

## Deprescribing Techniques to Minimize Safety Issues Associated with Inappropriate Polypharmacy

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It is common for Americans to take more than one medication. Up to 44% of men and 57% of women over the age of 65 years take over 5 medications per week.<sup>1</sup> Taking multiple medications is termed polypharmacy and is most commonly defined as 5 or more medications prescribed for regular use.<sup>2,3</sup> Inappropriate polypharmacy can contribute to adverse drug reactions, hospitalizations, drug-drug interactions, poor adherence, lack of efficacy, geriatric syndromes, increased healthcare costs and decreased quality of life.<sup>2</sup> Antipsychotic polypharmacy in Medicaid programs has also been associated with higher drug expenditures.<sup>4</sup> A comprehensive medication review can help to identify patients who are candidates for medication discontinuation. This newsletter will focus on identifying patients at risk of inappropriate polypharmacy and discuss deprescribing techniques when appropriate.

### Deprescribing: Benefits and Risks

Deprescribing is the planned and supervised process of dose reduction or stopping medications that may be causing harm or no longer providing benefit.<sup>2,5</sup> Benefits of deprescribing may include a reduction in medication burden and harms, improved functioning and a decrease in health care costs.<sup>2,5,6</sup> Risks of deprescribing may include withdrawal symptoms, disease progression, reversal of drug interactions, or return of symptoms. Although there is limited high quality and consistent data evaluating deprescribing on clinical outcomes, evidence suggests that deprescribing is safe, practical, and beneficial in reducing inappropriate polypharmacy.<sup>5,7</sup> Organizations including the National Institute for Health and Care Excellence (NICE) and World Health Organization recognize the importance of identifying inappropriate polypharmacy to decrease avoidable medication-related harms.<sup>8,9</sup>

### Target Populations

Patients who are most likely to benefit from deprescribing are described in **Table 1**. Older patients with polypharmacy are at higher risk of adverse drug reactions, drug interactions, nonadherence, falls and functional decline.<sup>10,11</sup> It is important consider the patient's life expectancy, current level of functioning, and goals of care when evaluating certain preventive therapies that require significant time for benefit.<sup>6,12</sup>

Prevalence of antipsychotic polypharmacy in adults is somewhere between 20% and 50%, despite limited evidence of increased efficacy with dual antipsychotic therapy.<sup>3,13,14</sup> Deprescribing may be beneficial in this population due to increased risk for drug-drug interactions and long-term harms.<sup>13,14</sup> Adverse effects resulting from antipsychotic polypharmacy

can include Parkinsonian side effects, extrapyramidal symptoms, sexual dysfunction, sedation, cognitive impairment, and metabolic syndromes.<sup>14</sup> Polypharmacy with psychiatric medications has been shown to be as high as 30-65% in children in foster care.<sup>15-17</sup>

**Table 1. Candidates for Deprescribing<sup>10,11,18,13</sup>**

#### Patients with the following:

- Multiple progressive chronic diseases
- On medications without benefit
- Taking over 8 medications
- Having difficulty adhering to drug regimen

#### Older Patients who have one or more the following:

- Experiencing adverse drug reactions
- On high risk medications
- Severe frailty or cognitive decline
- At a high risk of falls and functional decline
- With an advanced or progressive disease

### Target Medications

To determine drugs for deprescribing, a patient's medication list should be reviewed for valid indications, risk of harm, and perceived benefit.<sup>5</sup> All high-risk medications should be evaluated to determine if the risk of side effects outweigh the benefits. High risk medications include benzodiazepines, anticholinergics, digoxin, hypoglycemic agents, anticoagulants and opioids.<sup>19</sup> Lastly, tools such as the BEERS list and STOPP criteria can be used to identify medications for potential deprescribing in older patients (**Table 4**).<sup>2</sup> One way to identify potentially inappropriate medications is to perform a comprehensive medication review, asking questions such as those in **Table 2**.

**Table 2: Questions to Evaluate for Potential Deprescribing During a Comprehensive Medication Review<sup>5</sup>**

- Is there a valid indication?
- Is the patient actually taking the drug?
- Is there significant toxicity or an obvious contraindication to this medication?
- Do the harms outweigh the benefits?
- Does the treatment fit with the patient's goals of care?
- Are disease symptoms stable or absent?
- Are withdrawal symptoms or disease recurrent unlikely, or safely manageable?

### Deprescribing Safely

Using a patient-centered approach, patients should be engaged and involved in the deprescribing decision-making process. Discuss goals of care to assess which preventive drugs fit with patient preferences and life expectancy.<sup>6</sup> Drugs can be prioritized for discontinuation based on their potential harms, risk of withdrawal symptoms and patient desire to stop therapy.

A plan to monitor for withdrawal effects and tolerability of deprescribing is essential to ensure successful and safe deprescribing.<sup>6</sup> Prior to deprescribing a medication, providers should identify if a medication taper is needed, the risk of condition resurgence, and how to prevent patient discomfort.<sup>19</sup> A clear plan for the patient to re-initiate or taper up if needed should be established.<sup>19</sup> **Table 3** includes medications with withdrawal effects and strategies to minimize symptoms.

**Table 3. Recommendations for Deprescribing in select Medication Classes<sup>7, 20-24</sup>**

Drug Class	Withdrawal Symptoms	Prevention Strategies
Acetylcholinesterase Inhibitors	Agitation, hallucinations	Decrease dose by 50% every 4 weeks.
Anticonvulsants	Anxiety, depression, seizures	Decrease dose and discontinue after 4 weeks or longer.
Antidepressants	Akathisia, anxiety, headache, Insomnia, irritability	Decrease dose by 25% every 4 weeks.
Antiparkinsonian	Hypotension, psychosis, tremor	Decrease dose by 25% every 4 weeks.
Antipsychotics	Dyskinesias, insomnia, nausea	Decrease dose by 25-50% every 1-2 weeks.
Benzodiazepines	Agitation, anxiety, confusion, insomnia, seizures	Decrease dose very slowly, by no more than 25% every 2 weeks. Monitor every 1 week during taper.
Beta Blockers	Angina, anxiety, hypertension, tachycardia, MI	Decrease dose by 25-50% every 4 weeks. Monitor blood pressure and heart rate after each dose change.
Opioids	GI cramping, anxiety, chills, diarrhea, insomnia	Decrease dose by 5-25% every 1-4 weeks, depending on patient tolerability.
Proton Pump Inhibitors	GI upset, heartburn	Decrease dose by 50% initially. Monitor at 4 and 12 weeks. H2RAs may be considered as add-on to manage symptoms.

Abbreviations: GI-gastrointestinal; H2RAs: Histamine-2 Receptor Antagonists; MI-myocardial infarction.

### Deprescribing Tools

Listed in **Table 4** are some references available to help evaluate polypharmacy and safely deprescribe medications. Additionally, evidence-based deprescribing guidelines are available for the following drug classes: proton pump inhibitors, antipsychotics for dementia, benzodiazepines, antihyperglycemics, and acetylcholinesterase inhibitors.<sup>23, 25-27</sup> Describing guidelines and algorithms for these medication classes, as well as a mobile-based app, are available on [deprescribing.org](http://deprescribing.org). An example is presented in **Appendix 1**.<sup>26</sup>

**Table 4. Tools to Assist with Deprescribing**

Tool Name	Description
Drug Burden Index <sup>28</sup>	Assess anticholinergic and sedative burden.
Deprescribing.org Evidence-based deprescribing guidelines <sup>20</sup>	Resources for patients, healthcare providers, and researchers on how to safely deprescribe PPIs, BDZ, antihyperglycemic agents, antipsychotics, acetylcholinesterase inhibitors.
Beer’s Criteria <sup>29</sup>	Helps identify potentially inappropriate medications in the elderly.
STOPP/START <sup>12</sup>	Helps facilitate medication reviews in the elderly with multiple comorbid conditions.
NSW Deprescribing Tools <sup>30</sup>	Guidelines for psychotropic, neurological, genitourinary, allergy and anaphylaxis, analgesics, GI drugs, and information leaflets.
US deprescribing Research Network <sup>31</sup>	Deprescribing guidelines, algorithms, educational videos for clinicians, and guidance for performing medication reviews.

Abbreviations: BDZ – benzodiazepines; GI – gastrointestinal; NSW – New South Wales; PPI – proton pump inhibitor

### Conclusion

A patient-centered deprescribing practice is a reasonable solution to address polypharmacy. A full medication review should be performed, specifically targeting the elderly, young children, patients with multiple prescribers, and patients with trouble managing their current medication regimen. Medications to target include those at high risk for potential or actual harms, and drugs without evidence of benefit in the individual patient. Safe deprescribing requires thorough patient education and close follow-up to monitor for adverse withdrawal effects and disease resurgence. Resources and tools for prescribers help facilitate patient discussions about polypharmacy and safe deprescribing.

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Appendix 1: Algorithm for Deprescribing Proton Pump Inhibitors:<sup>26</sup>

