

DATA SHEET

How can Micromedex support patient safety around polypharmacy in older populations?

When a person is taking multiple medications, this is known as polypharmacy. Careful consideration is required when making clinical decisions around medications for vulnerable patients with multiple complex conditions.

If polypharmacy rates increase in line with the current expectations, it is highly likely that more elderly people will be at risk of avoidable harm in the future.

To put this into perspective, a person who takes more than ten medications is 300 percent more likely to be admitted to hospital because of an adverse drug reaction (ADR).³

1/3

In England alone, more than one third of people aged 80 or older regularly take eight or more medications¹, a total that is only expected to grow as the population ages.

67%

In the US, 67 percent of elderly Americans take more than five medications (including over the counter drugs and supplements) that could interfere with prescribed drugs.²

3 ways Micromedex can help

Micromedex is an evidence-based clinical reference tool that supports patient safety around avoidable harm. There are many ways that Micromedex can help healthcare professionals to reduce the risks of polypharmacy in older populations, but we have put together a list of 3 to get you started.

1. Avoiding adverse interactions

A person taking two medications has a 13% risk of experiencing an ADR; this risk increases to 58% and 82% when taking five and seven or more medications per day, respectively⁴

The more medications a patient is taking, the more the risk of adverse drug events increases⁵. As well as drug-drug interactions, other types of interactions must also be considered, for example drug-food interactions.

The Micromedex Drug Interactions checker can support healthcare professionals as they carry out structured medication reviews with elderly patients on multiple medications, identifying interactions for drug-drug, drug-food, drug-ethanol, drug-laboratory, drug-tobacco, drug-herbal, drug-pregnancy, drug-lactation and allergy screening.

For example, an elderly patient on Triazolam for insomnia who is also taking Clopidogrel to reduce the risk for blood clots, as well as multiple other medications for their chronic condition, should be warned by their clinician that grapefruit may result in reduced exposure of Clopidogrel.

The screenshot shows the Micromedex interface for Drug Interaction Results. The navigation bar includes Home, Advanced Drug Search, Drug Interactions (selected), IV Compatibility, Drug ID, Drug Comparison, CareNotes, NeoFax® / Pediatrics, Tox & Drug Product Lookup, RED BOOK, and Formulary. The main heading is 'Drug Interaction Results' with a 'Modify Interactions' dropdown and a 'Print' icon. Below this are filters for 'Refine by:' (Drugs: All, Severity: All, Documentation: All, Type: All) and a 'Jump To:' section with links for DRUG-DRUG (0), Ingredient Duplication (0), ALLERGY (0), FOOD (4), ETHANOL (1), LAB (0), TOBACCO (1), PREGNANCY (2), and LACTATION (2). The results are categorized into Drug-Drug, Ingredient Duplication, Drug-ALLERGY, and Drug-FOOD interactions. The Drug-FOOD section is expanded, showing four interactions. A pop-up window highlights the interaction between Clopidogrel Hydrogen Sulfate and Triazolam, showing a Major severity, Excellent documentation, and a summary: 'Concurrent use of CLOPIDOGREL and GRAPEFRUIT JUICE may result in reduced exposure of the active clopidogrel metabolite.' and 'Concurrent use of TRIAZOLAM and GRAPEFRUIT JUICE may result in increased triazolam exposure.'

Drugs:	Severity:	Documentation:	Summary:
CLOPIDOGREL HYDROGEN SULFATE TRIAZOLAM	Major	Excellent	Concurrent use of CLOPIDOGREL and GRAPEFRUIT JUICE may result in reduced exposure of the active clopidogrel metabolite.
CLOPIDOGREL HYDROGEN SULFATE TRIAZOLAM	Major	Excellent	Concurrent use of TRIAZOLAM and GRAPEFRUIT JUICE may result in increased triazolam exposure.
CLOPIDOGREL HYDROGEN SULFATE TRIAZOLAM	Fair	Fair	Concurrent use of ANTIPLATELET AGENTS and CELERY may result

Figure 1: Micromedex Drug Interactions results for Triazolam and Clopidogrel

2. Fully referenced deprescribing considerations

There are times that healthcare providers need to improve patient outcomes by managing drug regimens accordingly in order to support patient safety, and this can include deprescribing.

Micromedex Drug Consults offer fully referenced, evidence-based articles that cover a wide range of topics on drug therapies and treatment guidelines

For example, overprescribing to frail or elderly patients can increase the risk of hypoglycemia⁶, potentially resulting in hospitalizations and emergency room visits. It also contributes to polypharmacy, which can increase the risk of adverse drug reactions, decrease compliance with medications, and impact quality of life.

The Micromedex Drug Consult on Deprescribing Benzodiazepine Receptor Agonists for Insomnia can be accessed for quick reference to considerations on deprescribing for adults, including elderly adults living in the community or in long-term care facilities. Includes guidance on risks for benzodiazepine agonist use, deprescribing recommendations and algorithm, and alternative cognitive and behavioral therapy.

Deprescribing Benzodiazepine Receptor Agonists for Insomnia
Drug Consults [1]

PATIENT DATA/BACKGROUND

A Guideline Development Team comprised of clinical practice experts developed a clinical practice guideline for deprescribing benzodiazepine receptor agonists used to treat primary insomnia or comorbid insomnia where underlying comorbidities are effectively managed. This guideline applies to adults, including elderly adults living in the community or in long-term care facilities [1].

These recommendations do not apply to benzodiazepine receptor agonists used for other sleep disorders or untreated anxiety, depression, or other physical or mental health conditions that may cause or aggravate insomnia [1].

The recommendations are evidence-based as determined by a panel of experts, using a GRADE (Grading of Recommendations Clinical Practice Guidelines Assessment, Development and Evaluation) methodology. Recommendations are based on a rating system in which the strength of evidence for a recommendation is rated high, moderate, low, or very low, depending on the confidence in the estimates of effect. Only randomized controlled trials were used, thus all evidence ratings started with a high quality rating and were lowered based upon risk of bias, inconsistency, indirectness, or imprecision [1].

RESPONSE

Deprescribing Algorithm

Taper and then discontinue the benzodiazepine receptor agonist

- Taper slowly, such as a reduction of 25% to 50% every 1 to 2 weeks
- If dosage form does not allow a reduction, consider switching to a liquid formulation
- If symptoms relapse, consider reinitiating the benzodiazepine receptor agonist

Offer behavioral sleeping advice and offer cognitive-behavioral therapy

- Cognitive-behavioral Therapy
 - Adding cognitive-behavioral therapy to tapering
 - Combining cognitive-behavioral therapy with tapering
 - Cognitive-behavioral therapy alone
- Behavioral Therapy
 - Primary Care: 1) Go to bed at the same time every night, 2) Go to bed only when sleepy, 3) Avoid naps, 4) Avoid alcohol, and big meals within 2 hours of bedtime.
 - Institutional Care: 1) Pull up curtains during the day to obtain bright light exposure, 2) Keep alarm noises to a minimum, 3) Increase daytime activity and discourage daytime sleeping, 4) Reduce number of naps (no more than 30 minutes and no naps after 2 PM), 5) Offer warm decaffeinated drink or warm milk at night, 6) Restrict food, caffeine, smoking before bedtime, 7) Have the resident toilet before going to bed, 8) Encourage regular bedtime and rising times, 9) Avoid waking at night to provide direct care, 10) Offer backrub, gentle massage.
- Other Therapies
 - Melatonin use did not improve benzodiazepine receptor agonist cessation rates.

Monitor for improvement and withdrawal symptoms [1].

- Monitor every 1 to 2 weeks for the duration of tapering.
- Monitor for improved alertness, cognition, daytime sedation, and frequency of falls.
- Monitor for withdrawal symptoms including insomnia, anxiety, irritability, sweating, and gastrointestinal symptoms. Symptoms are usually mild and last for days to a few weeks.

Introduction

There is a lack of evidence of substantial harm of deprescribing compared with the evidence of increased risk of harm associated with continuing a benzodiazepine receptor agonist [1].

Harms associated with benzodiazepine receptor agonist use include physical dependence, drowsiness, balance issues, falls, fractures, cognitive impairment, memory disorders (including anterograde amnesia), functional impairment, and motor vehicle accidents [1].

The elderly may have a higher risk of adverse effects compared with younger adults, but adverse effects such as dependence and somnolence have also been reported in younger adults [1].

General Information

- Slowly tapering benzodiazepine receptor agonists may improve cessation rates at 3 and 12 months compared with continuation or usual care and does not result in differences in withdrawal symptom score [1].
- Evidence suggests that tapering of benzodiazepine receptor agonists may result in more sleep problems compared with continuation, but there was no difference between tapering and continuation at 12 months [1].
- There is no evidence that switching to a long-acting benzodiazepine receptor agonist reduces the incidence of withdrawal symptoms or is more effective than tapering shorter-acting benzodiazepine receptor agonists [1].

Recommendations for Deprescribing Benzodiazepine Receptor Agonists used for Primary Insomnia or Comorbid Insomnia with Effectively Managed Underlying Comorbidities [1]

- For adults (18 to 64 years) who have used benzodiazepine receptor agonists most days of the week for longer than 4 weeks: Taper the benzodiazepine receptor agonists dose slowly (weak recommendation, low-quality evidence).
- For elderly adults (65 years or older) who use benzodiazepine receptor agonists regardless of duration: Taper the benzodiazepine receptor agonist dose slowly (strong recommendation, low-quality evidence).

Figure 2: Sections from the Micromedex Drug Consult on Deprescribing Benzodiazepine Receptor Agonists for Insomnia

3. Quick access to tools to support safe medication use in elderly populations

Clear warning systems that alert clinicians to potential dangers are incredibly valuable, particularly from the perspective of reducing avoidable harm. Micromedex includes a variety of useful tools to support patient safety when treating elderly populations, including Drug Consults on the Beers Criteria for potentially inappropriate medication use in older adults, and the STOPP/START criteria for the appropriate use of medications in elderly patients to support guidance around reducing problematic polypharmacy and avoiding unnecessary or inappropriate medicines.

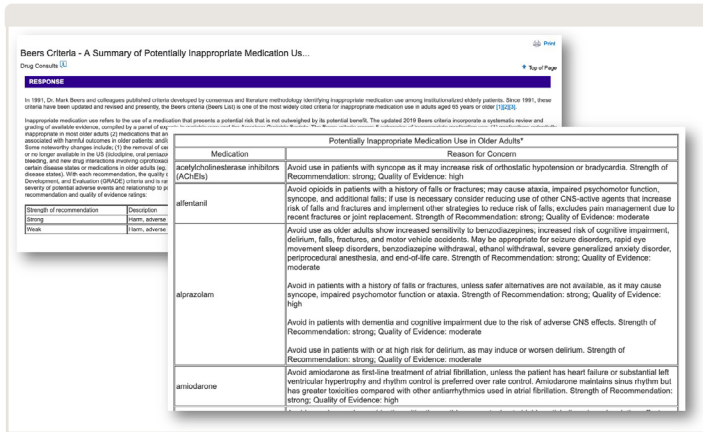


Figure 3: Sections from the Micromedex Drug Consult on Beers Criteria

When treating elderly patients who may receive medication through a feeding tube, it's important to understand which medications should not be crushed, because the dosage and absorption rate of certain drugs can change dramatically when they are ground into food.

Micromedex incorporates a Drug Consult Do Not Crush List, sourced from the medication manufacturer's prescribing information, to serve as a quick reference guide to clinicians, to support their decisions and best judgment based on an individual patient's medical need.

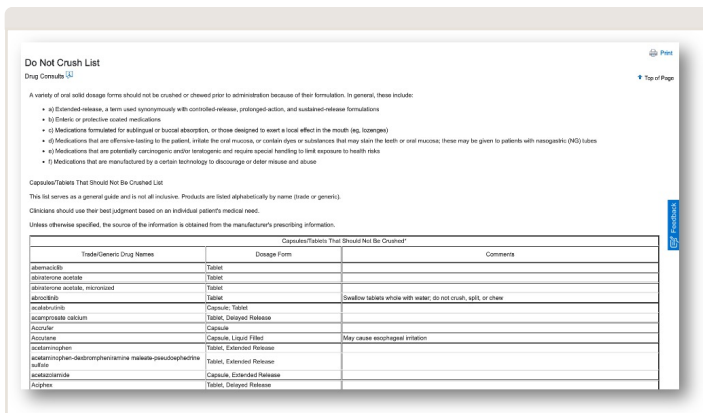


Figure 4: A view of the Micromedex Drug Consult Do Not Crush List

Micromedex also provides a Drug Consult on Enteral Feeding Tubes and Medication Delivery to support patient safety for those who may not be able to swallow safely. It provides information on tube characteristics, general recommendations, dosage form considerations and more.

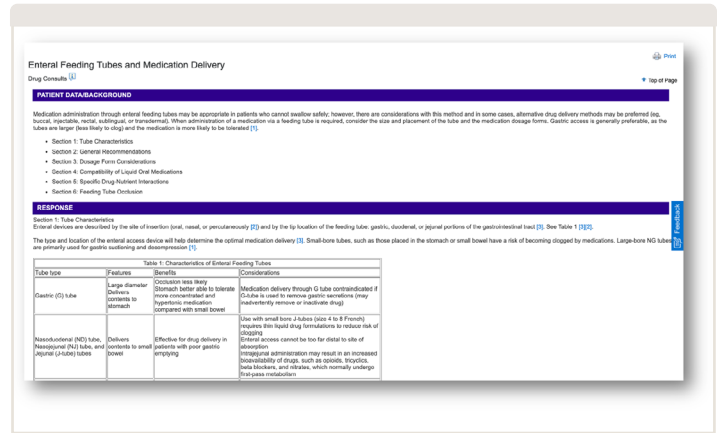


Figure 5: Section from the Micromedex Drug Consult on Enteral Feeding Tubes and Medication Delivery

To find out more on how Micromedex supports patient safety around polypharmacy [visit the website](#), or [request a trial access](#).



About Micromedex

Micromedex by Merative is trusted by healthcare professionals across 70 countries to provide award-winning clinical decision support solutions for drug and disease information and patient education. Micromedex was named Best in KLAS 2023 (clinical decision support: point of care clinical reference), is recognized as a CMS compendium, and is accredited by NICE for its robust editorial process.

Learn more at merative.com/clinical-decision-support

About Merative

Merative is a data, analytics and technology partner for the health industry, including providers, payers, life sciences companies and governments. With trusted technology and human expertise, Merative works with clients to drive real progress. Merative helps clients reassemble information and insights around the people they serve to improve healthcare delivery, decision making and performance. Merative, formerly IBM Watson Health, became a new standalone company as part of Francisco Partners in 2022.

[Learn more at merative.com](https://merative.com)

© Merative US L.P. 2023. All Rights Reserved.

Produced in the United States of America
July 2023

Merative and the Merative logo are trademarks of Merative US L.P. Other product and service names might be trademarks of Merative or other companies.

The information contained in this publication is provided for informational purposes only. While efforts were made to verify the completeness and accuracy of the information contained in this publication, it is provided AS IS without warranty of any kind, express or implied. In addition, this information is based on Merative's product plans and strategy as of the date of this publication, which are subject to change by Merative without notice. Nothing contained in this publication is intended to, nor shall have the effect of, creating any warranties or representations from Merative, or stating or implying that any activities undertaken by you will result in any specific performance results. Merative products are warranted according to the terms and conditions of the agreements under which they are provided.

MDX-4876847978 Rev 1.0

References

1. Dr Keith Ridge, Good for you, good for us, good for everybody: a plan to reduce overprescribing to make patient care better and safer, support the NHS, and reduce carbon emissions (London: Department of Health and Social Care, UK Government), 74, <https://www.gov.uk/government/publications/national-overprescribing-review-report>.
2. Qato DM, Wilder J, Schumm LP, Gillet V, Alexander GC. Changes in Prescription and Over-the-Counter Medication and Dietary Supplement Use Among Older Adults in the United States, 2005 vs 2011. *JAMA Intern Med.* 2016 Apr;176(4):473-82; <https://pubmed.ncbi.nlm.nih.gov/26998708/>
3. Dr Keith Ridge, Good for you, good for us, good for everybody: a plan to reduce overprescribing to make patient care better and safer, support the NHS, and reduce carbon emissions (London: Department of Health and Social Care, UK Government), 20, <https://www.gov.uk/government/publications/national-overprescribing-review-report>.
4. Davies EA, O'Mahony MS (2015) Adverse drug reactions in special populations—the elderly. *Br J Clin Pharmacol* 80(4):796–807 <https://pubmed.ncbi.nlm.nih.gov/25619317/>
5. MB Zazzara, K Palmer, DL Vetrano, A Carfi, O Graziano, Adverse drug reactions in older adults: a narrative review of the literature. *European Geriatric Medicine* (2021) 12:463–473 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8149349/pdf/41999_2021_Article_481.pdf
6. McAlister FA, Youngson E, & Eurich DT: Treatment deintensification is uncommon in adults with type 2 diabetes mellitus: a retrospective cohort study. *Circ Cardiovasc Qual Outcomes* 2017; 10(4):e003514. PubMed Abstract: <https://pubmed.ncbi.nlm.nih.gov/28416531/>