



Foundations · Educational evidence summary

Source-specific scores versus a synthesized score

This foundation article explains source-specific scores versus a synthesized score.

UnifiedACB · Published October 3, 2026 · Updated October 4, 2026

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Two very different kinds of simplification

A source-specific display says what each publication reported. A synthesized score attempts to combine those findings into a new output. Both can look like ways to simplify a medication list, but they make different scientific commitments. The first preserves the original observations. The second introduces a method for deciding how different observations should be combined.

That new method needs more than a calculation. It needs a defined target, justified assumptions and evidence that the result behaves appropriately for the intended use. Without those elements, a single number can hide disagreement while adding an unsupported interpretation.

What source-specific reporting retains

Each observation can carry its source version, original medication label, value and locator. A reader can see whether another source agrees, assigns a different category or has no verified entry. Those distinctions remain available for later review and for analyses that choose one source according to a prespecified method.

UnifiedACB's [public data model](#) uses this approach. The sources are organized around medication concepts while their original observations remain separate. This arrangement allows the interface to be convenient without claiming that the source scales have been converted into a common biological measurement.

The approach also makes uncertainty concrete. A missing row is visible. A documented source anomaly has a specific note. A route-qualified label can remain narrower than a whole-drug claim. The reader can identify which piece of information would improve the interpretation.

Why an average is not a neutral choice

An average assumes that the inputs can be meaningfully combined in that way. Ordinal categories do not automatically have equal intervals, and categories from different scales do not automatically share the same meaning. Dividing their sum by the number of available sources does not solve either problem.

It also makes coverage affect the output in a hidden way. A medication represented in two sources and another represented in seven would have differently constituted averages. Adding a newly



available source could change the number even if no medication evidence had changed within any existing source. A reader might misinterpret that movement as a biological discovery.

The public cetirizine observations illustrate the issue. The [preserved source values](#) include BAAS 2019 value 2, CALS 2022 value 1 and Yamada ABS 2023 explicit zero. An average would replace a documented methodological disagreement with a value no source published. It would make the display smoother while making its provenance harder to explain.

Majority voting makes another untested assumption

Selecting the most frequent category can seem less mathematical, but it still creates a synthesis rule. It assumes that the number of sources favoring a value is the relevant measure of support. That assumption is questionable when scales share development inputs or differ in the question they address.

Agreement among related sources is not equivalent to independent replication. A newly added source could also change the majority without changing the underlying evidence in the older sources. The voting rule would therefore need its own justification and validation, just as an average would.

Choosing the highest category is also a rule, not an evidence-free default. It may be described as conservative, but it does not establish a calibrated relationship with benefit or harm. The lowest category would be equally unsupported as a universal answer.

Within-source aggregation is a different question

Some published instruments define how medication contributions may be combined across a regimen. Following one instrument's stated rules is different from mixing categories across instruments. The result still belongs to that instrument and depends on its medication coverage and exposure assumptions.

Even a permitted within-source total does not prove that two regimens with the same number are clinically equivalent. The ingredients, timing, doses and reasons for use can differ. A result should therefore retain the contributing medications and any unscored entries rather than displaying only a total.

The [Drug Burden Index](#) demonstrates that a dose-aware combined measure can be developed as an explicitly defined instrument. Its existence does not authorize an arbitrary combination of other scales. A new model must be understood and evaluated on its own terms.

Weighting sources would introduce another set of assumptions. A weight based on recency, list size or publication type is not automatically a measure of validity for the intended endpoint. The rationale would need to be explicit, and uncertainty in those choices would need examination rather than disappearing inside a polished final number.

What a defensible synthesis project would need

A development project would first define the intended output: medication classification, exposure estimate or prediction of a specified outcome. It would document the source set, identity handling, missingness, route and formulation assumptions, and the rationale for every transformation. It would preserve a versioned record of the original observations.



Validation would then need to match the claim. Agreement with existing scales might test one property, but it would not establish clinical usefulness. A patient-outcome model would require appropriate outcome data, evaluation of calibration and generalizability, and external assessment in the intended population. Evidence that an intervention improves health would be another distinct requirement.

The [ADS assay-association study](#) and the [longitudinal functional-outcome study](#) illustrate how validation questions differ. Neither can be borrowed wholesale to validate an unrelated score created later by combining their inputs.

Why UnifiedACB keeps the source observations primary

The public directory can answer useful questions without inventing a common metric. It can show the original classifications, explain their methods, identify gaps and support a contextual medication discussion. That approach leaves future research possible while avoiding the implication that a new score has already earned a clinical interpretation.

References

1. Vennard O, Stewart C, Tolia M, Soiza RL, Myint PK. Anticholinergic Medication Burden Scales: A Systematic Review. *J Am Geriatr Soc.* 2026;74(6):1771-1784. [Source](#)
2. Chew ML, et al. Anticholinergic activity of 107 medications commonly used by older adults. *J Am Geriatr Soc.* 2008;56:1333-1341. [Source](#)
3. Carnahan RM, et al. The Anticholinergic Drug Scale as a measure of drug-related anticholinergic burden: associations with serum anticholinergic activity. *J Clin Pharmacol.* 2006;46:1481-1486. [Source](#)
4. Rudolph JL, et al. The anticholinergic risk scale and anticholinergic adverse effects in older persons. *Arch Intern Med.* 2008;168:508-513. [Source](#)
5. Boustani M, et al. Impact of anticholinergics on the aging brain: a review and practical application. *Aging Health.* 2008;4:311-320. [Source](#)
6. Lisibach A, Benelli V, Ceppi MG, et al. Quality of anticholinergic burden scales and their impact on clinical outcomes: a systematic review. *Eur J Clin Pharmacol.* 2021;77(2):147-162. [Source](#)
7. UnifiedACB. Preserved public source-observation dataset, v3.0 RC12 final; inspected for this editorial revision. [Source](#)
8. Hilmer SN, et al. A drug burden index to define the functional burden of medications in older people. *Arch Intern Med.* 2007;167:781-787. [Source](#)
9. Hilmer SN, et al. Drug burden index score and functional decline in older people. *Am J Med.* 2009;122:1142-1149.e1-2. doi:10.1016/j.amjmed.2009.02.021. [Source](#)

Explore the evidence

[Ask UnifiedACB](#) about a medication or source, browse the [Medication Library](#), or read the [methodology](#).

Disclosure

Funding: None. Conflict of interest: None declared for the UnifiedACB educational project.

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