

Deprescribing as a Patient Safety Strategy

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Background

Polypharmacy is defined as the act of taking five or more medications on a regular basis.¹ As discussed in another [PSNet primer](#), polypharmacy is an often preventable risk factor for adverse drug events (ADEs). Current data suggest that the risk for experiencing an ADE is 88% higher among patients taking five or more medications compared to patients taking fewer than five medications.² Additionally, polypharmacy contributes to significant morbidity and mortality in the United States; results of one meta-analysis suggested that adjusted mortality among patients receiving five or more medications is 31% higher than among patients taking fewer medications.³

Many risk factors that contribute to polypharmacy have been proposed, and each serves as a potential area for intervention to avoid this practice. Some common risk factors, described in a 2019 article in *American Family Physician*,¹ are listed in Table 1 below.

Table 1. Common Risk Factors for Polypharmacy

Risk Factor	Comments
Advanced age of patient	Linked to having more chronic disease(s) and the use of multiple medications to manage these disease states
Prescribing cascades	Initiation of a medication to treat a symptom caused by another medication (e.g., starting furosemide to treat edema caused by amlodipine)

Disjointed care	Patients receiving care through multiple sources can be subject to multiple prescribing if there is poor communication amongst providers
Chronic condition(s)	Regardless of age, having a chronic condition increases a patient's risk for polypharmacy to address the condition(s)
Data sharing/security	The risk for multi-prescribing and polypharmacy is higher for patients of health systems that do not share patient health data with other systems
Use of over-the-counter (OTC) products	As OTC products are not visible on dispensing records and many patients fail to report their use, the use of these products contributes to polypharmacy and increases the risks for unrecognized drug-drug interactions and ADEs

Deprescribing is the process of supervised medication discontinuation or dose reduction to reduce potentially inappropriate medication (PIM) use. Deprescribing is one intervention that can be applied to reduce the risk for ADEs or medication errors associated with polypharmacy. This practice should be considered any time a patient is experiencing polypharmacy and should be implemented using a shared decision-making model.⁴ Shared decision-making comprises patients and clinicians collaborating to discuss the appropriateness of each of the patient's medications as it relates to safety and efficacy; it empowers the patient to be engaged in decisions about their care. There is extensive evidence demonstrating that use of this shared decision-making model improves patient outcomes and many documented examples in which engaging patients in their own care decisions led to those patients selecting more conservative treatment options.⁵

Strategies for Deprescribing

Multiple strategies and best practices can be employed to facilitate deprescribing and thereby improve patient safety. A useful way to approach deprescribing is to break it down into a five-step approach:⁶

1. Consider all medications currently being taken and the indications for each.
2. Evaluate the risk of harm to that individual patient associated with each medication.
3. Assess each medication for the potential to deprescribe it.
4. Create a priority list of medications that should be deprescribed before others.
5. Implement and monitor the deprescribing regimen.

To accomplish the first step, providers should perform a comprehensive medication review and reconciliation. Medication review and reconciliation is the process of developing an accurate and complete

list of a patient's current medications. Some of the benefits of medication reconciliation are discussed in another [PSNet primer](#) and demonstrated in a PSNet [WebM&M case](#). A best practice when performing medication reconciliation is to use multiple sources of information, such as recent discharge notes, a patient's home list, and/or a pharmacy fill history, to create the most accurate and up-to-date list possible.⁷

When deciding if a medication should be deprescribed, it is important to consider the purpose of each medication (curative vs. palliative), how the patient is tolerating the medication, the patient's life expectancy and goals of care, and the time it will take to see benefit from the medication, among other things.⁸ Determining why each medication was started and how each medication is currently helping the patient can help providers with the deprescribing process by identifying any prescribing cascades or medications that may no longer provide benefit.

There are published tools available to assist with recognizing PIMs. Table 2 describes some of the features of three tools commonly used to assist with deprescribing. Many tools focus on the older adult population because these patients are more likely to experience polypharmacy. These resources, along with others, are also discussed in two previously published PSNet WebM&M cases, one focusing on a [pill box utilization error](#) and another on [warfarin misuse](#).

Table 2. Tools for Deprescribing

American Geriatrics Society (AGS) Beers Criteria® (AGS Beers Criteria®)	• Tool designed to recognize PIMs in older adults • Contains a list of PIMs that should be avoided by older adults in most situations • Contains a list of medications that should be avoided under specific situations (e.g., patients with a certain diagnosis or disease)
Screening Tool for Older People's Prescriptions (STOPP) Criteria	• Contains a list of PIMs for older adults • Medications meeting STOPP criteria are significantly associated with ADEs
Medication Appropriateness Index (MAI)⁹	• Includes 10 questions that allow three rating choices (appropriate, marginally appropriate, inappropriate) • Each of the 10 questions are weighted based on importance, and the summated score for each medication is then calculated

For patients that have multiple medications being considered for deprescription, it is important to take a stepwise approach. Medications should be withdrawn one by one to allow for accurate evaluation of the outcome of each discontinuation, and medications given highest priority in step 4 of the 5-step process described above should be stopped first. The medication priority list should be created based on patient-specific factors assessed in previous steps, including any side effects the patient may be experiencing, the potential for harm from the medication, the potential for benefit from the medication, and the patient's motivation to stop and/or continue the medication, among other things. Some medications, such as opioids, benzodiazepines, and beta blockers, should not be abruptly stopped and need to be tapered slowly. Consult the prescribing information to review the pharmacokinetic and pharmacodynamic properties of each medication that is to be deprescribed to determine if tapering is necessary and to decide how long to wait before making another medication change. During the deprescribing process, it is important to document the reason for making the medication change as well as its outcome to support future decision-making related to the patient's medication management.¹⁰ Furthermore, keep in mind that when a medication is discontinued in the electronic health record (EHR), this information is not automatically transmitted to the patient's pharmacy. Therefore, a critical step when deprescribing is to communicate with the appropriate pharmacy to ensure the medication change is implemented.

There are also electronic [clinical decision support systems](#) (CDSSs) that may aid in deprescribing. One example is [MedStopper](#), which is a web-based system that provides benefit and risk information for each medication on a patient's list. It creates a recommended "Stopping List" for PIMs, provides recommendations about tapering, and describes possible withdrawal symptoms. This resource is publicly available and free to use.¹¹ Additionally, with advancements in the EHR and e-prescribing, incorporating CDSSs into the EHR at the point of care is an option. Utilizing EHR-enabled CDSSs has been shown to be effective in reducing the prescribing of PIMs in hospital settings.¹²

Finally, deprescribing is an ongoing process that requires monitoring and feedback. Various decision aids, pamphlets, and other resources are available to support this process.¹³ Because deprescribing may involve withdrawal symptoms or recurrence of symptoms that motivated the original prescription, re-initiation or dose adjustments may be necessary. Many patients see multiple providers and can re-accumulate medications despite deprescribing efforts, so ongoing discussions between primary care and specialty providers may be needed.¹⁴

Current Context

The practice of deprescribing has been assessed in multiple [systematic reviews](#) and meta-analyses.¹⁵⁻¹⁷ Although the studies and patient populations included in these analyses vary, the findings often support the use of deprescribing. The benefits of deprescribing include reduced morbidity and mortality, improved quality of life, decreased hospital admissions, reduced falls, and improved mental status.

To successfully implement deprescribing practices in clinical settings, the Institute for Healthcare Improvement (IHI) suggests taking an iterative approach of gradual expansion.¹⁸ Their [four-step model](#) of

implementation involves identifying current practices within a health system, establishing a data-driven goal for deprescribing that fits within the context of the prescribing culture of the health system, and implementing interventions to facilitate deprescribing at progressively larger scales over time. The IHI model encourages using narrowly focused interventions that can be gradually expanded into larger, more comprehensive interventions once deprescribing algorithms have been developed and tested in real-world patient situations. Throughout each step of the implementation process, the IHI Deprescribing Guideline stresses the importance of engaging key stakeholders, such as clinicians, pharmacists, informatics staff, and patients, to ensure not only successful implementation but also the longevity of the implemented changes. Although utilizing their model requires significant planning and testing in the early phases, the use of data-driven goals to guide design of deprescribing interventions will ultimately lead to improvements in health system metrics that will positively reinforce deprescribing practices. The IHI guidelines thus serve as a useful reference for health system administrators looking to develop their own deprescribing workflows.

Shannan Takhar, PharmD, BCACP

Clinical Pharmacist, Ambulatory Care

Department of Pharmacy Services

UC Davis Health

sktakhar@ucdavis.edu

Noelle Nelson, PharmD, MSPH

Clinical Pharmacist, Ambulatory Care

Department of Pharmacy Services

UC Davis Health

nnelson@ucdavis.edu

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