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Comparative Analysis of Medication Value Sets Across Reference Sources to Ensure Complete Coverage for Real World Evidence Studies

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Why is this important?

- Value sets (code lists) are often fundamental to computable operational definitions (CODefs), which are integral across all study elements of real-world evidence (RWE) research.
- There is a large number of literature, guidelines, and reference sources that do not match each other when covering the same concept, especially for medications.
- Overcoming these inconsistencies is essential for RWE.

| Objective: To demonstrate creating comprehensive value sets for medications requires the use of multiple relevant reference sources and terminologies.

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How did we perform this research?

- The following stepwise approach was applied to multiple common treatment indications.

Medication List Selection

- Four treatment indications were chosen to represent a comprehensive range of different value sets.
- Each value set was large enough for review and comparison to take place.

Reference Source and Terminology Review

- For each indication, reference source options were identified.
- Reference sources were reviewed for relevance: listing relevant meds by name or by code.
- Meds & codes were aggregated and de-duplicated into a single med list.

Medication List and Source Comparison

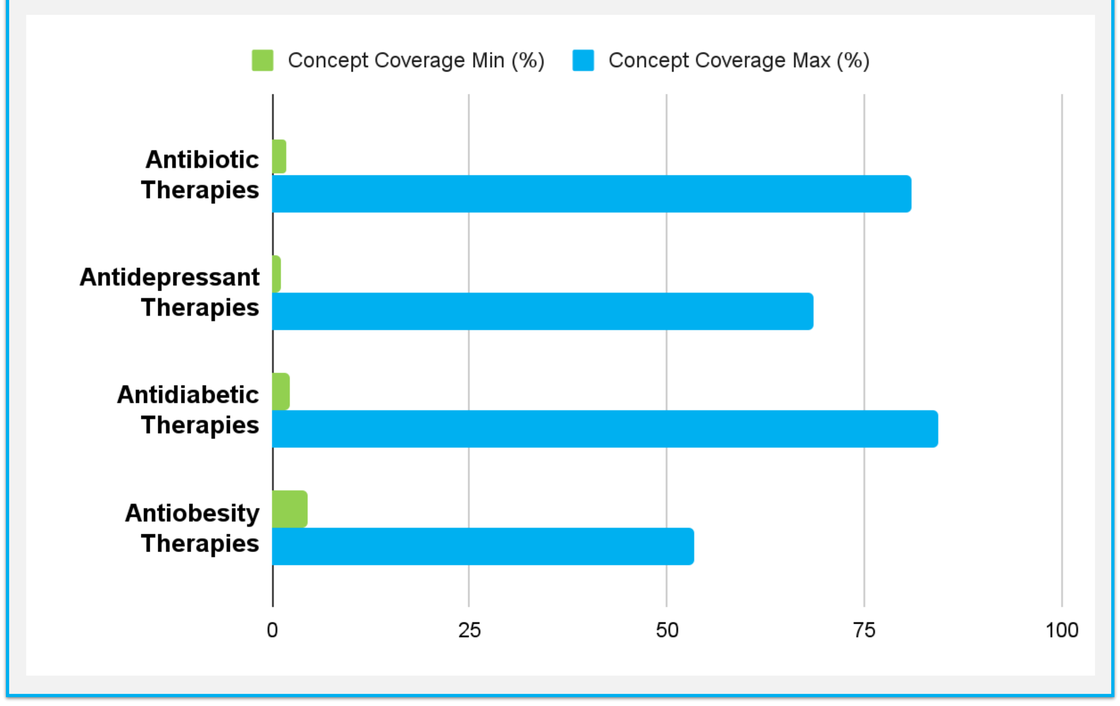
- Meds and codes were compared across references sources for each indication
- Percent coverage was calculated for each references source by indication (i.e., what % of meds/codes included in each reference source).

Terminology Comparison

- Each reference source was also reviewed for what code terminology was utilized. This was then compared to what code terminology was included in the value set.

Concept Coverage

Figure 1. Minimum and maximum concept coverage in references sources for each medication indication.



➢ Antibiotic therapies had 347 concepts and 15 sources with a concept coverage range of 1.73% to 80.69% (avg 16.02%). [Figure 1]

➢ Antidepressant therapies had 104 concepts and 34 sources with a concept coverage range of 0.96% to 68.27% (avg 9.56%). [Figure 1]

➢ Antidiabetic therapies had 101 concepts and 31 sources with a concept coverage range of 1.98%-84.16% (avg 14.05%). [Figure 1]

➢ Antiobesity therapies had 47 concepts and 8 sources with a concept coverage range of 4.26% to 53.19% (avg 29.52%). [Figure 1]

Terminology Coverage

Two (2) standard code terminologies covered the medications in each value set.

➢ ATC

➢ RxNorm

The reference standard code terminologies coverage was less variable and more narrow; however, they still didn't have a 100% coverage rate. [Figure 2]

Each indication had some medications that didn't have a code from the included standard code terminologies:

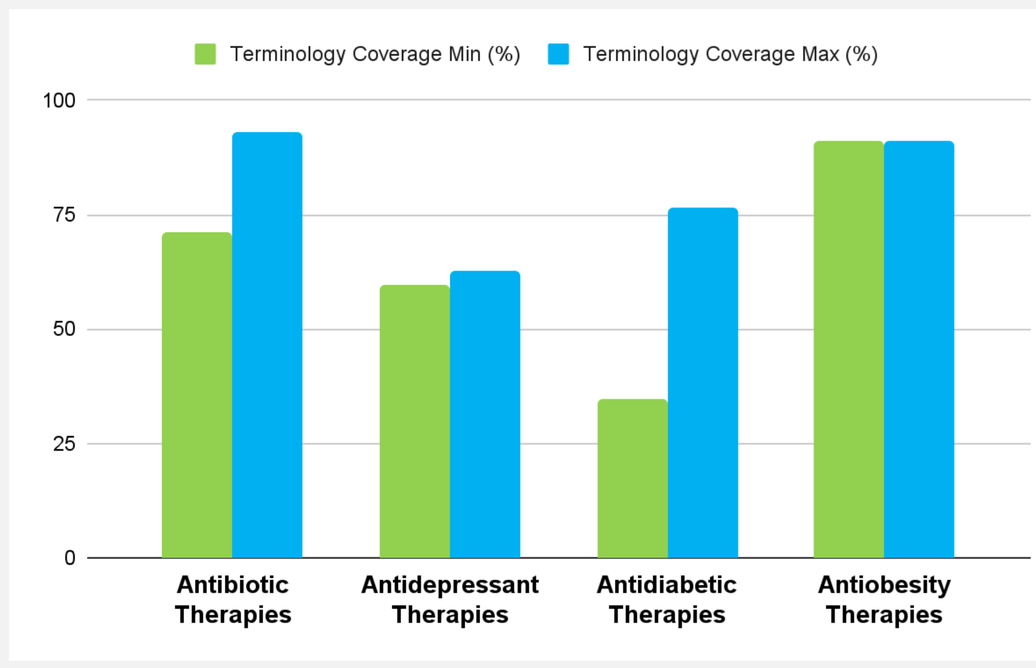
➢ 4 from antibiotic therapies

➢ 19 from antidepressant therapies

➢ 11 from antidiabetic therapies

➢ 4 from antiobesity therapies

Figure 2. Minimum and maximum terminology coverage for each medication indication.



So What?

| This demonstrates that no source or terminology has 100% medication coverage.

| Harmonizing across multiple reliable reference sources and standard codw terminologies is essential for creation of comprehensive medication value sets for RWE research.