

What Constitutes Successful Deprescribing Beyond Reducing Medication Counts? An Umbrella Review of Clinical, Functional, Safety, Treatment-Burden, and Patient-Reported Outcomes in Older Adults, 2017–2026

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ABSTRACT

Deprescribing is commonly judged by whether medicines are stopped, doses are reduced, or potentially inappropriate prescribing declines. These outcomes demonstrate medication change but do not necessarily establish that an older adult is clinically safer, functions better, experiences less treatment burden, or regards the intervention as beneficial. This umbrella review examines systematic reviews and meta-analyses published between 2017 and 2026 to determine what constitutes successful deprescribing when success is assessed across clinical, functional, safety, treatment-burden, and patient-reported domains. Review-level evidence was synthesized while preserving distinctions between medication-process outcomes and patient-important outcomes, considering methodological quality, certainty, population and setting, intervention type, and possible duplication of primary studies across reviews. The evidence pattern indicates greater consistency for reductions in medication exposure, potentially inappropriate prescribing, and related medication-burden measures than for mortality, hospitalization, falls, function, cognition, quality of life, or other patient-reported outcomes. Absence of demonstrated benefit in sparsely measured domains was not interpreted as evidence of no benefit. We therefore propose that deprescribing success should be evaluated as a multidomain construct in which medication reduction is an intermediate outcome rather than a sufficient endpoint. Interpretation remains constrained by heterogeneous interventions, variable outcome definitions, limited patient-centered measurement, primary-study overlap, and uneven review quality. More informative deprescribing evaluation requires explicit separation of medication change, clinical consequences, safety, function, treatment burden, and outcomes that matter directly to patients.

Keywords: Deprescribing, Older adults, Polypharmacy, Treatment burden, Patient-reported outcomes, Medication safety

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Introduction

Deprescribing has developed from a medication-reduction strategy into a broader component of medication optimization in older adults. Yet its apparent success can depend heavily on the endpoint selected. Umbrella-level evidence demonstrates that deprescribing literature encompasses heterogeneous interventions, populations, settings, and outcomes, making medication discontinuation alone an incomplete indicator of benefit [1]. Syntheses focused specifically on efficacy similarly distinguish changes in medication use from downstream health outcomes, for which findings are substantially less uniform [2]. An overview of systematic reviews reinforces the methodological problem: multiple reviews may address the same intervention space while measuring different

outcomes and reusing overlapping primary studies [3]. Meta-analytic evidence further indicates that medication-related improvements can coexist with uncertain or inconsistent effects on broader patient outcomes [4].

The central question is therefore not simply whether deprescribing reduces medication counts, but whether it produces an outcome profile that is clinically meaningful to the individual receiving care. In this review, medication reduction is treated as one component of success rather than its definition. Clinical events, functional outcomes, adverse outcomes, treatment burden, acceptability, quality of life, and other patient-reported consequences are maintained as analytically distinct domains. This distinction is particularly important in frail, multimorbid older populations, where reducing treatment burden may be valuable even when conventional clinical endpoints remain unchanged, whereas medication discontinuation that worsens symptoms or compromises an important therapeutic objective cannot reasonably be classified as successful.

Umbrella review questions and eligibility criteria

The review addressed three linked questions. First, which outcome domains have been used to judge deprescribing success in older adults? Second, how consistent and credible are review-level findings across medication-use, clinical, functional, safety, treatment-burden, and patient-reported outcomes? Third, where does the evidence remain too sparse, heterogeneous, or overlapping to justify a confident conclusion?

Eligible evidence units were systematic reviews and meta-analyses concerning deprescribing, medication reduction, or structured interventions to address polypharmacy or potentially inappropriate prescribing in older adults. Community-based evidence was retained because deprescribing may operate differently outside institutional settings [5]. Reviews of interventions addressing potentially inappropriate prescribing were eligible when medication withdrawal or reduction formed a substantive component of the intervention [6]. Nursing-home evidence was included because residents represent a clinically distinct population with high multimorbidity, frailty, and medication exposure [7]. Primary-care deprescribing reviews were also retained because many decisions to continue or withdraw chronic preventive medicines occur longitudinally rather than during acute care [8].

Primary studies were not treated as independent umbrella-review units. Reviews concentrating solely on medication initiation, adherence promotion without deprescribing, or prescribing quality without a medication-reduction component were outside the principal synthesis unless required to define a boundary of interpretation.

Materials and Methods

The review used an umbrella-review design in which systematic reviews and meta-analyses constituted the primary unit of analysis. Eligibility, extraction, appraisal, overlap assessment, and synthesis were conducted at review level. Evidence was organized according to the outcome actually evaluated rather than assigning all consequences of an intervention to the general label of “deprescribing.”

Evidence from randomized deprescribing trials synthesized within systematic reviews was retained while preserving the distinction between medication-process endpoints and patient-level outcomes [9]. Updated meta-analytic evidence was considered separately where later reviews incorporated a larger or more recent primary-study base than earlier syntheses [10]. Reviews examining medication-burden measures were treated as providing evidence about exposure or regimen burden and were not automatically interpreted as demonstrating improvement in clinical or functional health [11]. Hospital-based medication-review and deprescribing evidence was maintained as a distinct context because acute illness, transitions of care, and short follow-up can alter both intervention feasibility and outcome ascertainment [12].

A narrative umbrella synthesis was used because the included reviews varied in intervention composition, clinical setting, outcome definition, follow-up, and analytical approach. No new pooled effect estimates were calculated. Where reviews reached different conclusions, disagreement was examined in relation to population, intervention scope, outcome measurement, methodological quality, certainty, and potential primary-study overlap rather than resolved by simple vote counting.

Information sources and review selection

Selection operated explicitly at the level of systematic reviews and meta-analyses. Search concepts were broadened beyond the generic terms *deprescribing* and *polypharmacy* to capture clinically important subdomains that might otherwise be missed. Dementia-focused evidence was included because cognitive impairment changes

treatment goals, caregiver involvement, and the balance between prevention and burden [13]. Multimorbidity-focused reviews were retained because deprescribing decisions frequently involve competing therapeutic objectives rather than isolated single-drug withdrawal [14]. Anticholinergic deprescribing was captured because cognition, function, and cumulative burden may be more informative than medication count alone [15]. Benzodiazepine-receptor-agonist reviews were similarly eligible because withdrawal success may require assessment of sleep, symptoms, withdrawal effects, cognition, and acceptability rather than discontinuation alone [16].

Duplicate publications were excluded at article level. Primary studies appearing inside multiple eligible reviews were not counted as separate review units. Database-level retrieval, deduplication, and exclusion counts are not reported here where they could not be reconciled without reconstructing the underlying search records; no numerical values were imputed.

The review-level selection logic is shown in **Figure 1**.

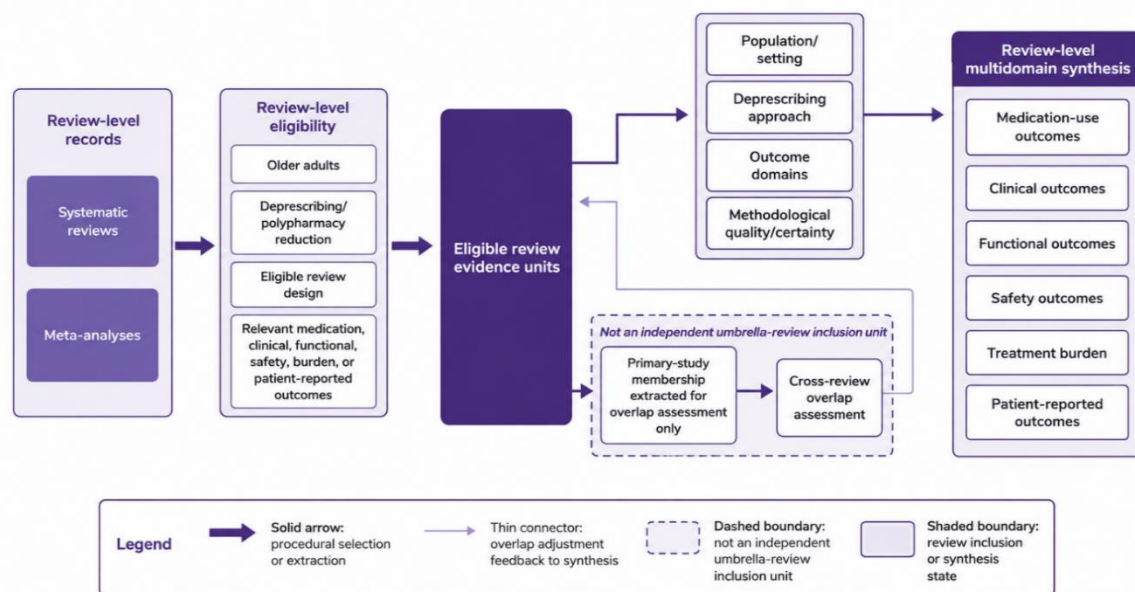


Figure 1. Review-level evidence flow that prevents primary-study duplication from defining deprescribing success

Data extraction from systematic reviews and meta-analyses

Extraction was designed to prevent heterogeneous definitions of “success” from being collapsed into a single endpoint. For each review, the relevant population, care setting, deprescribing approach, comparator, follow-up, and reported outcome domains were recorded. Outcome information was coded according to what the review actually measured.

Anticholinergic deprescribing evidence was treated as particularly relevant to cognition, function, adverse effects, and medication burden rather than merely the number of discontinued medicines [17]. Antihypertensive deprescribing reviews were interpreted within the clinical tension between avoiding treatment-related harm and maintaining adequate cardiovascular risk management [18]. Additional antihypertensive syntheses were retained separately when they addressed different populations, eligibility criteria, intervention designs, or outcome periods rather than being treated as interchangeable evidence [19]. Diabetes-focused deprescribing evidence required additional extraction of treatment goals, hypoglycaemia concerns, frailty, and barriers or facilitators to reducing glucose-lowering therapy [20].

Where an outcome was not reported by a review, it was coded as absent rather than assumed to be unchanged. This distinction was fundamental for patient-reported and treatment-burden outcomes, for which non-measurement cannot be interpreted as evidence of no effect.

Methodological-quality and certainty appraisal

Review credibility was considered separately from the direction of reported effects. Particular attention was paid to eligibility clarity, comprehensiveness of searching, duplicate processes where reported, risk-of-bias assessment, synthesis methods, certainty assessment, and whether conclusions exceeded the underlying evidence.

Pharmacist-led deprescribing syntheses were interpreted according to the outcomes actually examined; improvement in medication-related measures was not automatically transferred to clinical effectiveness [21]. Acceptability-focused evidence was maintained as a separate patient-centered construct because willingness to deprescribe and perceived appropriateness of medication reduction are not equivalent to mortality, hospitalization, or functional outcomes [22]. Broad polypharmacy meta-reviews were examined for the possibility that multiple intervention types and outcome definitions had been pooled under a single management label [23]. Evidence in people with life-limiting conditions was interpreted within its own goals-of-care context, where burden reduction, symptom priorities, and avoidance of non-beneficial preventive therapy may differ materially from objectives in healthier older populations [24].

Accordingly, greater interpretive weight was given to findings supported by methodologically stronger reviews with clearly defined outcomes and consistent primary evidence. Low certainty was treated as uncertainty rather than evidence of equivalence or absence of benefit.

Managing primary-study overlap

Primary-study overlap was treated as a threat to apparent consistency because the same trial can contribute to several reviews and thereby create the impression of repeated independent confirmation. Review conclusions were therefore interpreted in relation to their underlying primary-study bases wherever membership information was available.

Overlap was particularly important across specialised and broad syntheses. Palliative-care deprescribing instrument reviews may draw on primary studies also represented in broader end-of-life deprescribing syntheses [25]. Economic evaluations can reuse trials whose clinical outcomes appear in intervention-effectiveness reviews, meaning economic and clinical review conclusions are not necessarily statistically independent [26]. Network meta-analytic approaches to polypharmacy interventions may additionally incorporate studies that occur in pairwise deprescribing reviews [27]. Falls-focused intervention syntheses can intersect with medication-review or withdrawal trials when deprescribing forms one component of a multifactorial fall-prevention strategy [28].

Where exact study-level overlap could not be established, reviews were not declared independent. Apparent agreement was described cautiously, and evidence credibility was based on review quality, directness, and convergence across genuinely distinct outcome information rather than the number of publications reaching the same conclusion.

Results and Discussion

The evidence base covered broad deprescribing and polypharmacy reviews alongside setting-specific, population-specific, medication-class-specific, pharmacist-led, acceptability, economic, and palliative-care syntheses. This breadth permitted evaluation of multiple definitions of success but also produced marked heterogeneity in intervention intensity, baseline medication burden, clinical vulnerability, follow-up duration, and outcome selection.

Broad review-of-review evidence on polypharmacy demonstrates why medication exposure is clinically important, linking polypharmacy with a range of adverse outcomes while also showing substantial heterogeneity in definitions and underlying evidence [29]. Contemporary discussions of polypharmacy and deprescribing similarly position medication reduction as part of medication optimization rather than an intrinsically beneficial endpoint in every patient [30]. Reporting of the umbrella synthesis was interpreted in accordance with contemporary systematic-review reporting principles, particularly transparency of eligibility, selection, synthesis, and limitations [31]. Methodological confidence in included reviews was considered using domains consistent with AMSTAR 2, including protocol-related rigor, search adequacy, duplicate processes, risk-of-bias methods, synthesis appropriateness, and interpretation of bias [32].

Across the substantive evidence, medication-use outcomes were generally more frequently measured than functional, treatment-burden, or patient-reported outcomes. Consequently, apparent consistency in deprescribing effectiveness was strongly dependent on which outcome domain was selected.

Characteristics of included reviews

The included evidence ranged from broad umbrella and meta-review approaches to focused systematic reviews of specific medicines, settings, patient groups, and intervention providers. Differences in scope mattered because two reviews could both be labelled “deprescribing reviews” while addressing different clinical questions. A review focused on discontinuation of a particular medication class cannot automatically establish the effectiveness of whole-regimen deprescribing, and a review measuring potentially inappropriate medication reduction cannot establish improvement in quality of life or function.

Interpretation also required explicit attention to overlap. Corrected-covered-area methods provide a way to quantify the degree to which primary studies recur across reviews when sufficient membership data are available [33]. Methodological work on overviews of reviews emphasizes that eligibility, search strategy, data extraction, and review-level synthesis require decisions distinct from those used in ordinary systematic reviews of primary studies [34]. Related guidance highlights the importance of separating risk-of-bias assessment from the certainty assigned to the resulting body of evidence [35]. Decision tools for overview authors further support explicit choices about which overlapping reviews to retain when multiple syntheses address substantially the same primary evidence [36].

Table 1 makes the provenance and interpretive boundaries of the principal review types visible without treating unavailable information as known.

Table 1. Provenance of review evidence used to judge deprescribing success beyond medication reduction

Included review	Review scope / population	Search end date	Primary-study base	Deprescribing approach	Outcome domains represented	Quality in formation	Overlap status
Broad deprescribing umbrella review	Older adults; multiple settings	Not retained	Multiple review-level primary-study sets	Mixed deprescribing strategies	Medication, clinical, safety, function, patient outcomes	Appraised at review level	Requires cross-review mapping
Deprescribing efficacy umbrella review	Older adults	Not retained	Not independently reconstructed	Mixed interventions	Medication and health outcomes	Certainty considered	Potential overlap with broad reviews
Community-dwelling review	Community older adults	Not retained	Not independently reconstructed	Structured deprescribing	Medication and clinical outcomes	Review-level appraisal	Context-specific overlap possible
Nursing-home review	Older residents of care facilities	Not retained	Not independently reconstructed	Medication withdrawal/evaluation	Medication, mortality, falls and related outcomes	Review-level appraisal	Setting-specific
Multimorbidity/polypharmacy review	Older adults with multimorbidity	Not retained	Not independently reconstructed	Whole-regimen optimization	Medication and patient outcomes	Review-level appraisal	Broad-scope overlap possible
Dementia-focused review	Older adults with dementia	Not retained	Not independently reconstructed	Deprescribing/medication review	Medication burden, safety, cognition-related outcomes	Review-level appraisal	Population-specific
Anticholinergic review	Older adults exposed to anticholinergics	Not retained	Not independently reconstructed	Anticholinergic reduction	Cognition, burden, function, safety	Review-level appraisal	Drug-class overlap possible
Benzodiazepine-receptor-agonist review	Older adults/cognitive impairment	Not retained	Not independently reconstructed	BZRA deprescribing	Discontinuation, symptoms, safety, acceptability	Review-level appraisal	Drug-class specific
Antihypertensive reviews	Older adults receiving antihypertensives	Not retained	Not independently reconstructed	Dose reduction/withdrawal	BP-related, clinical and safety outcomes	Review-level appraisal	Multiple syntheses may overlap
Pharmacist-led review	Older adults	Not retained	Not independently reconstructed	Pharmacist-led deprescribing	Medication-related and patient outcomes	Review-level appraisal	Intervention-provider overlap possible
Acceptability review	Older outpatients	Not retained	Not independently reconstructed	Polypharmacy/PIP interventions	Acceptability and patient perspective	Review-level appraisal	Distinct outcome emphasis

Life-limiting-condition review	People with advanced illness	Not retained	Not independently reconstructed	Goal-concordant deprescribing	Burden, safety, symptoms and clinical outcomes	Review-level appraisal	Population-specific
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Note: “Not retained” indicates that the information was not available in the review-level record used for the present synthesis and was not inferred. Primary-study overlap is therefore described conservatively unless direct membership information permits stronger classification.

Clinical outcomes beyond medication counts

Clinical outcome interpretation required an additional safeguard: agreement among reviews cannot be treated as independent corroboration when the same primary studies recur across syntheses. Guidance for managing primary-study overlap in overviews therefore informed interpretation of apparently concordant clinical findings [37]. Tabular and graphical approaches to depicting overlap are useful because they make repeated evidence bases visible rather than allowing publication count to function as a proxy for evidential strength [38]. Methods for quantifying and managing overlap similarly support cautious interpretation when multiple reviews depend heavily on the same trials [39].

Against that methodological background, the clearest distinction was between successful medication change and demonstrated patient benefit. Broad umbrella evidence indicates that deprescribing commonly reduces medication exposure or potentially inappropriate prescribing, whereas effects on mortality, hospitalization, and other clinical outcomes are less consistent [1]. Efficacy-focused synthesis similarly found that medication-related improvements did not translate uniformly into broader health benefits [2]. Updated meta-analytic evidence supports the same general boundary: deprescribing may be feasible without demonstrating improvement across every clinical endpoint [10]. Community-based evidence also suggests that the clinical consequences of medication reduction depend on patient selection, intervention content, and follow-up rather than on discontinuation itself [5].

The credibility profile across major outcome domains is summarized in **Table 2**.

Table 2. Credibility of outcome claims used to define successful deprescribing in older adults

Outcome domain	Contributing review coverage	Direction and consistency	Certainty / quality	Overlap concern	Clinically meaningful interpretation
Medication count / exposure	Broad and setting-specific reviews	Generally favourable	More consistent than downstream outcomes	Substantial potential reuse	Demonstrates medication change, not sufficient patient benefit
Potentially inappropriate prescribing	Broad intervention reviews	Usually favourable	Variable	Likely overlap across polypharmacy reviews	Supports improved prescribing process
Mortality	Broad reviews and meta-analyses	Mostly neutral or uncertain	Limited by event rate and follow-up	Repeated trials possible	Absence of excess mortality may support safety but not prove benefit
Hospitalization / healthcare use	Broad and setting-specific reviews	Mixed	Low-to-moderate confidence	Context-dependent overlap	Requires setting- and intervention-specific interpretation
Falls	Deprescribing and fall-prevention syntheses	Mixed	Heterogeneous	Multifactorial trials may recur	Medication withdrawal is only one contributor to fall risk
Function	Relatively limited review coverage	Uncertain / inconsistent	Frequently low	Sparse evidence	Functional preservation or improvement should be assessed directly
Cognition	Drug-class and dementia-focused reviews	Inconsistent or insufficient	Limited	Population-specific overlap	Medication reduction alone cannot establish cognitive benefit
Quality of life	Broad and specialist reviews	Mostly neutral or uncertain	Often limited	Repeated outcome datasets possible	Direct patient-valued assessment is required
Treatment burden / acceptability	Fewer dedicated reviews	Potentially favourable but under-measured	Limited	Less well characterized	Important patient-centered benefit may be missed by clinical endpoints

Note: Direction describes the qualitative pattern represented across the included review evidence and is not a newly calculated pooled estimate. “Uncertain” denotes insufficient or inconsistent evidence, not evidence of no effect.

Functional and safety outcomes

Functional and safety outcomes are particularly important because an intervention can reduce medicines while leaving everyday capability unchanged or creating new problems through withdrawal, recurrence of symptoms, or loss of preventive benefit. Nursing-home evidence demonstrates why these endpoints require setting-specific interpretation: frailty, dependency, multimorbidity, and limited physiological reserve can alter both the potential benefit and potential harm of medication withdrawal [7]. Hospital-based reviews introduce additional complexity because acute illness and short follow-up may obscure whether medication changes produce durable functional consequences [12].

Drug-class-specific evidence also illustrates the distinction between mechanistic plausibility and demonstrated outcome benefit. Reviews of anticholinergic deprescribing examine cognitive and functional outcomes because cumulative anticholinergic exposure provides a plausible rationale for intervention, but available deprescribing evidence does not justify assuming that reducing exposure necessarily reverses established cognitive impairment [15]. More recent hospital-focused anticholinergic evidence similarly supports reduction of potentially harmful exposure while leaving the magnitude and durability of patient-level functional benefit uncertain [17]. Benzodiazepine-receptor-agonist deprescribing requires attention to withdrawal symptoms, sleep, cognition, falls, and patient tolerance rather than discontinuation alone [16].

Safety should therefore be treated bidirectionally. Successful deprescribing requires avoidance of medication-related harm and avoidance of clinically important harm caused by withdrawal. A neutral clinical outcome may represent acceptable risk reduction in one patient but insufficient benefit in another.

Treatment-burden and patient-reported outcomes

Treatment burden captures dimensions that medication counts only approximate: work required to manage medicines, monitoring demands, regimen complexity, anxiety about treatment, disruption of daily life, and the practical effort required from patients and caregivers. A lower medication count may reduce some of this burden, but the relationship is not automatic. Substitution, intensified monitoring, symptom recurrence, or complicated tapering can leave overall burden unchanged.

Acceptability evidence therefore occupies a distinct place in judging deprescribing success. Reviews examining patient acceptance of interventions addressing polypharmacy and potentially inappropriate prescribing show that willingness to reduce medication is shaped by beliefs about necessity, trust, communication, and perceived safety [22]. Diabetes-focused evidence similarly demonstrates that deprescribing decisions are influenced by treatment goals, hypoglycaemia risk, clinician confidence, and patient circumstances rather than medication quantity alone [20]. In people with life-limiting conditions, the relative value of reduced preventive treatment may depend on goals of care, symptom priorities, prognosis, and the burden imposed by continuing therapy [24].

These findings support a proposed distinction between treatment reduction and experienced treatment relief. The first is observable in prescribing records; the second requires patient- or caregiver-reported assessment. **Table 3** identifies patient-centered constructs that remain incompletely represented when deprescribing evaluation relies mainly on medication-process outcomes.

Table 3. Patient-centered outcomes that medication-count endpoints can miss after deprescribing

Patient-centered construct	How it may be assessed	Review coverage	Evidential pattern	Main limitation	Priority for future evaluation
Perceived treatment burden	Burden scales, treatment workload, qualitative reports	Limited	Under-characterized	Often inferred from fewer medicines	Measure directly before and after deprescribing
Quality of life	Generic or condition-specific instruments	Present but inconsistent	Mostly uncertain	May be insensitive to medication-specific change	Prespecify clinically meaningful domains
Acceptability / willingness	Surveys, interviews, intervention acceptance	Dedicated evidence exists	Context-dependent	Preferences can change over time	Reassess after the deprescribing decision
Symptoms after withdrawal	Symptom scales and adverse-withdrawal reporting	Drug-class dependent	Variable	Short follow-up may miss recurrence	Track both improvement and deterioration

Functional participation	ADL/IADL, mobility, participation measures	Sparse	Insufficient	Medication endpoints commonly prioritized	Treat function as a co-primary patient outcome where relevant
Cognitive experience	Cognitive measures and caregiver observations	Concentrated in selected populations	Uncertain	Confounding by baseline disease	Match follow-up to plausible recovery trajectory
Caregiver workload	Caregiver-reported effort and medication-management tasks	Sparse	Under-supported	Rarely treated as a primary endpoint	Include when caregivers manage treatment
Goal concordance	Explicit patient goals and preference alignment	Limited	Conceptually important	No uniform measurement approach	Record whether outcomes match the reason for deprescribing

Note: The final column is a proposed evaluation priority derived from gaps identified across the review evidence; it should not be interpreted as an empirically validated hierarchy.

Consistency, discordance, and evidence credibility

The principal evidence pattern was asymmetric. Medication-process outcomes were more consistently favourable than downstream patient-important outcomes, but this should not be simplified into a conclusion that deprescribing “works” for prescribing and “does not work” clinically. The latter domains were often measured less frequently, with heterogeneous instruments, variable follow-up, lower statistical power, and different patient populations. The resulting uncertainty is therefore partly evidential rather than necessarily biological.

Broad umbrella synthesis supports this separation between medication change and health outcomes [1]. Meta-review evidence on polypharmacy interventions similarly demonstrates that intervention labels encompass clinically heterogeneous strategies and endpoints [23]. Economic evaluations introduce another layer: resource consequences may be relevant to decision-making, but favourable economic findings cannot substitute for evidence of improved function, safety, or patient experience [26]. Conversely, failure to demonstrate a mortality benefit should not negate a meaningful reduction in treatment workload for a patient whose treatment goals prioritize burden reduction.

Figure 2 expresses the proposed evidence-credibility logic derived from these distinctions. It does not rank outcomes numerically; rather, it shows how apparent success should be downgraded when consistency is driven by weak review quality, overlapping primary studies, or sparse measurement.

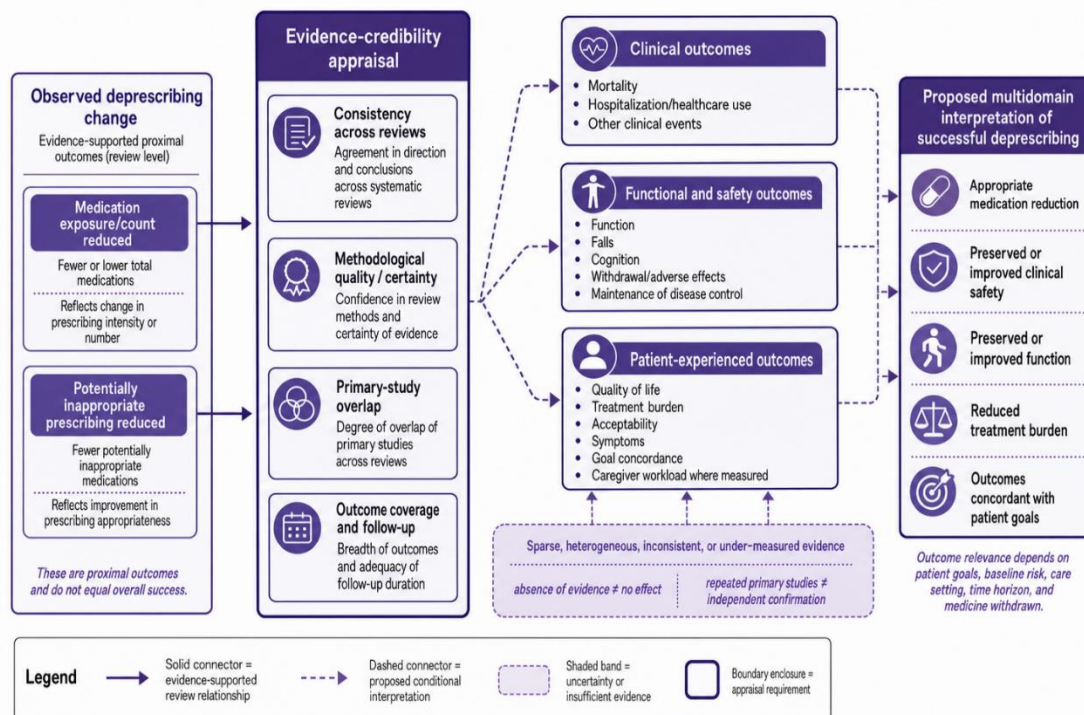


Figure 2. Credibility landscape for judging deprescribing outcomes beyond medication reduction

Outcome domains with insufficient or conflicting evidence

The most important evidence gaps concerned outcomes that are both clinically meaningful and difficult to measure. Function and cognition were often secondary outcomes, restricted to selected populations, or measured over periods that may be too short to reveal meaningful change. Quality-of-life findings were similarly difficult to interpret because generic instruments may be insensitive to modest medication-related benefits or harms.

Falls illustrate a separate problem. Medication withdrawal can theoretically alter fall risk through sedation, blood pressure, balance, cognition, or disease control, yet falls are multifactorial and deprescribing may constitute only one component of broader prevention interventions [28]. Consequently, a null fall outcome does not necessarily establish pharmacological irrelevance.

Treatment burden, caregiver burden, goal concordance, and sustained patient preference were even less consistently represented. This creates a risk of interpreting an unmeasured outcome as an unchanged outcome. The review therefore treats “insufficient evidence,” “discordant evidence,” and “evidence of no material effect” as separate states. These distinctions are necessary because each carries a different implication for future research and clinical interpretation.

This umbrella review indicates that the meaning of successful deprescribing changes substantially when evaluation extends beyond medication counts. The evidence is most coherent for proximal medication-process outcomes: medicines can be discontinued, medication burden can decrease, and potentially inappropriate prescribing can be reduced in appropriately selected populations. These are meaningful achievements, but they are not interchangeable with improved survival, fewer hospitalizations, better function, preserved cognition, improved quality of life, or reduced experienced treatment burden.

The proposed multidomain interpretation addresses this problem by treating medication reduction as an intermediate outcome whose clinical meaning depends on what follows. In some older adults, successful deprescribing may involve removal of unnecessary treatment without detectable improvement in conventional clinical endpoints, provided disease control and function are preserved and treatment burden is meaningfully reduced. In others, successful discontinuation may require symptom improvement or resolution of a medication-related adverse effect. Conversely, a lower medication count accompanied by withdrawal symptoms, deterioration in disease control, increased monitoring burden, or conflict with patient goals should not automatically be classified as successful.

This interpretation also changes how discordant reviews should be read. Different findings may reflect different patient populations, medicines, intervention intensity, follow-up periods, outcome definitions, and underlying primary studies rather than genuine contradiction. Review quality and overlap further constrain how strongly apparent consistency can be interpreted.

The resulting framework is therefore evaluative rather than predictive. It does not specify which medicine should be withdrawn or guarantee benefit from deprescribing. Instead, it proposes what should be measured before the label “successful deprescribing” is applied.

Implications for deprescribing evaluation

Future deprescribing evaluations should prespecify the clinical purpose of withdrawal and select outcomes that correspond to that purpose. If the objective is to reduce exposure to potentially harmful treatment, medication-use and adverse-effect outcomes are necessary. If the objective is to reduce patient burden, medication count alone is inadequate without direct assessment of workload, acceptability, symptoms, or quality of life. Where preservation of function is central, functional outcomes should be measured explicitly rather than inferred from the absence of hospitalization or mortality.

Evaluation should also distinguish short-term withdrawal safety from longer-term therapeutic consequences. Antihypertensive deprescribing illustrates this temporal problem: immediate reduction in treatment burden or adverse effects may coexist with uncertainty about longer-term cardiovascular consequences [18]. Diabetes deprescribing similarly requires balancing near-term avoidance of hypoglycaemia and treatment complexity against individualized metabolic goals [20].

At review level, authors should report primary-study membership sufficiently clearly to permit overlap assessment and should avoid treating multiple reviews of the same trials as independent replication. Patient-important outcomes should be reported even when null, while unmeasured outcomes should remain explicitly classified as

unknown. This approach would make future umbrella syntheses more informative and reduce the tendency to equate easily measured medication change with multidimensional therapeutic success.

Review Limitations

Several limitations constrain this synthesis. First, deprescribing interventions differed substantially in population, setting, medication class, intensity, decision process, and follow-up, limiting direct comparability. Second, broad and specialist reviews frequently occupied overlapping evidence spaces; incomplete reporting of primary-study membership prevented precise overlap quantification in every review. Third, review quality and certainty were uneven, so publication-level agreement could not be interpreted as uniform evidential strength.

Fourth, patient-centered outcomes were measured less consistently than medication-process outcomes. Sparse measurement limits inference about treatment burden, caregiver workload, functional participation, and goal concordance. Fifth, reviews published near the end of the eligibility period may incorporate evidence unavailable to earlier syntheses, producing temporal differences that can appear as contradiction. Finally, this umbrella review does not reanalyse primary-study data or calculate new pooled effects. Its contribution is therefore an evidence-bounded synthesis and proposed interpretation of outcome credibility rather than a validated clinical decision rule.

Conclusion

Successful deprescribing in older adults cannot be defined adequately by counting how many medicines are stopped. Medication reduction and improved prescribing appropriateness are important proximal outcomes, but their meaning depends on subsequent clinical, functional, safety, treatment-burden, and patient-reported consequences. The evidence supporting these downstream domains is less consistent and, in several areas, substantially less complete.

A multidomain evaluation should therefore distinguish demonstrated benefit, preserved outcome, uncertain effect, and unmeasured outcome rather than treating all four as equivalent. Patient goals, medicine-specific risks, frailty, care setting, follow-up duration, and treatment workload determine which outcomes matter most in an individual case. The proposed interpretation is intended to improve evaluation discipline, not to prescribe a universal threshold for deprescribing success. Better future evidence will require direct measurement of patient-important outcomes and transparent handling of overlapping primary studies.

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