Anatomical Therapeutic Chemical Classification System (ATC) provides drug classes in the RxNorm dataset. Below is a Structured Query Language (SQL) query of the RxNorm files, RXNCONSO and RXNREL, that returns the ATC1-4 categories for an ingredient in SCD RxNorm names.

**SQL Query for ATC1-4 Drug Classes of SCDs**

(Can copy and paste query into user interface, such as Oracle SQL Developer, if RxNorm files are loaded into a relational database management system, such as Oracle Database.)

n provides ATC level 3 strings, etc.

m provides ATC level 4 strings

k provides drug strings

select k.rxcui, k.str, m.code, m.str, n.code, n.str, o.code, o.str, f.code, f.str

from rxnconso k, rxnrel y, rxnrel z,

rxnconso a, rxnrel b, rxnrel c, rxnrel d, rxnrel e,

rxnconso f, rxnconso m, rxnconso n, rxnconso o

where k.tty in ('SCD') and k.suppress = 'N'

and k.rxcui = y.rxcui2

and y.sab = 'RXNORM'

and y.rela = 'consists\_of'

and y.rxcui1 = z.rxcui2

and z.sab = 'RXNORM'

and z.rela = 'has\_ingredient'

and z.rxcui1 = a.rxcui

and a.sab = 'ATC'

and a.rxaui = b.rxaui2

and b.sab = 'ATC'

and b.rela = 'member\_of' -- 🡪 ATC 4 level (narrowest)

and b.rxaui1 = c.rxaui2

and c.sab = 'ATC'

and c.rela = 'isa' -- 🡪 ATC 3 level

and c.rxaui1 = d.rxaui2

and d.sab = 'ATC'

and d.rela = 'isa' -- 🡪 ATC 2 level

and d.rxaui1 = e.rxaui2

and e.sab = 'ATC'

and e.rela = 'isa' -- 🡪 ATC 1 level (broadest)

and e.rxaui1 = f.rxaui

and b.rxaui1 = m.rxaui

and c.rxaui1 = n.rxaui

and d.rxaui1 = o.rxaui;

**Note:** This query is for generic, fully specified RxNorm drug concepts with term type (TTY) =

Semantic Clinical Drug (SCD). Query must be modified/reviewed for medications that are branded, in packs, or have multiple ingredients.

**Explanation of SQL Query**

File Designation

1. Files for identifying RxNorm ingredient from generic drug name. See explanations a and a1 for first box below.
2. Allows passage through RXNREL file 4 times to get ATC1-4 data. See b below.
3. Files for displaying strings/names. See explanation c below.

Traversing Data and Files

1. Starts with RXNORM generic drug name (TTY=SCD) and gets RXNORM ingredient.

a1. Identifies RXNORM ingredient RXCUI in

RXNREL and links to its string in

RXNCONSO.

1. Starts in RXNCONSO and navigates through RXNREL 4 times to get the ATC1-4 categories via relationship attributes (rela).

1. Links ATC atom RXAUI1 identifiers to their strings in RXNCONSO for output/display.