record 2: Combination generic

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Generic\_Concept\_ID | 19082312 |
| Generic\_Name | Aluminum Hydroxide 200 MG / Magnesium Hydroxide 200 MG / Simethicone 20 MG Chewable Tablet |
| Generic\_Concept\_Code | 317055 |
| Generic\_Concept\_Class | Clinical Drug |

## D6. Find branded drugs by ingredient

The query is designed to extract all branded drugs that have a specified ingredient. The query accepts an ingredient concept ID as the input and returns all branded drugs that have the ingredient. It should be noted that the query returns both generics that have a single ingredient (i.e. the specified ingredient) and those that are combinations which include the specified ingredient.

The query requires the ingredient concept ID as the input. A list of these ingredient concepts can be extracted by querying the CONCEPT table for concept class of ‘Ingredient’

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Ingredient Concept ID | 966991 | Yes | Concept ID for ‘Simethicone’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all branded drugs that contain an ingredient the concept ID for which is entered as input. The input parameters are highlighted in blue.

SELECT A.concept\_id Ingredient\_concept\_id,

 A.concept\_name Ingredient\_concept\_name,

 A.concept\_code Ingredient\_concept\_code,

 A.concept\_class Ingredient\_concept\_class,

 D.concept\_id branded\_drug\_id,

 D.concept\_name branded\_drug\_name,

 D.concept\_code branded\_drug\_concept\_code,

 D.concept\_class branded\_drug\_concept\_class

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CA.ancestor\_concept\_id = **966991**

AND CA.ancestor\_concept\_id = A.concept\_id

AND CA.descendant\_concept\_id = D.concept\_id

AND lower(D.concept\_class) = 'branded drug'

AND **sysdate** BETWEEN A.valid\_start\_date AND A.valid\_end\_date

AND **sysdate** BETWEEN D.valid\_start\_date AND D.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient entered as input |
| Ingredient\_name | Name of the Ingredient |
| Ingredient\_Concept\_code | Concept code of the ingredient |
| Ingredient\_Concept\_class | Concept Class of the ingredient |
| Branded\_Drug\_ID | Concept ID of branded drug with the ingredient |
| Branded\_Drug\_Name | Name of branded drug concept with the ingredient |
| Branded\_Drug\_Concept\_Code | Concept code of the branded drug with the ingredient |
| Branded\_Drug\_Concept\_Class | Concept class of branded drug with the ingredient |

Sample output record 1: Single ingredient branded drug

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Branded\_Drug\_ID | 19132733 |
| Branded\_Drug\_Name | Simethicone 66.7 MG/ML Oral Suspension [Mylicon] |
| Branded\_Drug\_Concept\_Code | 809376 |
| Branded\_Drug\_Concept\_Class | Branded Drug |

Sample output record 2: Combination branded drug or pack

| **Field** | **Example** |
| --- | --- |
| Ingredient\_Concept\_ID | 966991 |
| Ingredient\_name | Simethicone |
| Ingredient\_Concept\_code | 9796 |
| Ingredient\_Concept\_class | Ingredient |
| Branded\_Drug\_ID | 993537 |
| Branded\_Drug\_Name | Aluminum Hydroxide 40 MG/ML / Magnesium Hydroxide 40 MG/ML / Simethicone 4 MG/ML Oral Suspension [Mylanta] |
| Branded\_Drug\_Concept\_Code | 351585 |
| Branded\_Drug\_Concept\_Class | Branded Drug |

## D7. Find single ingredient drugs by ingredient

This query accepts accepts an ingredient concept ID and returns all drugs which contain only one ingredient specified in the query. This query is useful when studying drug outcomes for ingredients where the outcome or drug-drug interaction effect of other ingredients needs to be avoided. Indications have to be provided as FDB (vocabulary\_id=19) or NDF-RT indications (vocabulary\_id=7).

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Ingredient Concept ID | 1000560 | Yes | Concept ID for ingredient ‘Ondansetron’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of the drugs associated with a single ingredient. The input parameters are highlighted in blue.

SELECT

 c.concept\_id as drug\_concept\_id,

 c.concept\_name as drug\_concept\_name,

 c.concept\_class as drug\_concept\_class

FROM vocabulary.concept c

INNER JOIN (

 SELECT drug.cid FROM (

 SELECT a.descendant\_concept\_id cid, count(\*) cnt FROM vocabulary.concept\_ancestor a

 INNER JOIN (

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.ancestor\_concept\_id = **1000560**

 AND a.descendant\_concept\_id = c.concept\_id AND c.vocabulary\_id=8

 ) cd ON cd.concept\_id = a.descendant\_concept\_id

 INNER JOIN vocabulary.concept c ON c.concept\_id=a.ancestor\_concept\_id

 WHERE c.concept\_level=2

 GROUP BY a.descendant\_concept\_id

 ) drug WHERE drug.cnt = 1 -- contains only 1 ingredient

) onesie ON onesie.cid = c.concept\_id

 WHERE **sysdate** between valid\_start\_date AND valid\_end\_date;

**Output:**

Output field list:

|  |  |
| --- | --- |
| **Field** | **Description** |
| Drug\_Concept\_ID | Concept ID of a drug |
| Drug\_Concept\_Name | Name of drug Concept  |
| Drug\_Concept\_Class | Concept Code of drug |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Drug\_Concept\_ID | 40227201 |
| Drug\_Concept\_Name | Ondansetron 0.16 MG/ML Injectable Solution |
| Drug\_Concept\_Class | Clinical Drug |

## D8. Find drug classes for a drug or ingredient

The query is designed to return the therapeutic classes that associated with a drug. The query accepts a standard drug concept ID (e.g. as identified from query G3) as the input. The drug concept can be a clinical or branded drug or pack (concept\_level=1), or an ingredient (concept\_level=2). The query returns one or more therapeutic classes associated with the drug based on the following classifications.).

* Enhanced Therapeutic Classification (ETC)
* Anatomical Therapeutic Chemical classification (ATC)
* NDF-RT Mechanism of Action (MoA)
* NDF-RT Physiologic effect
* NDF-RT Chemical structure
* VA Class

By default, the query returns therapeutic classes based on all the classification systems listed above. Additional clauses can be added to restrict the query to a single classification system.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Drug Concept ID | 1545999 | Yes | Concept Identifier from RxNorm for ‘atorvastatin 20 MG Oral Tablet [Lipitor]’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all therapeutic classes associated with a drug concept. The input parameters are highlighted in blue.

SELECT

 A.concept\_id Class\_Concept\_Id,

 A.concept\_name Class\_Name,

 A.concept\_code Class\_Code,

 A.concept\_class Classification,

 A.vocabulary\_id Class\_vocabulary\_id,

 V.vocabulary\_name Class\_vocabulary\_name,

 CA.min\_levels\_of\_separation Levels\_of\_Separation

FROM vocabulary.concept\_ancestor CA,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary V

WHERE CA.descendant\_concept\_id = D.concept\_id

AND CA.ancestor\_concept\_id = A.concept\_id

AND A.vocabulary\_id IN (7, 20, 21, 32) -- NDF-RT, FDB ETC, WHO ATC, VA Class

AND lower(A.concept\_class) IN (

 'anatomical therapeutic chemical classification',

 'enhanced therapeutic classification',

 'mechanism of action',

 'physiologic effect',

 'chemical structure',

 'va class'

)

AND A.vocabulary\_id = V.vocabulary\_id

AND d.concept\_id = **1545999**

AND **sysdate** BETWEEN a.valid\_start\_date AND a.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Class\_Concept\_ID | Concept ID of the therapeutic class |
| Class\_Name | Name of the therapeutic class |
| Class\_Code | Concept Code of therapeutic class |
| Classification | Concept class of therapeutic class |
| Class\_Vocabulary\_ID | Vocabulary the therapeutic class is derived from, expressed as vocabulary ID |
| Class\_Vocabulary\_Name | Name of the vocabulary the therapeutic class is derived from |
| Levels\_of\_Separation | Levels of separation between the drug concept and the therapeutic class. Important for hierarchic classification systems to identify classes and subclasses for the drug. |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Class\_Concept\_ID | 21500263 |
| Class\_Name | Antihyperlipidemics |
| Class\_Code | 263 |
| Classification | Enhanced Therapeutic Classification |
| Class\_Vocabulary\_ID | 20 |
| Class\_Vocabulary\_Name | ETC |
| Levels\_of\_Separation | 2 |

## D9. Find drugs by drug class

The query is designed to extract all drugs that belong to a therapeutic class. The query accepts a therapeutic class concept ID as the input and returns all drugs that are included under that class

Therapeutic classes could be obtained using query D2 and are derived from one of the following:

* Enhanced Therapeutic Classification (FDB ETC), VOCABULARY\_ID = 20.
* Anatomical Therapeutic Chemical classification (WHO ATC), VOCABULARY\_ID = 21.
	+ NDF-RT Mechanism of Action (MoA), Vocabulary ID = 7, Concept Class = ‘Mechanism of Action’
	+ NDF-RT Physiologic effect (PE), Vocabulary ID = 7, Concept Class = ‘Physiologic Effect’
	+ NDF-RT Chemical Structure, Vocabulary ID = 7, Concept Class = ‘Chemical Structure’
* VA Class, Vocabulary ID = 32

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Therapeutic Class Concept ID | 21506108 | Yes | Concept ID for ‘ACE Inhibitors and ACE Inhibitor Combinations’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of drugs that have a given therapeutic class, concept ID for which is entered as input. The input parameters are highlighted in blue.

SELECT C.concept\_id drug\_concept\_id,

 C.concept\_name drug\_concept\_name,

 C.concept\_class drug\_concept\_class,

 C.concept\_code drug\_concept\_code

FROM vocabulary.concept C,

 vocabulary.concept\_ancestor CA

WHERE CA.ancestor\_concept\_id = **21506108**

 AND C.concept\_id = CA.descendant\_concept\_id

 AND C.vocabulary\_id = 8

 AND C.concept\_level = 1

 AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date;

**Output:**

|  |  |
| --- | --- |
| **Field** | **Example** |
| Drug\_Concept\_ID | Concept ID of drug included in therapeutic class |
| Drug\_Concept\_Name | Name of drug concept included in therapeutic class |
| Drug\_Concept\_Class | Concept class of drug concept included in therapeutic class |
| Drug\_Concept\_Code | RxNorm source code of drug concept |

Sample output record: Option 1 (All standard Concept IDs in the therapeutic class)

| **Field** | **Example** |
| --- | --- |
| Drug\_Concept\_ID | 1308221 |
| Drug\_Concept\_Name | Lisinopril 40 MG Oral Tablet |
| Drug\_Concept\_Class | Clinical Drug |
| Drug\_Concept\_Code | 197884 |

## D10. Find ingredient by drug class

The query is designed to extract all drugs that belong to a therapeutic class. The query accepts a therapeutic class concept ID as the input and returns all drugs that are included under that class

Therapeutic classes could be obtained using query D2 and are derived from one of the following:

* Enhanced Therapeutic Classification (FDB ETC), VOCABULARY\_ID = 20.
* Anatomical Therapeutic Chemical classification (WHO ATC), VOCABULARY\_ID = 21.
	+ NDF-RT Mechanism of Action (MoA), Vocabulary ID = 7, Concept Class = ‘Mechanism of Action’
	+ NDF-RT Physiologic effect (PE), Vocabulary ID = 7, Concept Class = ‘Physiologic Effect’
	+ NDF-RT Chemical Structure, Vocabulary ID = 7, Concept Class = ‘Chemical Structure’
* VA Class, Vocabulary ID = 32

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Therapeutic Class Concept ID | 21506108 | Yes | Concept ID for ‘ACE Inhibitors and ACE Inhibitor Combinations’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of ingredients that belong to a given therapeutic class concept ID as input. The input parameters are highlighted in blue.

SELECT C.concept\_id ingredient\_concept\_id,

 C.concept\_name ingredient\_concept\_name,

 C.concept\_class ingredient\_concept\_class,

 C.concept\_code ingredient\_concept\_code

FROM vocabulary.concept C,

 vocabulary.concept\_ancestor CA

WHERE CA.ancestor\_concept\_id = **21506108**

 AND C.concept\_id = CA.descendant\_concept\_id

 AND C.vocabulary\_id = 8

 AND C.concept\_level = 2

 AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date;

**Output:**

|  |  |
| --- | --- |
| **Field** | **Example** |
| Ingredient\_Concept\_ID | Concept ID of ingredient included in therapeutic class |
| Ingredient\_Concept\_Name | Name of ingredient concept included in therapeutic class |
| Ingredient\_Concept\_Class | Concept class of ingredient concept included in therapeutic class |
| Ingredient\_Concept\_Code | RxNorm source code of ingredient concept |

Sample output record: Option 1 (All standard Concept IDs in the therapeutic class)

| **Field** | **Example** |
| --- | --- |
| Ingredient\_Concept\_ID | 1308216 |
| Ingredient\_Concept\_Name | Lisinopril |
| Ingredient\_Concept\_Class | Ingredient |
| Ingredient\_Concept\_Code | 29046 |

## D11. Find source codes by drug class

The query is designed to extract codes from a non-standard drug vocabulary that belong to a therapeutic class. The query accepts a therapeutic class concept ID and the vocabualry ID of the desired source vocabualry as input and returns all codes that are included under that class and that belong to a source vocabulary. This query could be used to derive e.g. all NDC codes that belong to a certain drug class.

Therapeutic classes could be obtained using query D2 and are derived from one of the following:

* Enhanced Therapeutic Classification (FDB ETC), VOCABULARY\_ID = 20.
* Anatomical Therapeutic Chemical classification (WHO ATC), VOCABULARY\_ID = 21.
	+ NDF-RT Mechanism of Action (MoA), Vocabulary ID = 7, Concept Class = ‘Mechanism of Action’
	+ NDF-RT Physiologic effect (PE), Vocabulary ID = 7, Concept Class = ‘Physiologic Effect’
	+ NDF-RT Chemical Structure, Vocabulary ID = 7, Concept Class = ‘Chemical Structure’
* VA Class, Vocabulary ID = 32

Drug source codes could be from one of the following:

* ICD-9-Procedure, vocabulary ID = 3
* CPT-4, vocabulary ID = 4
* NDC, vocabulary ID = 9
* Medi-Span GPI, vocabulary ID = 10
* Multum, vocabulary ID = 16
* FDB Multilex, vocabulary ID = 22
* VA Product, vocabulary ID = 28
* NLM MeSH, vocabulary ID = 46
* FDA SPL, vocabulary ID = 50
* FDB Genseqno, vocabulary ID = 53

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Therapeutic Class Concept ID | 21506108 | Yes | Concept ID for ‘ACE Inhibitors and ACE Inhibitor Combinations’ |
| Source Vocabulary Code | 9 | Yes | One of the above drug vocabulary codes |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of drugs that have a given therapeutic class, concept ID for which is entered as input. The input parameters are highlighted in blue.

SELECT M.source\_code,

 M.source\_vocabulary\_id,

 V.vocabulary\_name as source\_vocabulary\_name,

 M.source\_code\_description

FROM vocabulary.source\_to\_concept\_map M,

 vocabulary.concept\_ancestor CA,

 vocabulary.vocabulary V

WHERE CA.ancestor\_concept\_id = **21506108**

 AND CA.descendant\_concept\_id = M.target\_concept\_id

 AND M.source\_vocabulary\_id = **9**

 AND M.mapping\_type = 'DRUG'

 AND V.vocabulary\_id = M.source\_vocabulary\_id

 AND **sysdate** BETWEEN M.valid\_start\_date AND M.valid\_end\_date

**Output:**

|  |  |
| --- | --- |
| **Field** | **Example** |
| Source\_Code | Source code of drug in non-standard vocabulary (e.g. NDC code, FDA SPL number etc.) |
| Source\_Vocabulary\_ID | Vocabulary ID of source vocabulary |
| Source\_Vocabulary\_Name | Vocabulary name of source vocabulary |
| Source\_Code\_Description | Descriptiong of source code |

Sample output record: Option 1 (All standard Concept IDs in the therapeutic class)

|  |  |
| --- | --- |
| **Field** | **Example** |
| Source\_Code | 00003033805 |
| Source\_Vocabulary\_ID | 9 |
| Source\_Vocabulary\_Name | NDC |
| Source\_Code\_Description | Captopril 25 MG / Hydrochlorothiazide 15 MG Oral Tablet |

## D12. Find indications for a drug

The query is designed to extract indications associated with a drug. The query accepts a standard drug concept ID (e.g. as identified from query G3) as the input and returns all available indications associated with the drug.

The vocabulary includes indications available from more than one source vocabulary:

* First Data Bank (FDB), defined mostly for clinical drug concepts
* NDF-RT defined mostly for ingredients

FDB also distinguishes indications based on their presence in the drug label (or package insert) as FDA approved or off-label. NDF-RT distinguishes between treatment or prevention indication. The segmentation is preserved in the vocabulary through separate concept relationships. The various segments and the associated concept relationships are as follows:

* FDB FDA approved drug indication (based on concept relationship 126: ‘FDB FDA approved drug indication’)
* FDB off-label drug indication (based on concept relationship 127: ‘FDB off-label drug indication’)
* NDFRT May Treat (based on concept relationship 21: ‘May Treat’)
* NDFRT May Prevent (based on concept relationship 23: ‘May Prevent)

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Drug Concept ID | 19005968 | Yes | Drugs concepts from RxNorm with a concept class of ‘Clinical drug or pack’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all indications associated with a drug concept. The input parameters are highlighted in blue.

SELECT

 r.relationship\_name as type\_of\_indication,

 c.concept\_id as indication\_concept\_id,

 c.concept\_name as indication\_concept\_name,

 c.vocabulary\_id as indication\_vocabulary\_id,

 vn.vocabulary\_name as indication\_vocabulary\_name

FROM vocabulary.concept c, vocabulary.vocabulary vn, vocabulary.relationship r,

 (

 -- collect all indications from the drugs, ingredients and pharmaceutical preps and the type of relationship

 SELECT DISTINCT r.relationship\_id rid, r.concept\_id\_2 cid

 FROM vocabulary.concept c INNER JOIN

 (

 -- collect onesie clinical and branded drug if query is ingredient

 SELECT onesie.cid concept\_id FROM

 (

 SELECT a.descendant\_concept\_id cid, count(\*) cnt FROM vocabulary.concept\_ancestor a

 INNER JOIN

 (

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.ancestor\_concept\_id=**19005968** AND a.descendant\_concept\_id=c.concept\_id AND c.vocabulary\_id=8

 ) cd on cd.concept\_id=a.descendant\_concept\_id

 INNER JOIN vocabulary.concept c on c.concept\_id=a.ancestor\_concept\_id

 WHERE c.concept\_level=2

 GROUP BY a.descendant\_concept\_id

 ) onesie where onesie.cnt=1

 union

 -- collect ingredient if query is clinical and branded drug

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.descendant\_concept\_id=**19005968** AND a.ancestor\_concept\_id=c.concept\_id AND c.vocabulary\_id=8

 union

 -- collect pharmaceutical preparation equivalent to which NDFRT has reltionship

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.descendant\_concept\_id=**19005968** AND a.ancestor\_concept\_id=c.concept\_id AND lower(c.concept\_class)='pharmaceutical preparations'

 union

 -- collect itself

 SELECT **19005968** FROM dual

 ) drug on drug.concept\_id=c.concept\_id

 INNER JOIN vocabulary.concept\_relationship r on c.concept\_id=r.concept\_id\_1

 -- allow only indication relationships

 WHERE r.relationship\_id IN (21,23,155,156,126,127,240,241)

) ind

WHERE ind.cid=c.concept\_id AND r.relationship\_id=ind.rid AND vn.vocabulary\_id=c.vocabulary\_id

AND **sysdate** BETWEEN c.valid\_start\_date AND c.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Type\_of\_Indication | Type of indication, indicating one of the following:* FDA approved/off-label indication
* Treatment/prevention indication
 |
| Indication\_Concept\_ID | Concept ID of the therapeutic class |
| Indication\\_Concept\_Name | Name of the Indication concept |
| Indication\_Vocabulary\_ID | Vocabulary the indication is derived from, expressed as vocabulary ID |
| Indication\_Vocabulary\_Name | Name of the vocabulary the indication is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Type\_of\_Indication | Has FDA-approved drug indication (FDB) |
| Indication\_Concept\_ID | 21003511 |
| Indication\_Concept\_name | Cancer Chemotherapy-Induced Nausea and Vomiting |
| Indication\_Vocabulary\_ID | 19 |
| Indication\_Vocabulary\_Name | FDB Indication |

## D13. Find indications as condition concepts for a drug

This query accepts a mapped drug code instead of a standard drug concept ID as the input. The result set from the returns detailed of indications associated with the drug.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 19005968 | Yes | Drugs concepts from RxNorm with a concept class of ‘Branded Drug’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all indications associated with a drug concept. The input parameters are highlighted in blue.

SELECT DISTINCT

 rn.relationship\_name as type\_of\_indication,

 c.concept\_id as indication\_concept\_id,

 c.concept\_name as indication\_concept\_name,

 c.vocabulary\_id as indication\_vocabulary\_id,

 vn.vocabulary\_name as indication\_vocabulary\_name

FROM vocabulary.concept c, vocabulary.vocabulary vn, vocabulary.relationship rn, (

 -- collect all indications FROM the drugs, ingredients / pharmaceutical preps AND the type of relationship

 SELECT DISTINCT r.relationship\_id rid, r.concept\_id\_2 cid

 FROM vocabulary.concept c INNER JOIN (

 -- collect onesie clinical AND branded drug if query is ingredient

 SELECT onesie.cid concept\_id FROM (

 SELECT a.descendant\_concept\_id cid, count(\*) cnt FROM vocabulary.concept\_ancestor a

 INNER JOIN (

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.ancestor\_concept\_id=**19005968** AND a.descendant\_concept\_id=c.concept\_id AND c.vocabulary\_id=8

 ) cd on cd.concept\_id=a.descendant\_concept\_id

 INNER JOIN vocabulary.concept c on c.concept\_id=a.ancestor\_concept\_id

 WHERE c.concept\_level=2

 GROUP BY a.descendant\_concept\_id

 ) onesie WHERE onesie.cnt=1

 union

 -- collect ingredient if query is clinical AND branded drug

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.descendant\_concept\_id=**19005968** AND a.ancestor\_concept\_id=c.concept\_id AND c.vocabulary\_id=8

 union

 -- collect pharmaceutical preparation equivalent to which NDFRT has reltionship

 SELECT c.concept\_id FROM vocabulary.concept c, vocabulary.concept\_ancestor a

 WHERE a.descendant\_concept\_id=**19005968** AND a.ancestor\_concept\_id=c.concept\_id AND lower(c.concept\_class)='pharmaceutical preparations'

 union

 -- collect itself

 SELECT **19005968** FROM dual

 ) drug on drug.concept\_id=c.concept\_id

 INNER JOIN vocabulary.concept\_relationship r on c.concept\_id=r.concept\_id\_1

 -- allow only indication relationships

 WHERE r.relationship\_id in (21,23,155,156,126,127,240,241)

) ind

INNER JOIN vocabulary.concept\_relationship r on r.concept\_id\_1=ind.cid

WHERE r.concept\_id\_2=c.concept\_id AND r.relationship\_id in (247, 248)

AND ind.rid=rn.relationship\_id AND vn.vocabulary\_id=c.vocabulary\_id

AND **sysdate** BETWEEN c.valid\_start\_date AND c.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Type\_of\_Indication | Type of indication, indicating one of the following:* FDA approved/off-label indication
* Treatment/prevention indication
 |
| Indication\_Concept\_ID | Concept ID of the therapeutic class |
| Indication\_Concept\_name | Name of the Indication concept |
| Indication\_Vocabulary\_ID | Vocabulary the indication is derived from, expressed as vocabulary ID |
| Indication\_Vocabulary\_Name | Name of the vocabulary the indication is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Type\_of\_Indication | Has FDA-approved drug indication (FDB) |
| Indication\_Concept\_ID | 27674 |
| Indication\_Concept\_name | N&V - Nausea and vomiting |
| Indication\_Vocabulary\_ID | 1 |
| Indication\_Vocabulary\_Name | SNOMED-CT |

## D14. Find drugs for an indication

This query provides all clinical or branded drugs that are indicated for a certain indication. Indications have to be given as FDB indications (vocabulary\_id=19) or NDF-RT indications (vocabulary\_id=7). Indications can be identified using the generic query G3, or, if at least one drug is known for this indication, query D4.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Indication Concept ID | 21000039 | Yes | FDB indication concept ID |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all drugs associated with an indication. The necessary parameter substitution is highlighted in blue

SELECT

 drug.concept\_id as drug\_concept\_id,

 drug.concept\_name as drug\_concept\_name,

 drug.concept\_code as drug\_concept\_code

FROM vocabulary.concept drug,

 vocabulary.concept\_ancestor a

WHERE a.ancestor\_concept\_id=**21000039**

AND a.descendant\_concept\_id=drug.concept\_id

AND drug.concept\_level=1

AND drug.vocabulary\_id=8

AND **sysdate** BETWEEN drug.valid\_start\_date AND drug.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of the drug |
| Drug\_Concept\_Name | Name of the drug |
| Drug\_Concept\_Code | Concept code of the drug |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 1710446 |
| Drug\_Concept\_Name | Cycloserine |
| Drug\_Concept\_Code | 3007 |

## D15. Find drugs for an indication provided as condition concepts

This query provides all clinical/branded drugs that are indicated for a certain indication. Indications have to be provided as SNOMED-CT concept (vocabulary\_id=1).

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Indication Concept ID | 253954 | Yes | SNOMED-CT indication concept ID |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all drugs associated with SNOMED-CT indication. The necessary parameter substitution is highlighted in blue

SELECT DISTINCT

 drug.concept\_id as drug\_concept\_id,

 drug.concept\_name as drug\_concept\_name,

 drug.concept\_code as drug\_concept\_code

FROM vocabulary.concept drug,

 vocabulary.concept\_ancestor snomed,

 vocabulary.concept\_ancestor ind,

 vocabulary.concept\_relationship r

WHERE snomed.ancestor\_concept\_id = **253954**

AND snomed.descendant\_concept\_id=r.concept\_id\_1

AND concept\_id\_2 = ind.ancestor\_concept\_id

AND r.relationship\_id in (247, 248)

AND ind.descendant\_concept\_id=drug.concept\_id

AND drug.concept\_level = 1

AND drug.vocabulary\_id = 8

AND **sysdate** BETWEEN drug.valid\_start\_date AND drug.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of the drug |
| Drug\_Concept\_Name | Name of the drug |
| Drug\_Concept\_Code | Concept code of the drug |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 19073074 |
| Drug\_Concept\_Name | Aminosalicylic Acid 500 MG Oral Tablet |
| Drug\_Concept\_Code | 308122 |

## D16. Find drugs for an indication by indication type

This query provides all drugs that are indicated for a certain condition. In addition, it provides the type of indication: FDA-approved, off-label (both based on FDB indication classes) and may treat and may prevent (both based on NDF-RT). Indications have to be provided as FDB indications (vocabulary\_id=19) or NDF-RT (vocabulary\_id=7).

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Indication Concept ID | 4345991 | Yes | FDB indication concept for 'Vomiting' |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all drugs associated with an indication. The necessary parameter substitution is highlighted in blue

SELECT DISTINCT

 drug.concept\_id as drug\_concept\_id,

 drug.concept\_name as drug\_concept\_name,

 drug.concept\_code as drug\_concept\_code,

 rn.relationship\_name as indication\_type,

 indication\_relation.relationship\_id

FROM

 vocabulary.concept\_relationship indication\_relation

INNER JOIN vocabulary.concept\_ancestor a

 ON a.ancestor\_concept\_id=indication\_relation.concept\_id\_2

INNER JOIN vocabulary.concept drug

 ON drug.concept\_id=a.descendant\_concept\_id

INNER JOIN vocabulary.relationship rn

 ON rn.relationship\_id=indication\_relation.relationship\_id

WHERE indication\_relation.concept\_id\_1 = **4345991**

 AND drug.vocabulary\_id = 8

 AND drug.concept\_level = 1

 AND indication\_relation.relationship\_id in (21,23,155,157,126,127,240,241,281,282)

 AND **sysdate** BETWEEN drug.valid\_start\_date AND drug.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of the drug |
| Drug\_Concept\_Name | Name of the drug |
| Drug\_Concept\_Code | Concept code of the drug |
| Indication\_Type | One of the FDB, NDF-RT or OMOP inferred indication types |
| Relationship\_id | Corresponding relationship ID to the Indication Type |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 19019530 |
| Drug\_Concept\_Name | Perphenazine 4 MG Oral Tablet |
| Drug\_Concept\_Code | 198077 |
| Indication\_Type | Inferred ingredient of (OMOP) |
| Relationship\_Id | 281 |

## D17. Find ingredients for an indication

This query provides ingredients that are indicated for a certain indication. Indications have to be given as FDB indications (vocabulary\_id=19) or NDF-RT indications (vocabulary\_id=7). Indications can be identified using the generic query G3, or, if at least one drug is known for this indication, query D4.

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Indication Concept ID | 4345991 | Yes | FDB indication concept for Vomiting' |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all drugs associated with an indication. The necessary parameter substitution is highlighted in blue

SELECT

 ingredient.concept\_id as ingredient\_concept\_id,

 ingredient.concept\_name as ingredient\_concept\_name,

 ingredient.concept\_code as ingredient\_concept\_code

FROM vocabulary.concept ingredient,

 vocabulary.concept\_ancestor a

WHERE a.ancestor\_concept\_id = **4345991**

AND a.descendant\_concept\_id = ingredient.concept\_id

AND ingredient.concept\_level = 2

AND ingredient.vocabulary\_id = 8

AND **sysdate** BETWEEN ingredient.valid\_start\_date AND ingredient.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient |
| Ingredient \_Concept\_Name | Name of the ingredient |
| Ingredient \_Concept\_Code | Concept code of the ingredient |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 733008 |
| Ingredient \_Concept\_Name | Perphenazine |
| Ingredient \_Concept\_Code | 8076 |

## D18. Find ingredients for an indication provided as condition concept

This query provides all ingredients that are indicated for a certain indication. Indications have to be provided as SNOMED-CT concept ID (vocabulary\_id=1).

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Indication Concept ID | 253954 | Yes | SNOMED-CT indication concept ID |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all ingredients associated with SNOMED-CT-based conditions as indication. The necessary parameter substitution is highlighted in blue

SELECT DISTINCT

 ingredient.concept\_id as ingredient\_concept\_id,

 ingredient.concept\_name as ingredient\_concept\_name,

 ingredient.concept\_code as ingredient\_concept\_code

FROM vocabulary.concept ingredient,

 vocabulary.concept\_ancestor snomed,

 vocabulary.concept\_ancestor ind,

 vocabulary.concept\_relationship r

WHERE snomed.ancestor\_concept\_id = **253954**

 AND snomed.descendant\_concept\_id = r.concept\_id\_1

 AND concept\_id\_2 = ind.ancestor\_concept\_id

 AND r.relationship\_id in (247, 248)

 AND ind.descendant\_concept\_id = ingredient.concept\_id

 AND ingredient.concept\_level = 2

 AND ingredient.vocabulary\_id = 8

 AND **sysdate** BETWEEN ingredient.valid\_start\_date AND ingredient.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient |
| Ingredient\_Concept\_Name | Name of the ingredient |
| Ingredient\_Concept\_Code | Concept code of the ingredient |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 1790868 |
| Ingredient\_Concept\_Name | Amikacin |
| Ingredient\_Concept\_Code | 641 |

## D19. Find ingredients for an indication by indication type

This query provides all ingredients that are indicated for a certain condition. In addition, it provides the type of indication: FDA-approved, off-label (both based on FDB indication classes) and may treat and may prevent (both based on NDF-RT). Indications have to be provided as FDB indications (vocabulary\_id=19) or NDF-RT (vocabulary\_id=7).

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Indication Concept ID | 4345991 | Yes | FDB indication concept for 'Vomiting' |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all drugs associated with an indication. The necessary parameter substitution is highlighted in blue

SELECT DISTINCT

 ingredient.concept\_id as ingredient\_concept\_id,

 ingredient.concept\_name as ingredient\_concept\_name,

 ingredient.concept\_code as ingredient\_concept\_code,

 rn.relationship\_name as indication\_type,

 indication\_relation.relationship\_id

FROM

 vocabulary.concept\_relationship indication\_relation

INNER JOIN vocabulary.concept\_ancestor a

 ON a.ancestor\_concept\_id=indication\_relation.concept\_id\_2

INNER JOIN vocabulary.concept ingredient

 ON ingredient.concept\_id=a.descendant\_concept\_id

INNER JOIN vocabulary.relationship rn

 ON rn.relationship\_id=indication\_relation.relationship\_id

WHERE indication\_relation.concept\_id\_1 = **4345991**

 AND ingredient.vocabulary\_id = 8

 AND ingredient.concept\_level = 2

 AND indication\_relation.relationship\_id in (21,23,155,157,126,127,240,241,281,282)

 AND **sysdate** BETWEEN ingredient.valid\_start\_date AND ingredient.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Ingredient\_Concept\_ID | Concept ID of the ingredient |
| Ingredient \_Concept\_Name | Name of the ingredient |
| Ingredient \_Concept\_Code | Concept code of the ingredient |
| Indication\_Type | One of the FDB, NDF-RT or OMOP inferred indication types |
| Relationship\_id | Corresponding relationship ID to the Indication Type |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Ingredient\_Concept\_ID | 733008 |
| Ingredient \_Concept\_Name | Perphenazine |
| Ingredient \_Concept\_Code | 8076 |
| Indication\_Type | Inferred ingredient of (OMOP) |
| Relationship\_Id | 281 |

## D20. Find dose form of a drug

The query accepts concept IDs for a drug product (clinical or branded drug or pack) and identifies the dose form. The query relies on RxNorm concept relationship (4 – ‘Has dose form (RxNorm)’) for this.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Drug Concept ID | 19060647 | Yes | Must be a level 1 Clinical or Branded Drug or Pack |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample query. The input parameters are highlighted in blue.

SELECT A.concept\_id drug\_concept\_id,

 A.concept\_name drug\_concept\_name,

 A.concept\_code drug\_concept\_code,

 D.concept\_id dose\_form\_concept\_id,

 D.concept\_name dose\_form\_concept\_name,

 D.concept\_code dose\_form\_concept\_code

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CR.concept\_id\_1 = **19060647**

AND CR.relationship\_ID = 4

AND CR.concept\_id\_1 = A.concept\_id

AND CR.concept\_id\_2 = D.concept\_id

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug entered with specified dose form |
| Drug\_Name | Name of drug with specified dose form |
| Drug\_Concept\_Code | Concept code of drug with specified dose form |
| Dose\_Form\_Concept\_ID | Concept ID of the dose form |
| Dose\_Form\_Concept\_name | Name of the dose form |
| Dose\_Form\_Concept\_code | Concept code of dose form |

Sample output record:

| **Field** | **Example** |
| --- | --- |
| Drug\_Concept\_ID | 19060647 |
| Drug\_Name | Budesonide 0.2 MG/ACTUAT Inhalant Powder |
| Drug\_Concept\_Code | 247047 |
| Dose\_form\_Concept\_ID | 19082259 |
| Dose\_form\_Concept\_name | Inhalant Powder |
| Dose\_form\_Concept\_code | 317000 |

## D21. Find route of administration of a drug

The query accepts concept IDs for a drug product (clinical or branded drug or pack) and identifies the route of administration of the dose form. The following routes of administration are defined:

* Inhaled
* Intrathecal
* Nasal
* Ophthalmic
* Oral
* Unknown (can't be defined from the dose form)
* Otic
* Parenteral
* Rectal
* Topical
* Urethral
* Vaginal

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Drug Concept ID | 19060647 | Yes | Must be a level 1 Clinical or Branded Drug or Pack |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample query. The input parameters are highlighted in blue.

SELECT A.concept\_id drug\_concept\_id,

 A.concept\_name drug\_concept\_name,

 A.concept\_code drug\_concept\_code,

 D.concept\_name dose\_form\_concept\_name,

 (CASE d.concept\_id

 WHEN 19095898 THEN 'Inhaled'

 WHEN 19126918 THEN 'Inhaled'

 WHEN 19082258 THEN 'Inhaled'

 WHEN 19082259 THEN 'Inhaled'

 WHEN 19126919 THEN 'Inhaled'

 WHEN 19127579 THEN 'Inhaled'

 WHEN 19018195 THEN 'Inhaled'

 WHEN 19082260 THEN 'Intrathecal'

 WHEN 19011167 THEN 'Nasal'

 WHEN 19082165 THEN 'Nasal'

 WHEN 19082163 THEN 'Nasal'

 WHEN 19082164 THEN 'Nasal'

 WHEN 19095977 THEN 'Nasal'

 WHEN 19082161 THEN 'Nasal'

 WHEN 19129634 THEN 'Ophthalmic'

 WHEN 19135925 THEN 'Ophthalmic'

 WHEN 19082167 THEN 'Ophthalmic'

 WHEN 19082166 THEN 'Ophthalmic'

 WHEN 19059413 THEN 'Ophthalmic'

 WHEN 19082576 THEN 'Ophthalmic'

 WHEN 19082573 THEN 'Oral'

 WHEN 19082170 THEN 'Oral'

 WHEN 19082168 THEN 'Oral'

 WHEN 19082079 THEN 'Oral'

 WHEN 19082077 THEN 'Oral'

 WHEN 19082191 THEN 'Oral'

 WHEN 19082223 THEN 'Oral'

 WHEN 19135866 THEN 'Oral'

 WHEN 19082048 THEN 'Oral'

 WHEN 19001949 THEN 'Oral'

 WHEN 19082253 THEN 'Oral'

 WHEN 19018708 THEN 'Oral'

 WHEN 19082076 THEN 'Oral'

 WHEN 19082285 THEN 'Oral'

 WHEN 19082255 THEN 'Oral'

 WHEN 19082080 THEN 'Oral'

 WHEN 19103220 THEN 'Oral'

 WHEN 19095916 THEN 'Oral'

 WHEN 19082050 THEN 'Oral'

 WHEN 40001732 THEN 'Oral'

 WHEN 19082256 THEN 'Oral'

 WHEN 19095976 THEN 'Oral'

 WHEN 19095911 THEN 'Oral'

 WHEN 19126316 THEN 'Oral'

 WHEN 19082281 THEN 'Oral'

 WHEN 19082257 THEN 'Oral'

 WHEN 19095918 THEN 'Oral'

 WHEN 40175589 THEN 'Oral'

 WHEN 19082169 THEN 'Oral'

 WHEN 40227830 THEN 'Oral'

 WHEN 19082074 THEN 'Oral'

 WHEN 19082078 THEN 'Oral'

 WHEN 40166959 THEN 'Oral'

 WHEN 19095971 THEN 'Oral'

 WHEN 19082075 THEN 'Oral'

 WHEN 19135868 THEN 'Oral'

 WHEN 40164192 THEN 'Oral'

 WHEN 19021887 THEN 'Oral'

 WHEN 19082675 THEN 'Oral'

 WHEN 19001943 THEN 'Oral'

 WHEN 19127776 THEN 'Unknown'

 WHEN 19129139 THEN 'Unknown'

 WHEN 19082651 THEN 'Unknown'

 WHEN 19102296 THEN 'Unknown'

 WHEN 19082251 THEN 'Unknown'

 WHEN 19082652 THEN 'Unknown'

 WHEN 19135790 THEN 'Unknown'

 WHEN 19111148 THEN 'Unknown'

 WHEN 19111276 THEN 'Unknown'

 WHEN 19082254 THEN 'Unknown'

 WHEN 19082628 THEN 'Unknown'

 WHEN 19130329 THEN 'Unknown'

 WHEN 19001144 THEN 'Unknown'

 WHEN 19135843 THEN 'Unknown'

 WHEN 19082101 THEN 'Unknown'

 WHEN 19082630 THEN 'Unknown'

 WHEN 19082195 THEN 'Otic'

 WHEN 19082196 THEN 'Otic'

 WHEN 19082194 THEN 'Otic'

 WHEN 19082193 THEN 'Otic'

 WHEN 19082103 THEN 'Parenteral'

 WHEN 19126920 THEN 'Parenteral'

 WHEN 19082104 THEN 'Parenteral'

 WHEN 19082071 THEN 'Parenteral'

 WHEN 19082073 THEN 'Parenteral'

 WHEN 19082105 THEN 'Parenteral'

 WHEN 40033316 THEN 'Parenteral'

 WHEN 19082252 THEN 'Parenteral'

 WHEN 19082072 THEN 'Parenteral'

 WHEN 19082049 THEN 'Parenteral'

 WHEN 19082106 THEN 'Parenteral'

 WHEN 19082229 THEN 'Parenteral'

 WHEN 19082701 THEN 'Parenteral'

 WHEN 19082283 THEN 'Rectal'

 WHEN 19082200 THEN 'Rectal'

 WHEN 19082627 THEN 'Rectal'

 WHEN 19082197 THEN 'Rectal'

 WHEN 19082282 THEN 'Rectal'

 WHEN 19124968 THEN 'Rectal'

 WHEN 19095917 THEN 'Rectal'

 WHEN 19082574 THEN 'Rectal'

 WHEN 19082162 THEN 'Rectal'

 WHEN 19082221 THEN 'Rectal'

 WHEN 19082199 THEN 'Rectal'

 WHEN 19000942 THEN 'Rectal'

 WHEN 19082198 THEN 'Rectal'

 WHEN 19082224 THEN 'Topical'

 WHEN 19082228 THEN 'Topical'

 WHEN 19082227 THEN 'Topical'

 WHEN 19095973 THEN 'Topical'

 WHEN 19082225 THEN 'Topical'

 WHEN 19095912 THEN 'Topical'

 WHEN 19008697 THEN 'Topical'

 WHEN 19082109 THEN 'Topical'

 WHEN 19130307 THEN 'Topical'

 WHEN 19095972 THEN 'Topical'

 WHEN 19082286 THEN 'Topical'

 WHEN 19126590 THEN 'Topical'

 WHEN 19009068 THEN 'Topical'

 WHEN 19016586 THEN 'Topical'

 WHEN 19082110 THEN 'Topical'

 WHEN 19082108 THEN 'Topical'

 WHEN 19102295 THEN 'Topical'

 WHEN 19095900 THEN 'Topical'

 WHEN 19082226 THEN 'Topical'

 WHEN 19057400 THEN 'Topical'

 WHEN 19112648 THEN 'Topical'

 WHEN 19082222 THEN 'Topical'

 WHEN 19095975 THEN 'Topical'

 WHEN 40227748 THEN 'Topical'

 WHEN 19135439 THEN 'Topical'

 WHEN 19135438 THEN 'Topical'

 WHEN 19135440 THEN 'Topical'

 WHEN 19135446 THEN 'Topical'

 WHEN 19082107 THEN 'Topical'

 WHEN 19082575 THEN 'urethral'

 WHEN 19095974 THEN 'urethral'

 WHEN 19010880 THEN 'Vaginal'

 WHEN 19010962 THEN 'Vaginal'

 WHEN 19010878 THEN 'Vaginal'

 WHEN 19093368 THEN 'Vaginal'

 WHEN 19010879 THEN 'Vaginal'

 WHEN 40167393 THEN 'Vaginal'

 WHEN 19135437 THEN 'Vaginal'

 WHEN 19082287 THEN 'Vaginal'

 END

 ) Route\_of\_Administration

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D

WHERE CR.concept\_id\_1 = **19060647**

AND CR.relationship\_ID = 4

AND CR.concept\_id\_1 = A.concept\_id

AND CR.concept\_id\_2 = D.concept\_id

AND **sysdate** BETWEEN CR.valid\_start\_date AND CR.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug entered with specified dose form |
| Drug\_Name | Name of drug with specified dose form |
| Drug\_Concept\_Code | Concept code of drug with specified dose form |
| Dose\_Form\_Concept\_name | Name of the dose form |
| Route\_Of\_Administration | Derived route of administration for the drug |

Sample output record:

| **Field** | **Example** |
| --- | --- |
| Drug\_Concept\_ID | 19060647 |
| Drug\_Name | Budesonide 0.2 MG/ACTUAT Inhalant Powder |
| Drug\_Concept\_Code | 247047 |
| Dose\_form\_Concept\_name | Inhalant Powder |
| Route\_Of\_Administration | Inhaled |

## D22. Find drugs by class and dose form

The query is designed to return a list of drug concept IDs that belong to a drug class and are of a certain dose form. The query ties together

* Concept ancestor data to link drug concepts to therapeutic class
* RxNorm concept relationship 4 - ‘Has dose form (RxNorm)

The results are combined to present a list of drugs from a specific therapeutic class with a specific dose form.

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Therapeutic class Concept ID | 4318008 | Yes | Concept ID for mechanism of action “Corticosteroid Hormone Receptor Agonists”. Valid drug classes can be obtained using query D2. |
| Dose Form String | ‘Nasal spray’ | Yes | Dose form string. Valid dose forms can be obtained using query D19. |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of drugs of a specific therapeutic class and specific dose form entered as input. The input parameters are highlighted in blue.

SELECT C.concept\_id drug\_concept\_id,

 C.concept\_name drug\_concept\_name,

 C.concept\_code drug\_concept\_code

FROM vocabulary.concept C,

 vocabulary.concept\_ancestor CA,

 vocabulary.concept\_relationship CRF,

 vocabulary.concept F

WHERE CA.ancestor\_concept\_id = **4318008**

 AND C.concept\_id = CA.descendant\_concept\_id

 AND C.vocabulary\_id = 8

 AND C.concept\_level = 1

 AND CRF.concept\_id\_1 = C.concept\_id

 AND CRF.relationship\_ID = 4

 AND CRF.concept\_id\_2 = F.concept\_id

 AND INSTR(LOWER(REPLACE(REPLACE(F.concept\_name, ' ', ''), '-')),

 LOWER(REPLACE(REPLACE('**Nasal spray**', ' ', ''), '-')),

 1, 1) > 0

 AND **sysdate** BETWEEN CRF.valid\_start\_date AND CRF.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug with specified therapeutic class and dose form |
| Drug\_Name | Name of drug with specified therapeutic class and dose form |
| Drug\_Concept\_Code | Source code of drug  |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 904131 |
| Drug\_Name | Triamcinolone 0.055 MG/ACTUAT Nasal Spray |
| Drug\_Concept\_Code | 245785 |

## D23. Find drugs by class and route of administration

The query is designed to return a list of drug concept IDs that belong to a drug class and require a certian route of administration. For example, it can be used to find all steroid drugs used intravaginally. The query ties together

* Concept ancestor data to link drug concepts to therapeutic class
* RxNorm concept relationship 4 - ‘Has dose form (RxNorm)
* Dose form to route of administration list

The results are combined to present a list of drugs from a specific therapeutic class with a specific route of administration. Permissible routes are:

* Inhaled
* Intrathecal
* Nasal
* Ophthalmic
* Oral
* Unknown (can't be defined from the dose form)
* Otic
* Parenteral
* Rectal
* Topical
* Urethral
* Vaginal

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Therapeutic class Concept ID | 4318008 | Yes | Concept ID for mechanism of action “Corticosteroid Hormone Receptor Agonists”. Valid drug classes can be obtained using query D2. |
| Dose Form String | ‘vaginal' | Yes | Route of administration string. |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract list of drugs of a specific therapeutic class and specific dose form entered as input. The input parameters are highlighted in blue.

SELECT C.concept\_id drug\_concept\_id,

 C.concept\_name drug\_concept\_name,

 C.concept\_code drug\_concept\_code

FROM vocabulary.concept C,

 vocabulary.concept\_ancestor CA,

 vocabulary.concept\_relationship CRF,

 vocabulary.concept F,

 (

 SELECT 19095898 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19126918 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19082258 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19082259 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19126919 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19127579 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19018195 AS formid, 'Inhaled' AS route FROM dual UNION

 SELECT 19082260 AS formid, 'Intrathecal' AS route FROM dual UNION

 SELECT 19011167 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19082165 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19082163 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19082164 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19095977 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19082161 AS formid, 'Nasal' AS route FROM dual UNION

 SELECT 19129634 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19135925 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19082167 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19082166 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19059413 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19082576 AS formid, 'Ophthalmic' AS route FROM dual UNION

 SELECT 19082573 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082170 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082168 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082079 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082077 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082191 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082223 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19135866 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082048 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19001949 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082253 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19018708 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082076 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082285 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082255 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082080 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19103220 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19095916 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082050 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 40001732 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082256 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19095976 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19095911 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19126316 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082281 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082257 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19095918 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 40175589 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082169 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 40227830 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082074 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082078 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 40166959 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19095971 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082075 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19135868 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 40164192 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19021887 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19082675 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19001943 AS formid, 'Oral' AS route FROM dual UNION

 SELECT 19127776 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19129139 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082651 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19102296 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082251 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082652 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19135790 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19111148 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19111276 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082254 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082628 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19130329 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19001144 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19135843 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082101 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082630 AS formid, 'Other' AS route FROM dual UNION

 SELECT 19082195 AS formid, 'Otic' AS route FROM dual UNION

 SELECT 19082196 AS formid, 'Otic' AS route FROM dual UNION

 SELECT 19082194 AS formid, 'Otic' AS route FROM dual UNION

 SELECT 19082193 AS formid, 'Otic' AS route FROM dual UNION

 SELECT 19082103 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19126920 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082104 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082071 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082073 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082105 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 40033316 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082252 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082072 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082049 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082106 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082229 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082701 AS formid, 'Parenteral' AS route FROM dual UNION

 SELECT 19082283 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082200 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082627 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082197 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082282 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19124968 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19095917 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082574 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082162 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082221 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082199 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19000942 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082198 AS formid, 'Rectal' AS route FROM dual UNION

 SELECT 19082224 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082228 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082227 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19095973 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082225 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19095912 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19008697 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082109 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19130307 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19095972 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082286 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19126590 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19009068 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19016586 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082110 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082108 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19102295 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19095900 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082226 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19057400 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19112648 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082222 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19095975 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 40227748 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19135439 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19135438 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19135440 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19135446 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082107 AS formid, 'Topical' AS route FROM dual UNION

 SELECT 19082575 AS formid, 'urethral' AS route FROM dual UNION

 SELECT 19095974 AS formid, 'urethral' AS route FROM dual UNION

 SELECT 19010880 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19010962 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19010878 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19093368 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19010879 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 40167393 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19135437 AS formid, 'Vaginal' AS route FROM dual UNION

 SELECT 19082287 AS formid, 'Vaginal' AS route FROM dual) routead

WHERE CA.ancestor\_concept\_id = **4318008**

 AND C.concept\_id = CA.descendant\_concept\_id

 AND C.vocabulary\_id = 8

 AND C.concept\_level = 1

 AND CRF.concept\_id\_1 = C.concept\_id

 AND CRF.relationship\_ID = 4

 AND CRF.concept\_id\_2 = F.concept\_id

 AND F.concept\_id=routead.formid

 AND INSTR(LOWER(REPLACE(REPLACE(routead.route, ' ', ''), '-')),

 LOWER(REPLACE(REPLACE('**vaginal**', ' ', ''), '-')),

 1, 1) > 0

 AND **sysdate** BETWEEN CRF.valid\_start\_date AND CRF.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug with specified therapeutic class and dose form |
| Drug\_Name | Name of drug with specified therapeutic class and dose form |
| Drug\_Concept\_Code | Source code of drug  |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 40230686 |
| Drug\_Name | hydrocortisone acetate 10 MG/ML Vaginal Cream |
| Drug\_Concept\_Code | 1039349 |

## D24. Find the branded drugs in a list of drugs

The query is designed to identify branded drug concepts from a list of standard drug concept IDs. The query identifies branded drugs from the Concept table based on a concept class setting of ‘Branded Drug’

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Drug Concept ID list | 1516830, 19060643 | Yes | List of drug concept id’s |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract branded drugs from a list of drug concepts entered as input. The input parameters are highlighted in blue.

SELECT C.concept\_id drug\_concept\_id,

 C.concept\_name drug\_name,

 C.concept\_code drug\_concept\_code,

 C.concept\_class drug\_concept\_class,

 C.vocabulary\_id drug\_vocabulary\_id,

 V.vocabulary\_name drug\_vocabulary\_name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.vocabulary\_id = 8

AND C.concept\_id IN (**1516830, 19046168**)

AND lower(C.concept\_class) = 'branded drug'

AND C.vocabulary\_id = V.vocabulary\_id

AND **'01-jan-2010'** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept ID | Concept ID of branded drug or pack |
| Drug\_Name | Name of branded drug or pack |
| Drug\_Concept\_Code | Concept code of branded drug or pack |
| Drug\_Concept\_Class | Concept class of branded drug or pack |
| Drug\_Vocabulary\_ID | Vocabulary the branded drug concept has been derived from, expressed as vocabulary ID |
| Drug\_Vocabulary\_Name | Name of the Vocabulary the branded drug concept has been derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept ID | 19046168 |
| Drug\_Name | Triamcinolone 0.055 MG/ACTUAT Nasal Spray [Nasacort AQ] |
| Drug\_Concept\_Code | 211501 |
| Drug\_Concept\_Class | Branded Drug |
| Drug\_Vocabulary\_ID | 8 |
| Drug\_Vocabulary\_Name | RxNorm |

## D25. Find the generic drugs in a list of drugs

The query is designed to identify generic drug concepts among from a list of standard drug concept IDs. The query identifies branded drugs from the CONCEPT table based on a concept class setting of ‘Clinical Drug’

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Drug Concept ID list | 1396833, 19060643 | Yes | List of drug concept id’s |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract generic drug concepts from a list of drug concepts entered as input. The input parameters are highlighted in blue.

SELECT C.concept\_id drug\_concept\_id,

 C.concept\_name drug\_name,

 C.concept\_code drug\_concept\_code,

 C.concept\_class drug\_concept\_class,

 C.vocabulary\_id drug\_vocabulary\_id,

 V.vocabulary\_name drug\_vocabulary\_name

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.vocabulary\_id = 8

AND C.concept\_id IN (**1396833, 19060643**)

AND lower(C.concept\_class) = 'clinical drug'

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of generic drug or pack |
| Drug\_Name | Name of generic drug or pack |
| Drug\_Concept\_Code | Concept code of generic drug or pack |
| Drug\_Concept\_Class | Concept class of generic drug or pack |
| Drug\_Vocabulary\_ID | Vocabulary the generic drug concept has been derived from, expressed as vocabulary ID |
| Drug\_Vocabulary\_Name | Name of the Vocabulary the generic drug concept has been derived from |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Example** |
| Drug\_Concept\_ID | 19060643 |
| Drug\_Name | Budesonide 0.05 MG/ACTUAT Nasal Spray |
| Drug\_Concept\_Code | 247042 |
| Drug\_Concept\_Class | Clinical Drug |
| Drug\_Vocabulary\_ID | 8 |
| Drug\_Vocabulary\_Name | RxNorm |

## D26. Find the brand name of a drug

The query is designed to accept a drug concept (both clinical and branded) as input and return a the brand name (or branded ingredient) associated with it. The query is useful to check for a brand names associated with a clinical drug. Drug concepts can be obtained using queries G3 or D2.

**Input:**

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Drug Concept ID | 939355 | Yes | Can be both clinical and branded drug concepts |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all brand names / branded ingredients associated with a set of drug concepts. The input parameters are highlighted in blue.

SELECT drug\_concept\_id,

 drug\_name,

 drug\_concept\_code,

 drug\_concept\_class,

 brand\_concept\_id,

 brand\_name,

 brand\_concept\_code,

 brand\_concept\_class

FROM

(

SELECT A.Concept\_Id drug\_concept\_id,

 A.Concept\_Name drug\_name,

 A.Concept\_Code drug\_concept\_code,

 A.Concept\_Class drug\_concept\_class,

 D.Concept\_Id brand\_concept\_id,

 D.Concept\_Name brand\_name,

 D.Concept\_Code brand\_concept\_code,

 D.Concept\_Class brand\_concept\_class,

 CR006.VALID\_START\_DATE start\_date1,

 CR006.VALID\_END\_DATE end\_date1,

 CR007.VALID\_START\_DATE start\_date2,

 CR007.VALID\_END\_DATE end\_date2

FROM vocabulary.concept\_relationship CR003,

 vocabulary.concept A,

 vocabulary.concept\_relationship CR007,

 vocabulary.concept\_relationship CR006,

 vocabulary.concept D

WHERE CR003.relationship\_ID = 3

AND CR003.concept\_id\_1 = A.concept\_id

AND lower(A.concept\_class) = 'clinical drug'

AND CR007.concept\_id\_2 = CR003.concept\_id\_2

AND CR007.relationship\_ID = 7

AND CR007.concept\_id\_1 = CR006.concept\_id\_1

AND CR006.relationship\_ID = 6

AND CR006.concept\_id\_2 = D.concept\_id

AND lower(D.concept\_class) = 'brand name'

UNION ALL

SELECT A.Concept\_Id drug\_concept\_id,

 A.Concept\_Name drug\_name,

 A.Concept\_Code drug\_concept\_code,

 A.Concept\_Class drug\_concept\_class,

 D.Concept\_Id brand\_concept\_id,

 D.Concept\_Name brand\_name,

 D.Concept\_Code brand\_concept\_code,

 D.Concept\_Class brand\_concept\_class,

 CR006.VALID\_START\_DATE start\_date1,

 CR006.VALID\_END\_DATE end\_date1,

 CR007.VALID\_START\_DATE start\_date2,

 CR007.VALID\_END\_DATE end\_date2

FROM vocabulary.concept A,

 vocabulary.concept\_relationship CR007,

 vocabulary.concept\_relationship CR006,

 vocabulary.concept D

WHERE lower(A.concept\_class) = 'branded drug'

AND CR007.concept\_id\_2 = A.concept\_id

AND CR007.relationship\_ID = 7

AND CR007.concept\_id\_1 = CR006.concept\_id\_1

AND CR006.relationship\_ID = 6

AND CR006.concept\_id\_2 = D.concept\_id

AND lower(D.concept\_class) = 'brand name'

) B

WHERE B.drug\_concept\_id = **939355**

AND **sysdate** BETWEEN B.start\_date1 AND B.end\_date1

AND **sysdate** BETWEEN B.start\_date2 AND B.end\_date2

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug (clinical/generic or branded) |
| Drug\_Name | Name of drug |
| Drug\_Concept\_Code | Concept code of the drug |
| Drug\_Concept\_Class | Concept class of drug |
| Brand\_Concept\_ID | Concept ID of the brand name (or branded ingredient) |
| Brand\_name | Name of the brand name |
| Brand\_Concept\_code | Concept code of the brand name |
| Brand\_Concept\_class | Concept Class of the brand name |

Sample output record 1:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 19102189 |
| Drug\_Name | Omeprazole 20 MG Enteric Coated Tablet |
| Drug\_Concept\_Code | 402014 |
| Drug\_Concept\_Class | Clinical Drug |
| Brand\_Concept\_ID | 19045785 |
| Brand\_name | Prilosec |
| Brand\_Concept\_code | 203345 |
| Brand\_Concept\_class | Brand Name |

Sample output record 2:

| **Field** | **Value** |
| --- | --- |
| Drug\_Concept\_ID | 19033566 |
| Drug\_Name | Lorazepam 0.5 MG Oral Tablet [Ativan] |
| Drug\_Concept\_Code | 206821 |
| Drug\_Concept\_Class | Branded Drug |
| Brand\_Concept\_ID | 19042588 |
| Brand\_name | Ativan |
| Brand\_Concept\_code | 202479 |
| Brand\_Concept\_class | Brand Name |

## D27. Find drugs of a brand

The query is designed to extract all clinical and branded drugs associated with a branded ingredient (or simply a brand name). Since the brand names are not part of the standard drug hierarchy in the OMOP vocabulary, the association between brand name and generic/branded drugs is made using a set of relationships.

The query requires a brand name concept ID as the input. Brand name concept IDs can be obtained by querying the Concept table for a concept class of ‘Brand Name’*.*

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Brand name Concept ID | 19011505 | Yes | Concept ID for brand name ‘Fosamax’.Brand name concept IDs are listed in the CONCEPT table with a concept class of ‘Brand name’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following are sample runs of the query to extract all generic/branded drugs associated with a brand name whose concept ID is entered as input. The input parameters are highlighted in blue.

SELECT drug\_concept\_id,

 drug\_name,

 drug\_concept\_code,

 drug\_concept\_class,

 brand\_concept\_id,

 brand\_name,

 brand\_concept\_code,

 brand\_concept\_class

FROM

(

SELECT A.Concept\_Id drug\_concept\_id,

 A.Concept\_Name drug\_name,

 A.Concept\_Code drug\_concept\_code,

 A.Concept\_Class drug\_concept\_class,

 D.Concept\_Id brand\_concept\_id,

 D.Concept\_Name brand\_name,

 D.Concept\_Code brand\_concept\_code,

 D.Concept\_Class brand\_concept\_class,

 CR006.VALID\_START\_DATE start\_date1,

 CR006.VALID\_END\_DATE end\_date1,

 CR007.VALID\_START\_DATE start\_date2,

 CR007.VALID\_END\_DATE end\_date2

FROM vocabulary.concept\_relationship CR003,

 vocabulary.concept A,

 vocabulary.concept\_relationship CR007,

 vocabulary.concept\_relationship CR006,

 vocabulary.concept D

WHERE CR003.relationship\_ID = 3

AND CR003.concept\_id\_1 = A.concept\_id

AND lower(A.concept\_class) = 'clinical drug'

AND CR007.concept\_id\_2 = CR003.concept\_id\_2

AND CR007.relationship\_id = 7

AND CR007.concept\_id\_1 = CR006.concept\_id\_1

AND CR006.relationship\_id = 6

AND CR006.concept\_id\_2 = D.concept\_id

AND lower(D.concept\_class) = 'brand name'

UNION ALL

SELECT A.Concept\_Id drug\_concept\_id,

 A.Concept\_Name drug\_name,

 A.Concept\_Code drug\_concept\_code,

 A.Concept\_Class drug\_concept\_class,

 D.Concept\_Id brand\_concept\_id,

 D.Concept\_Name brand\_name,

 D.Concept\_Code brand\_concept\_code,

 D.Concept\_Class brand\_concept\_class,

 CR006.VALID\_START\_DATE start\_date1,

 CR006.VALID\_END\_DATE end\_date1,

 CR007.VALID\_START\_DATE start\_date2,

 CR007.VALID\_END\_DATE end\_date2

FROM vocabulary.concept A,

 vocabulary.concept\_relationship CR007,

 vocabulary.concept\_relationship CR006,

 vocabulary.concept D

WHERE lower(A.concept\_class) = 'branded drug'

AND CR007.concept\_id\_2 = A.concept\_id

AND CR007.relationship\_ID = 7

AND CR007.concept\_id\_1 = CR006.concept\_id\_1

AND CR006.relationship\_ID = 6

AND CR006.concept\_id\_2 = D.concept\_id

AND lower(D.concept\_class) = 'brand name'

) B

WHERE B.brand\_concept\_id = **19011505**

AND **sysdate** BETWEEN B.start\_date1 AND B.end\_date1

AND **sysdate** BETWEEN B.start\_date2 AND B.end\_date2

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Drug\_Concept\_ID | Concept ID of drug (clinical/generic or branded) |
| Drug\_Name | Name of drug |
| Drug\_Concept\_Code | Concept code of the drug |
| Drug\_Concept\_Class | Concept class of drug |
| Brand\_Concept\_ID | Concept ID of the brand name entered as ingredient |
| Brand\_name | Name of the brand |
| Brand\_Concept\_code | Concept code of the brand name |
| Brand\_Concept\_class | Concept Class of the brand name |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Drug\_Concept\_ID | 40173591 |
| Drug\_Name | Alendronic acid 10 MG Oral Tablet [Fosamax] |
| Drug\_Concept\_Code | 904421 |
| Drug\_Concept\_Class | Branded Drug |
| Brand\_Concept\_ID | 19011505 |
| Brand\_name | Fosamax |
| Brand\_Concept\_code | ‘114265’ |
| Brand\_Concept\_class | Brand Name |

# Queries for the Procedure domain

## P1. Find procedure by concept ID

 This query enables extraction of concept details associated with a concept identifier. The query is intended as a tool for quick reference for the name, class, level and source vocabulary details associated with a concept identifier.

Please note that along with concept details, the query returns a flag indicating whether the concept is a procedure concept (part of the PROCEDURE domain). Standard concepts in the Procedure domain include the following:

* SNOMED-CT procedure concepts
* CPT-4 / HCPCS / ICD9 procedure concepts

If the Concept is not in the Prodedure domain, the query still returns the concept details with the Is\_Procedure\_Concept\_Flag field set to ‘No’.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 4336464 | Yes | Concept Identifier for ‘Coronary artery bypass graft’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run**:

The following is a sample run of the query to run a search for procedure concept ID of 4336464. The input parameters are highlighted in blue.

SELECT C.concept\_id Procedure\_concept\_id,

 C.concept\_name Procedure\_concept\_name,

 C.concept\_code Procedure\_concept\_code,

 C.concept\_class Procedure\_concept\_class,

 C.concept\_level Procedure\_concept\_level,

 C.vocabulary\_id Procedure\_concept\_vocab\_code,

 V.vocabulary\_name Procedure\_concept\_vocab\_code,

 (

 CASE C.vocabulary\_id

 WHEN 3 THEN 'Yes'

 WHEN 4 THEN 'Yes'

 WHEN 5 THEN 'Yes'

 WHEN 57 THEN 'Yes'

 WHEN 1 THEN

 CASE lower(C.concept\_class)

 WHEN 'procedure' THEN 'Yes'

 ELSE 'No'

 END

 ELSE 'No'

 END) Is\_Procedure\_Concept\_flag

FROM vocabulary.concept C,

 vocabulary.vocabulary V

WHERE C.concept\_id = **4336464**

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Procedure\_Concept\_ID | Concept Identifier entered as input |
| Procedure\_Concept\_Name | Name of the standard concept |
| Procedure\_Concept\_Code | Concept code of the standard concept in the source vocabulary |
| Procedure\_Concept\_Class | Concept class of standard vocabulary concept |
| Procedure\_Concept\_Level | Level of the concept if defined as part of a hierarchy |
| Procedure\_Concept\_Vocab\_ID | Vocabulary the standard concept is derived from as vocabulary ID |
| Procedure\_Concept\_Vocab\_Name | Name of the vocabulary the standard concept is derived from |
| Is\_Procedure\_Concept\_Flag | Flag indicating whether the Concept ID belongs to a disease concept‘Yes’ if disease concept, ‘No’ if not a disease concept |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Procedure\_Concept\_ID | 4336464 |
| Procedure\_Concept\_Name | Coronary artery bypass graft |
| Procedure\_Concept\_Code | 232717009 |
| Procedure\_Concept\_Class | Procedure |
| Procedure\_Concept\_Level | 2 |
| Procedure\_Concept\_Vocab\_ID | 1 |
| Procedure\_Concept\_Vocab\_Name | SNOMED-CT |
| Is\_Procedure\_Concept\_Flag | Yes |

## P2. Find a procedure from a key word

This query enables search of procedure domain of the vocabulary by keyword. The query does a search of standard concepts names in the PROCEDURE domain (SNOMED-CT procedures, ICD9 procedures, CPT procedures and HCPCS procedures) and their synonyms to return all related concepts.

This is a comprehensive query to find relevant terms in the vocabulary. It does not require prior knowledge of where in the logic of the vocabularies the entity is situated. To constrain, additional clauses can be added to the query. However, it is recommended to do a filtering after the result set is produced to avoid syntactical mistakes.

Note: The query only returns concepts that are part of the Standard Vocabulary, ie. they have concept level that is not 0. If all concepts are needed, including the non-standard ones, the clause in the query restricting the concept level and concept class can be commented out.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Key word | 'artery bypass' | Yes | Procedure key word search |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run a search of the Procedure domain for keyword ‘artery bypass’. The input parameters are highlighted in blue.

SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

FROM vocabulary.concept C,

 vocabulary.concept\_synonym S,

 vocabulary.vocabulary V

WHERE (

 C.vocabulary\_id IN (3, 4, 5)

 OR LOWER(C.concept\_class) = 'procedure'

 )

AND C.concept\_class IS NOT NULL

AND C.concept\_level <> 0

AND C.concept\_id = S.concept\_id(+)

AND (

 INSTR(LOWER(C.concept\_name), LOWER(**'artery bypass'**), 1, 1) > 0

 OR INSTR(LOWER(S.concept\_synonym\_name), LOWER(**'artery bypass'**), 1, 1) > 0

 )

AND C.vocabulary\_id = V.vocabulary\_id

AND **sysdate** BETWEEN C.valid\_start\_date AND C.valid\_end\_date

**Output:**

Output field list

|  |  |
| --- | --- |
| **Field** | **Description** |
| Entity\_Concept ID | Concept ID of entity with string match on name or synonym concept |
| Entity\_Name | Concept name of entity with string match on name or synonym concept |
| Entity\_Code | Concept code of entity with string match on name or synonym concept |
| Entity\_Type | Type of entity with keyword match (consistent with other keyword search queries elsewhere). Since procedure search is restricted to standard concepts and synonyms, the entity type is always set to ‘Concept’ |
| Entity\_Concept\_Class | Concept class of entity with string match on name or synonym concept |
| Entity\_Vocabulary\_ID | Vocabulary the concept with string match is derived from as vocabulary ID |
| Entity\_Vocabulary\_Name | Name of the vocabulary the concept with string match is derived from as vocabulary code  |

Sample output record 1: Entity type concept, CPT-4 concept

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept ID | 2107223 |
| Entity\_Name | Coronary artery bypass, using venous graft(s) and arterial graft(s); two venous grafts (List separately in addition to code for primary procedure) |
| Entity\_Code | 33518 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | CPT-4 |
| Entity\_Vocabulary\_ID | 4 |
| Entity\_Vocabulary\_Name | CPT-4 |

Sample output record 2: Entity type concept, SNOMED-CT procedure concept

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept ID | 4000733 |
| Entity\_Name | Coronary artery bypass graft, anastomosis of artery of thorax to coronary artery |
| Entity\_Code | 119565001 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | Procedure |
| Entity\_Vocabulary\_ID | 1 |
| Entity\_Vocabulary\_Name | SNOMED-CT |

## P3. Find indications for a procedure

This query enables a search of all conditions/clinical findings associated with procedures. The query is defined for SNOMED-CT concepts and is based on the “Has focus (SNOMED-CT)” (Relationship ID=46) and “Associated with (SNOMED-CT)” (Relationship ID=79). The scope and coverage of the results are based completely on the SNOMED-CT relationship, which is generally not as comprehensive as the relationships between drugs and indications provided by FDB or NDF-RT (see queries D2).

The query does not include any filters for individual procedures/conditions and returns all condition-procedure relationships present in the vocabulary. The query can be customized with additional filters for individual procedures and conditions/clinical findings.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| Concept ID | 4336464 | Yes | Concept Identifier for ‘Coronary artery bypass graft’ |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run extract all indications associated with procedures. The query has no input parameters.

SELECT CASE CR.relationship\_ID

 WHEN 46 THEN D.concept\_id

 ELSE A.concept\_id

 END Condition\_ID,

 CASE CR.relationship\_ID

 WHEN 46 THEN D.concept\_name

 ELSE A.concept\_name

 END Condition\_Name,

 CASE CR.relationship\_ID

 WHEN 46 THEN D.concept\_code

 ELSE A.concept\_code

 END Condition\_Code,

 CASE CR.relationship\_ID

 WHEN 46 THEN D.concept\_class

 ELSE A.concept\_class

 END Condition\_class,

 CASE CR.relationship\_ID

 WHEN 46 THEN D.vocabulary\_id

 ELSE A.vocabulary\_id

 END Condition\_Vocab\_ID,

 CASE CR.relationship\_ID

 WHEN 46 THEN VS.vocabulary\_name

 ELSE VA.vocabulary\_name

 END Condition\_Vocab\_Name,

 RT.RELATIONSHIP\_NAME,

 CASE CR.relationship\_ID

 WHEN 46 THEN A.concept\_id

 ELSE D.concept\_id

 END Procedure\_ID,

 CASE CR.relationship\_ID

 WHEN 46 THEN A.concept\_name

 ELSE D.concept\_name

 END Procedure\_Name,

 CASE CR.relationship\_ID

 WHEN 46 THEN A.concept\_code

 ELSE D.concept\_code

 END Procedure\_Code,

 CASE CR.relationship\_ID

 WHEN 46 THEN A.concept\_class

 ELSE D.concept\_class

 END Procedure\_Class,

 CASE CR.relationship\_ID

 WHEN 46 THEN A.vocabulary\_id

 ELSE D.vocabulary\_id

 END Procedure\_vocab\_ID,

 CASE CR.relationship\_ID

 WHEN 46 THEN VA.vocabulary\_name

 ELSE VS.vocabulary\_name

 END Procedure\_Vocab\_Name

FROM vocabulary.concept\_relationship CR,

 vocabulary.concept A,

 vocabulary.concept D,

 vocabulary.vocabulary VA,

 vocabulary.vocabulary VS,

 vocabulary.relationship RT

WHERE CR.relationship\_ID IN (46, 79)

AND CR.concept\_id\_1 = A.concept\_id

AND A.vocabulary\_id = VA.vocabulary\_id

AND CR.concept\_id\_2 = D.concept\_id

AND D.vocabulary\_id = VS.vocabulary\_id

AND CR.relationship\_ID = RT.relationship\_ID

AND LOWER(A.concept\_class) IN ('clinical finding', 'procedure')

AND LOWER(D.concept\_class) IN ('clinical finding', 'procedure')

AND LOWER(A.concept\_class) <> LOWER(D.concept\_class)

AND **sysdate** BETWEEN A.valid\_start\_date AND A.valid\_end\_date

AND **sysdate** BETWEEN D.valid\_start\_date AND D.valid\_end\_date

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Condition\_ID | Concept ID of SNOMED-CT disease/condition |
| Condition\_Name | Concept name of SNOMED-CT disease/condition |
| Condition\_Code | Concept code of SNOMED-CT disease/condition |
| Condition\_Class | Concept class of SNOMED-CT disease/condition |
| Condition\_vocab\_ID | Vocabulary ID of the vocabulary from which the disease/condition concept is derived from |
| Condition\_vocab\_name | Name of the vocabulary from which the disease/condition concept is derived from |
| Relationship\_description | Description of the relationship between the condition and procedure |
| Procedure\_ID | Concept ID of SNOMED-CT procedure concept |
| Procedure\_Name | Name of SNOMED-CT procedure |
| Procedure\_Code | Concept Code of SNOMED-CT procedure concept |
| Procedure\_Class | Concept class of SNOMED-CT procedure concept |
| Procedure\_Vocab\_ID | Source vocabulary the procedure concept is derived from, expressed as vocabulary ID |
| Procedure\_Vocab\_Name | Name of the vocabulary the procedure concept is derived from |

Sample output record:

|  |  |
| --- | --- |
| **Field** | **Value** |
| Condition\_ID | 4012261 |
| Condition\_Name | Immunodeficiency secondary to radiation therapy |
| Condition\_Code | 103080003 |
| Condition\_Class | Clinical finding |
| Condition\_vocab\_ID | 1 |
| Condition\_vocab\_name | SNOMED-CT |
| Relationship\_description | Associated with (SNOMED-CT) |
| Procedure\_ID | 4029715 |
| Procedure\_Name | RT – Radiotherapy |
| Procedure\_Code | 108290001 |
| Procedure\_Class | Procedure |
| Procedure\_Vocab\_ID | 1 |
| Procedure\_Vocab\_Name | SNOMED-CT |

## P4. Find procedures used for drug administration?

The query enables extraction of all procedures that are used for drug administration (such as injectables) and the corresponding drugs being administered. The query does not include any filters for individual drugs or individual procedures and returns a list of all such combinations in the vocabulary.

**Input:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Example** | **Mandatory** | **Notes** |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to extract all procedures used for drug administration. The query has no input parameters.

SELECT SC.source\_CODE Procedure\_code,

 SC.source\_code\_description Procedure\_name,

 SC.source\_vocabulary\_code Procedure\_vocabulary\_code,

 VS.vocabulary\_name Procedure\_vocabulary\_name,

 NVL(CD2.CONCEPT\_ID, CD.CONCEPT\_ID) Drug\_concept\_id,

 NVL(CD2.CONCEPT\_NAME, CD.CONCEPT\_NAME) Drug\_name,

 NVL(CD2.CONCEPT\_CODE, CD.CONCEPT\_CODE) Drug\_concept\_code,

 NVL(CD2.CONCEPT\_CLASS, CD.CONCEPT\_CLASS) Drug\_concept\_class,

 NVL(CD2.CONCEPT\_VOCABULARY\_CODE, CD.CONCEPT\_VOCABULARY\_CODE) Drug\_vocabulary\_code

FROM vocabulary.source\_to\_concept\_map SC,

 vocabulary.vocabulary\_ref VS,

 vocabulary.concept CD,

 vocabulary.concept\_relationship CR,

 vocabulary.concept CD2

WHERE SC.source\_vocabulary\_code IN (3,4,5)

AND lower(SC.mapping\_type) = 'procedure drug'

AND SC.source\_vocabulary\_code = VS.vocabulary\_code

AND SC.target\_concept\_id = CD.concept\_id

AND CD.concept\_id = CR.concept\_id\_1(+)

AND CR.relationship\_type(+) = '102'

AND CR.concept\_id\_2 = CD2.concept\_id(+)

**Output:**

Output field list:

| **Field** | **Description** |
| --- | --- |
| Procedure Code | Mapped source code of procedure used for drug administration |
| Procedure Name | Name of procedure used for drug administration |
| Procedure Vocab Code | Source vocabulary the procedure code is derived from, expressed as vocabulary code |
| Procedure Vocab Name | Name of the vocabulary the procedure code is derived from |
| Drug Concept ID | Concept ID of drug being administered by the procedure |
| Drug Name | Name of drug being administered by the procedure |
| Drug Concept Code | Concept code of drug being administered by the procedure |
| Drug Concept Class | Concept class of drug being administered by the procedure |
| Condition vocab code | Vocabulary code of the vocabulary from which the disease/condition concept is derived from |

Sample output record:

| **Field** | **Value** |
| --- | --- |
| Procedure Code | ‘99.31’ |
| Procedure Name | ‘Vaccination against cholera’ |
| Procedure Vocab Code | ‘03’ |
| Procedure Vocab Name | ‘ICD-9-Procedure’ |
| Drug Concept ID | 595252 |
| Drug Name | ‘Cholera Vaccine’ |
| Drug Concept Code | ‘2427’ |
| Drug Concept Class | ‘Ingredient’ |
| Condition vocab code | ‘08’ |

# Queries for the Observation domain

## O1. Find a Observation from a key word

This query enables the search of LOINC and UCUM descriptions that are used in the observation domain of the vocabulary by keyword.

It does not require prior knowledge of where in the logic of the vocabularies the entity is situated.

Input:

| **Parameter** | **Example** | **Mandatory** | **Notes** |
| --- | --- | --- | --- |
| Key word | ' LDL' | Yes | Key word search is case insensitive, and spaces and dashes are excluded from the search |
| As of date | Sysdate | No | Valid record as of specific date. Current date – sysdate is a default |

**Sample query run:**

The following is a sample run of the query to run a search of the Observation domain for keyword ‘LDL’. The input parameters are highlighted in blue.

SELECT T.Entity\_Concept\_Id,

 T.Entity\_Name,

 T.Entity\_Code,

 T.Entity\_Type,

 T.Entity\_concept\_class,

 T.Entity\_vocabulary\_id,

 T.Entity\_vocabulary\_name

FROM (

 SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 C.valid\_start\_date,

 C.valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.vocabulary V

 WHERE C.vocabulary\_id in (6, XXX)

 AND C.concept\_class IS NOT NULL

 AND C.concept\_level <> 0

 AND C.vocabulary\_id = V.vocabulary\_id

 UNION ALL

 SELECT C.concept\_id Entity\_Concept\_Id,

 C.concept\_name Entity\_Name,

 C.concept\_code Entity\_Code,

 'Concept' Entity\_Type,

 C.concept\_class Entity\_concept\_class,

 C.vocabulary\_id Entity\_vocabulary\_id,

 V.vocabulary\_name Entity\_vocabulary\_name,

 C.valid\_start\_date,

 C.valid\_end\_date

 FROM vocabulary.concept C,

 vocabulary.vocabulary V

 WHERE C.vocabulary\_id = 11

 AND C.concept\_class IS NOT NULL

 AND C.concept\_level <> 0

 AND C.vocabulary\_id = V.vocabulary\_id

 ) T

WHERE INSTR(LOWER(REPLACE(REPLACE(T.Entity\_Name, ' ', ''), '-')),

 LOWER(REPLACE(REPLACE(**'LDL'**, ' ', ''), '-')),

 1, 1) > 0

AND **sysdate** BETWEEN T.valid\_start\_date AND T.valid\_end\_date

**Output:**

Output field list

| **Field** | **Description** |
| --- | --- |
| Entity\_Concept\_ID | Concept ID of entity with string match on name or synonym concept |
| Entity\_Name | Concept name of entity with string match on name or synonym concept |
| Entity\_Code | Concept code of entity with string match on name or synonym concept |
| Entity\_Type | Type of entity with keyword match (consistent with other keyword search queries elsewhere). Since procedure search is restricted to standard concepts and synonyms, the entity type is always set to ‘Concept’ |
| Entity\_Concept\_Class | Concept class of entity with string match on name or synonym concept |
| Entity\_Vocabulary\_ID | Vocabulary the concept with string match is derived from  |
| Entity\_Vocabulary\_Name | Name of the vocabulary the concept code is derived from  |

Sample output record: Entity type concept, CPT-4 concept

| **Field** | **Value** |
| --- | --- |
| Entity\_Concept\_ID | 3033200 |
| Entity\_Name | Cholesterol in LDL [Mass or Moles/volume] in Serum or Plasma |
| Entity\_Code | 35198-1 |
| Entity\_Type | Concept |
| Entity\_Concept\_Class | LOINC Code |
| Entity\_Vocabulary\_ID | 6 |
| Entity\_Vocabulary\_Name | LOINC |