Hamilton Family Health Team

Green Initiative

Prescribe for Impact

Authors: Dr. Meghan Davis B. Eng. MD FCFP &
Tatiana Gayowsky H.BASc
Design: Tatiana Gayowsky
Contributor: Dr. Dee Mangin MB ChB

Judicious prescribing and de-prescribing enables both high-quality and low-carbon care.

<u>This guide will take you through:</u>

1. Benefits for patient health,
2. Benefits for planetary health,
3. Questions to ask yourself before prescribing, and
4. Tools that may be helpful.

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1. Benefits for Patient Health

Judicious prescribing and appropriate deprescription can help:

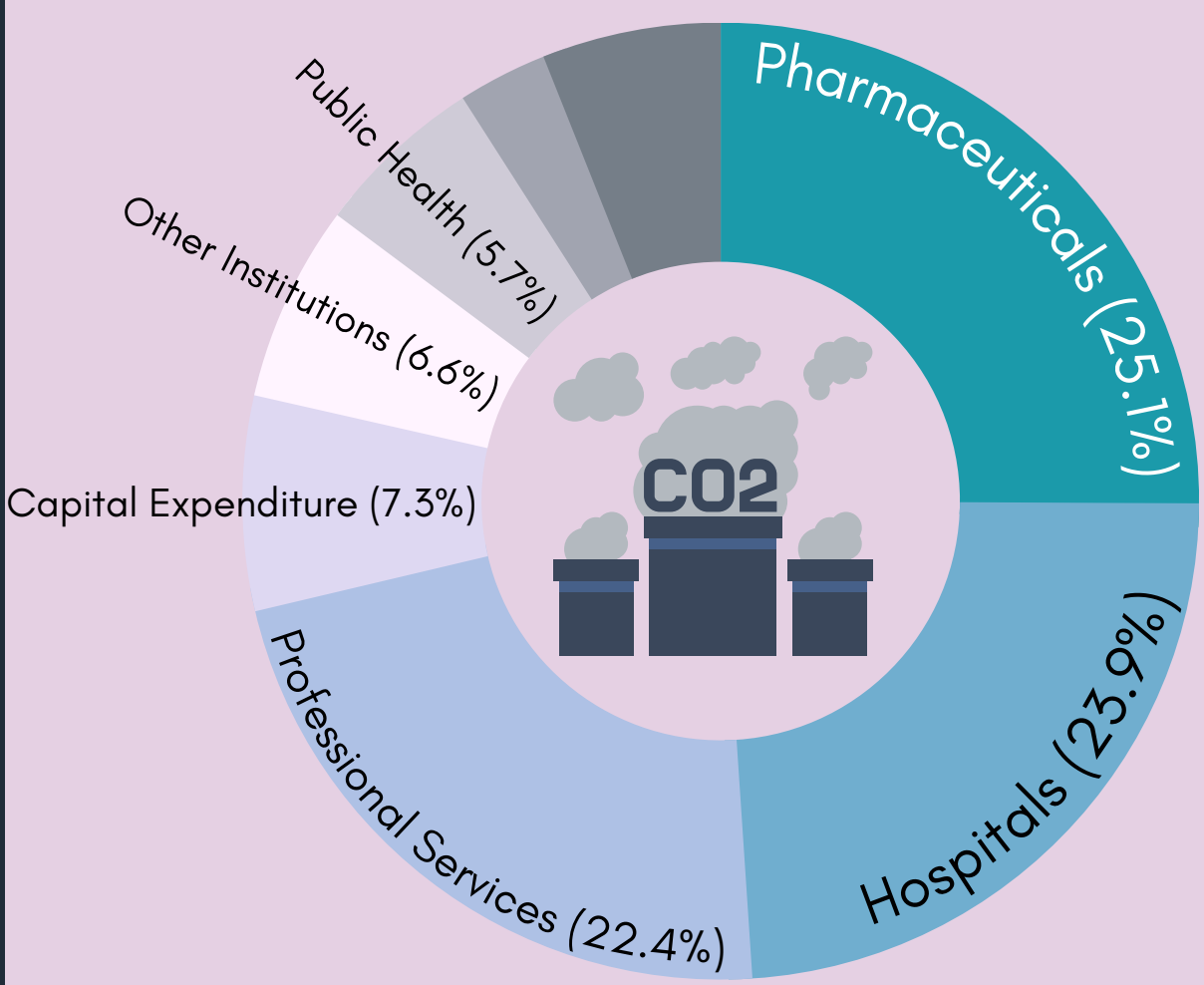
- Decrease medication side effects[1-4]
- Decrease drug interactions[2-4]
- Decrease health care costs[3] (14% of healthcare spending in Canada is on pharmaceuticals)[5]
- Decrease cost of medications for patients[1]
- Decrease hospitalizations[2-4]
- Improve health-related quality of life[2-4,6]
- Increase patient participation in decision-making[3,6]
- Increase emphasis on non-pharmacologic treatments[1,7]

Medications which have low value to the patient are common. In one UK study of 19 low-value medications, 5.8 million prescriptions were written in 2018.[8]

Deprescribing is often in line with patients' goals. In one study of 222 patients from New Zealand, 50% felt they were on too many medications, and 84% were willing to stop medications.[9]

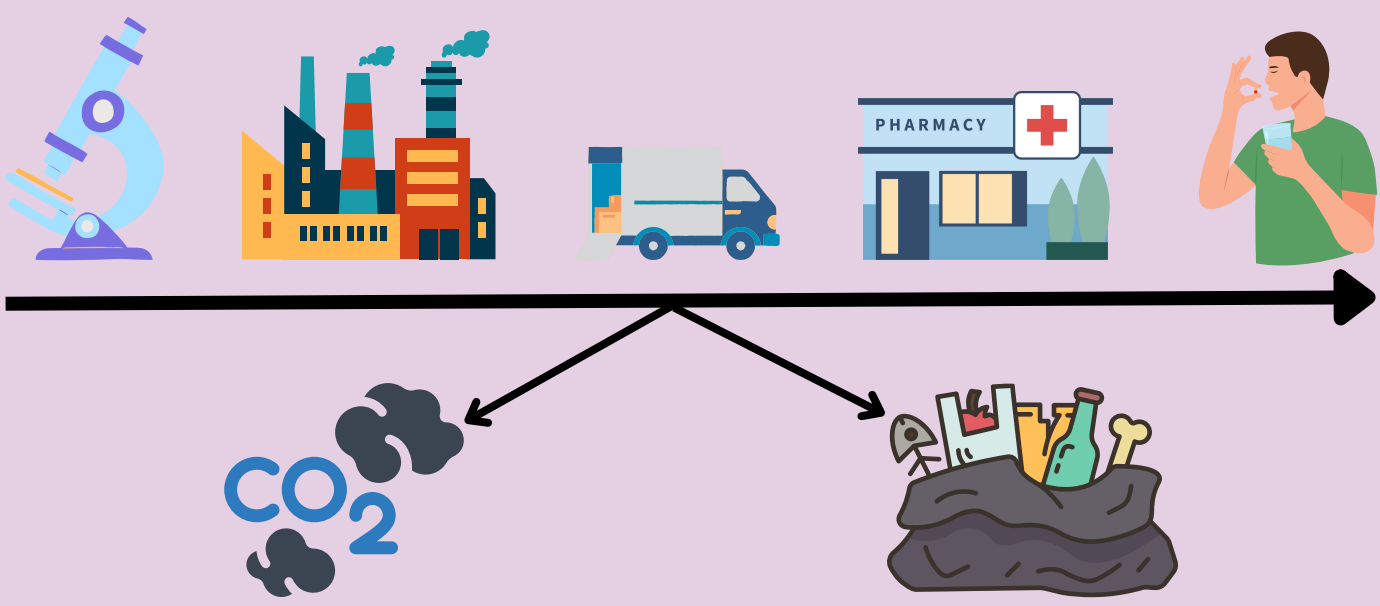
2. Benefits for Planetary Health

Pharmaceuticals are the largest category of healthcare's emissions in Canada - more than hospitals.[10]

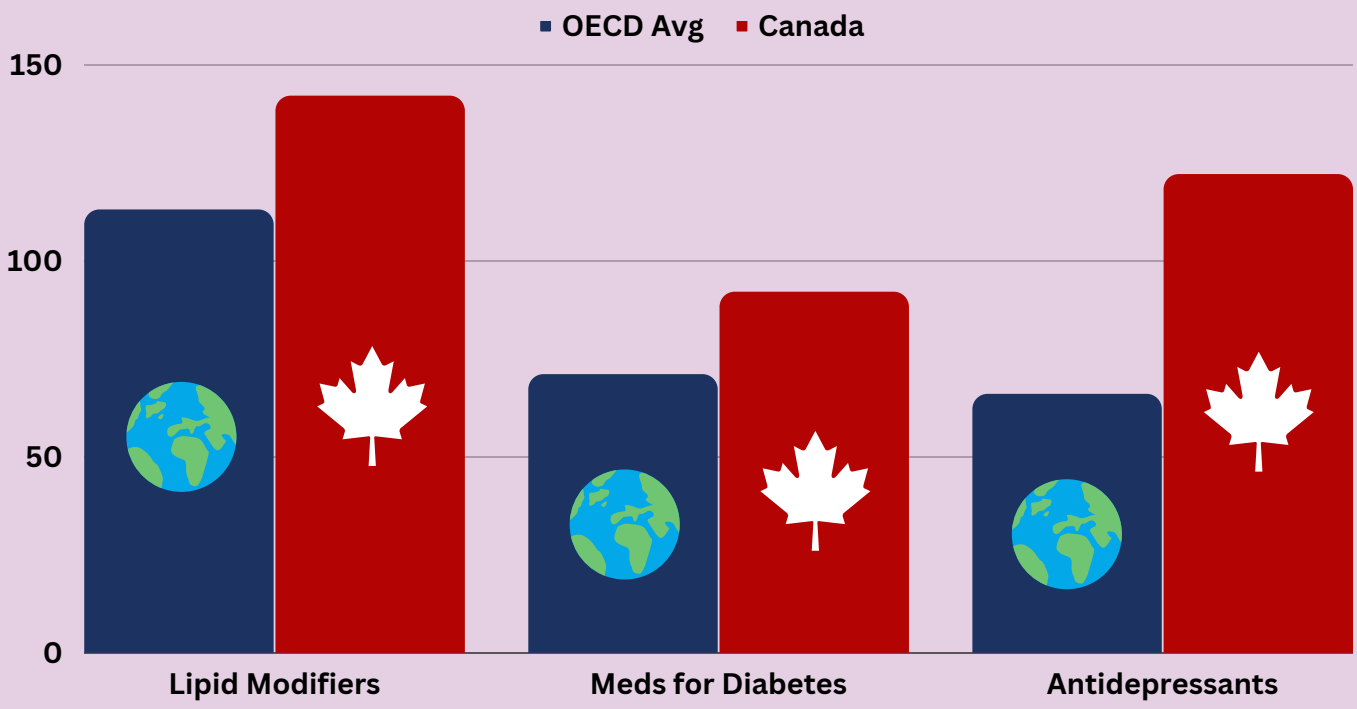


2. Benefits for Planetary Health [continued]

The carbon footprint for pharmaceuticals comes from many sources like extracting raw materials, manufacturing, transportation, and incineration. There are further negative environmental impacts from medications after they are disposed of or processed by the body, as they can remain active and contaminate air, water, and soil.[11-16]



When compared to other countries, Canada prescribes more per capita on average.[17]



Canada's dispensation rates 2019 (compared to other OECD countries, DDD/1000 people)[17]

Rx By program spending, Canada's most commonly prescribed drug classes in 2021 were:[18]

1. HMG-CoA Reductase Inhibitors
2. Proton Pump Inhibitors (PPIs)
3. ACE Inhibitors
4. Dihydropyridine Derivatives
5. Selective Beta-Blocking Agents
6. Selective Serotonin Reuptake Inhibitors

3. Ask Yourself These Questions Before Prescribing

Q: Is this a **legacy prescription**?

Definition: **Legacy Prescription**

Drugs that should be prescribed for more than 3 months, but not indefinitely, and are not appropriately discontinued.[19]

EXAMPLE

SSRIs / SNRIs for Depression

In primary care studies:

1. 46% of prescriptions were ongoing beyond 15 months, and the mean duration of prescription was 4.8 years (3.8 years past the clinically-appropriate prescribing period).[19]
2. 30-50% of those prescribed an antidepressant had no evidence-based indications to continue treatment.[20]

EXAMPLE

Proton Pump Inhibitors

In primary care studies:

1. 45% of PPI prescriptions were legacy prescriptions (prescribed for greater than 15 months).[19]
2. 36-49% of PPI prescriptions lacked a suitable indication.[21,22] Despite a short-term indication of 8-12 weeks, the mean duration that patients were on PPIs was 4.86 years.[19,23]

Q: Have **non-pharmaceutical interventions** been considered?

Non-pharmacological treatments to consider could include:

- Quality sleep
- Plant-rich eating (see more information about **Hamilton FHT's plant-rich eating resources** and **patient education group**)
- Exercise
- Physiotherapy
- Time in nature (**see more information**)

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Q: Is the **diagnosis correct**?

If the diagnosis hasn't been confirmed, prescriptions can be unnecessary and bring risk of harm without any benefit.

EXAMPLE

COPD Diagnosis

Up to 67% of Canadians with COPD, chronic bronchitis, and emphysema had no spirometry.[24]

Asthma Diagnosis

44% of Canadians with an asthma diagnosis never had spirometry testing.[25]

Q: Is the patient **aware of absolute risk reduction benefits** by taking the medication?

EXAMPLE

Shared Decision-Making Tools

This tool can be used to make decisions with patients about statins.

This tool can be used to make decisions with patients about bisphosphonates.

Q: Is the patient **aware of potential side effects**?

EXAMPLE

Possible Side Effects of SSRIs[26-35]

1. Increased bleeding risk
2. Increased risk of falls (in seniors)
3. Sleep disturbances
4. QT prolongation
5. Drug interactions
6. Reduced emotional reactivity
7. Tolerance to effects
8. Sexual dysfunction (which can persist after stopping: Post-SSRI Sexual Dysfunction)
9. Reduced bone density

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Q: Is the patient **aware of potential side effects**? [continued]

EXAMPLE

Possible Side Effects of PPIs[7,23]

1. Diarrhea
2. Impaired vitamin B12 absorption
3. Hypomagnesemia
4. C. difficile infection
5. Hip fracture
6. Pneumonia

EXAMPLE

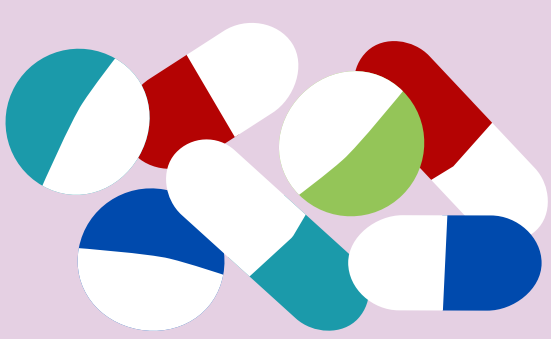
Possible Side Effects of Bisphosphonates[36-40]

1. Nausea, abdominal pain, loose bowel movements
2. Atypical femur fractures
3. Osteonecrosis of the jaw
4. Musculoskeletal pain
5. Esophageal irritation

EXAMPLE

Possible Side Effects of Statins[41-43]

1. Myalgia (1-10% of patients)
2. New Type II Diabetes (~4% of patients)
3. Acute kidney injury (0.2% in populations without prior kidney disease, 3% in populations with known CKD)
4. Elevation in liver enzymes (1-3% of patients)



Q: Could the **presenting problem** be **caused** by **medication side effects?**

Falls, insomnia, fatigue, depression, and dyspepsia are all examples of medication side effects.[44-47] These symptoms might inadvertently be treated by adding on another medication instead of reassessing the culprit medication.

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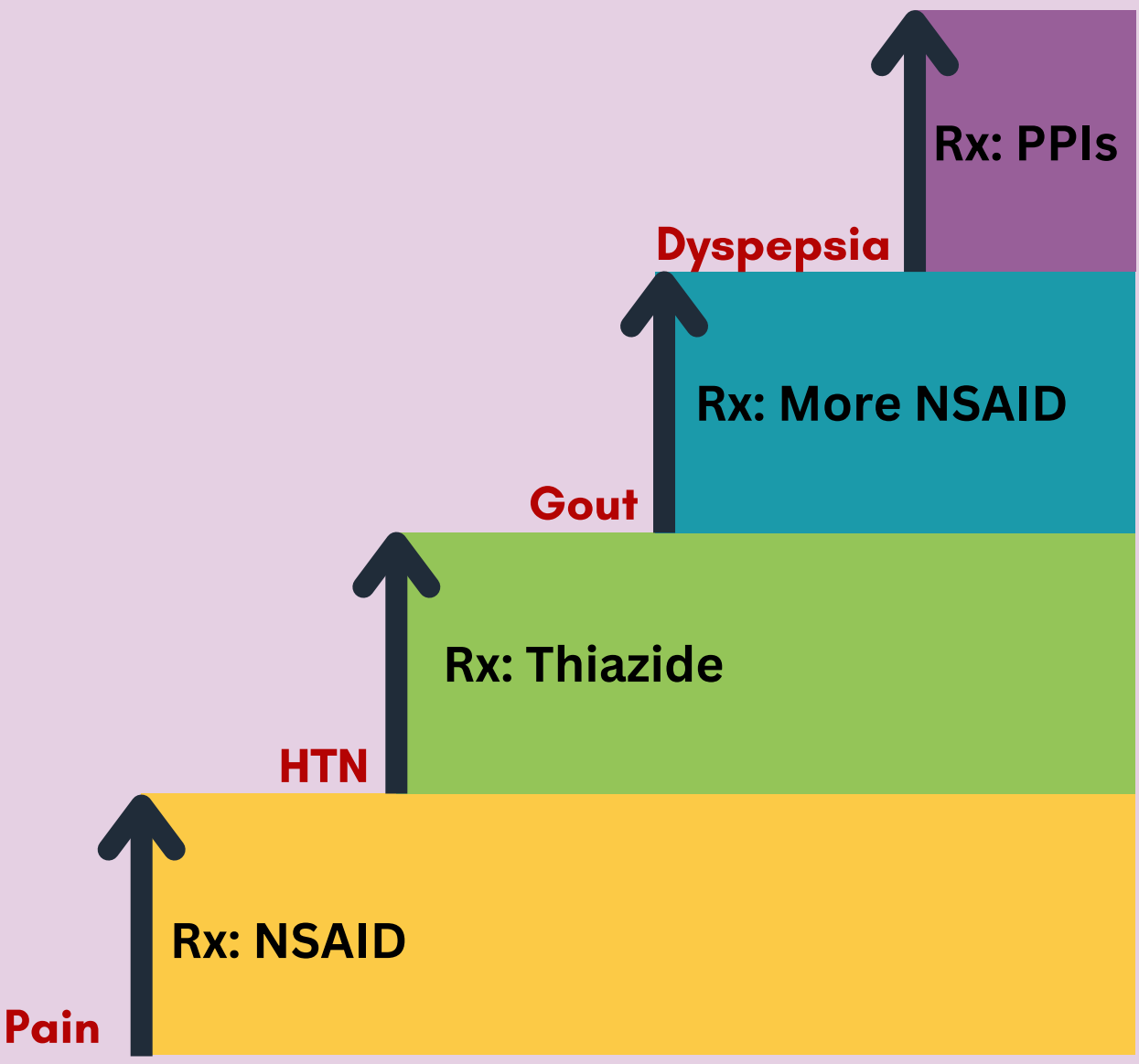
Q: Could the **presenting problem** be **caused** by **medication side effects?** [continued]

Definition: **Prescribing Cascade**

When a new medication is prescribed due to a side effect of a current medication.



- 1/3 of all adults in the United States take a drug that can cause depression.[48]
- Many commonly prescribed drugs have depression as a potential side effect.[48]

Q: Can this **medication be stopped**?

Definition: **Deprescribing**

The process of dose-reduction or withdrawal of an inappropriate medication, supervised by a health care professional with the goal of managing polypharmacy and improving outcomes.[49]

Q: Can this **medication be stopped**? [continued]

There is good deprescribing evidence in primary care, including one trial in an elderly patient population using Good Palliative-Geriatric Practice algorithm, which showed:[50]

- 58% of drugs prescribed to this population should be considered for discontinuation
- At a 19-month follow-up post-discontinuation, 81% of the drugs did not need to be restarted
- 88% of patients in the study reported a global improvement in health after medications were deprescribed, and no adverse events related to discontinuation trials occurred

EXAMPLE

Deprescribing Antidepressants: Trials in Primary Care[51,52]

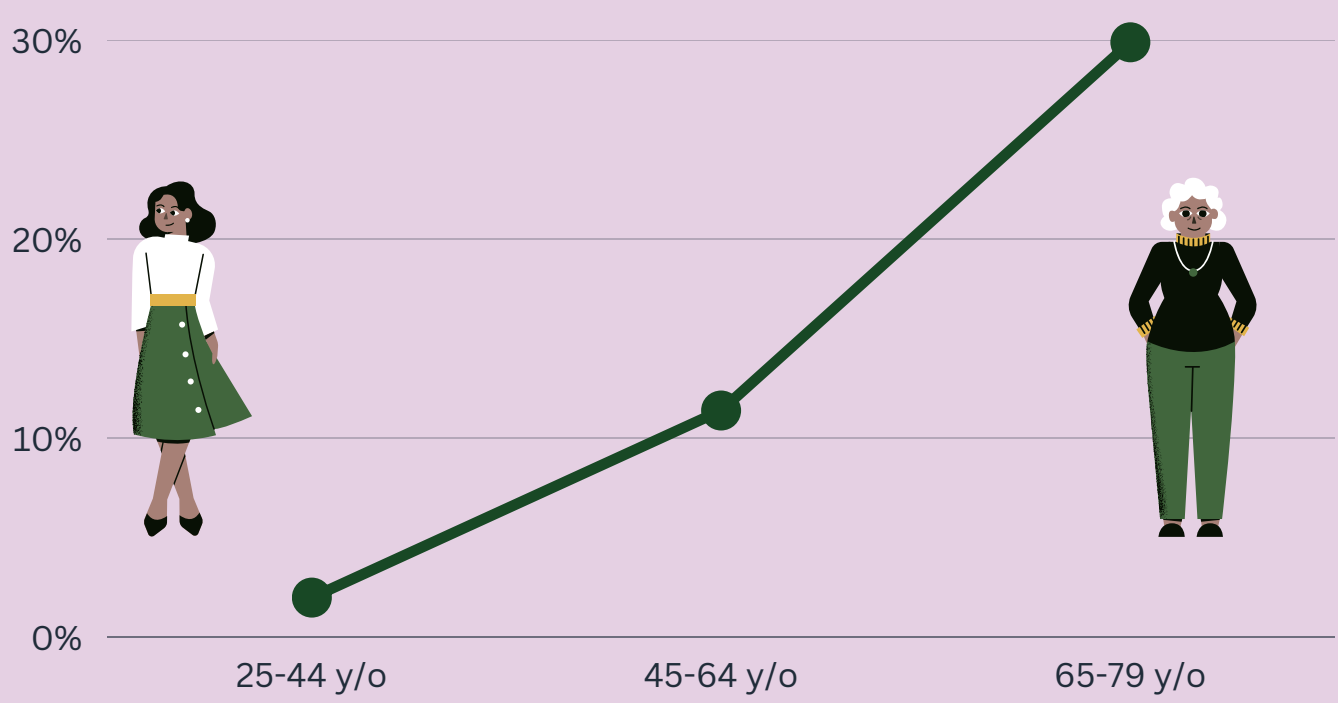
1. 7/8 of those taking antidepressants long-term did not have any exacerbations of depression when they discontinued.
2. VERY slow tapering is key to mitigate medication withdrawal symptoms. See **Appendix A** for more details.

Q: **How many medications** are being taken?

Definition: **Polypharmacy**

The concurrent prescription of five or more medications.

Polypharmacy is more common in the older population.



Incidence of Polypharmacy by Age Group[53]

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Q: **How many medications** are being taken? [continued]

"The single most important predictor of [...] risk of adverse drug events in older patients is the number of prescribed drugs."[54]

Polypharmacy increases the risk of falls more than any single medication category alone:[55-57]

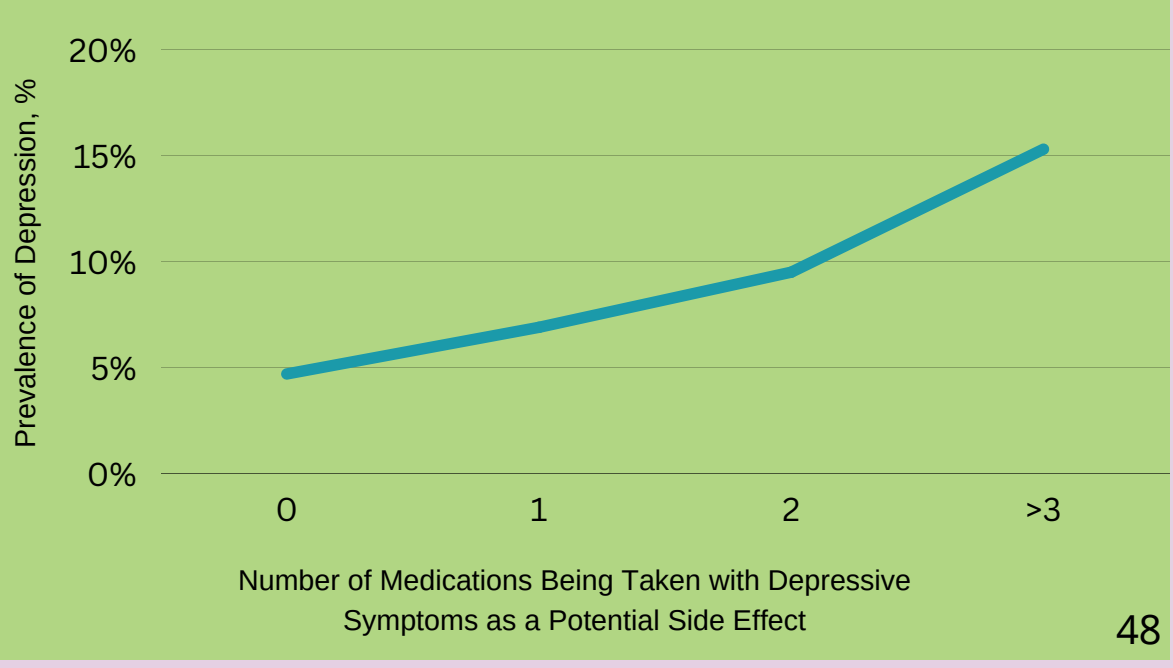
- **Diuretics:** 36% ↑ Risk
- **Benzodiazepines:** 42% ↑ Risk
- **Antipsychotics:** 54% ↑ Risk
- **Antiepileptics:** 55% ↑ Risk
- **Antidepressants:** 57% ↑ Risk
- **Opioids:** 60% ↑ Risk
- **4+ Medications:** 75% ↑ Risk

Adapted from the Canadian Medication Appropriateness and Deprescribing Network.

E X A M P L E

Risk of Depressive Symptoms as a Side Effect of Polypharmacy

Polypharmacy can produce symptoms which mimic depression, like cognitive impairment, memory loss, and fatigue.[44-46,58]



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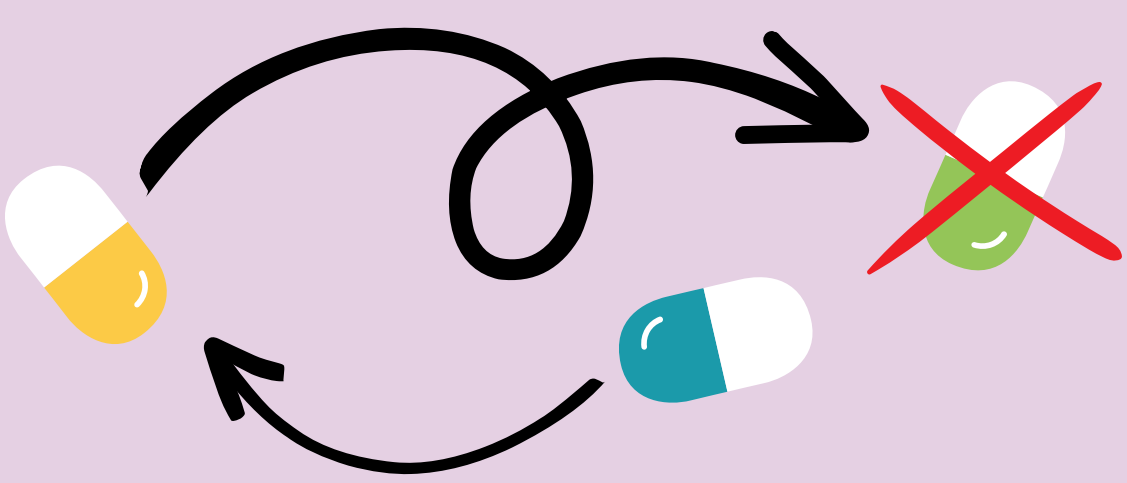
Polypharmacy also increases the risk of drug interactions.



How many medications are being taken? [continued]

EXAMPLE

Drug Interactions with Statins[59]

Statin	Common Drug Interactions
Atorvastatin & Simvastatin	Amiodarone, Grapefruit Juice, Protease Inhibitors, Azole Antifungals, Macrolide antibiotics, Verapamil, Cyclosporin, Sildenafil, Tacrolimus, Colchicine
Rosuvastatin	Diclofenac, Amiodarone, Azole antifungals, Protease inhibitors, Metronidazole, Gemfibrozil
Pravastatin	Colchicine, Gemfibrozil

Many statins also interact with many calcium channel blockers.

See **AHA Statement on Drug-Drug Interactions with Statins** for more information.

4. Helpful Tools

- Maintain up-to-date list of medications, start dates, and indication
- Refer patients with over five medications for pharmacy review
- Discuss expected duration of medications when starting
- Refer to deprescribing scripts (appended) to frame conversations with patients
- Use shared decision-making tools when starting medications

Resources

- Watch 2023 webinar '**Prescribing for Impact**' with Dr. Dee Mangin
- **Green Initiative Metered-Dose Inhaler (MDI) Deprescribing Resources**

Resources [continued]

- **Appendix A:** A few tapering strategies and considerations for SSRIs in depression
- **Polypharmacy Risk Reduction** resources from Shared Care BC (including patient resources)
- **TaperMD**: Contains tapering and deprescription resources for a variety of medications.
- **MedStopper**: Provides general recommendations on medication tapering, including antidepressants
- **RxFiles**: Has great resources for tapering and stopping antidepressants (behind a paywall)
- **Centre for Effective Practice Academic Detailing Tools for Anxiety and Depression**: **Sign up to Schedule one-on-one visits**
- Choosing Wisely Canada (e.g. PPI Deprescribing Resources: **Patient-Facing Pamphlet** and **Practitioner Toolkit**)

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HFHT Green Initiative Webpage

If you have any questions, please reach out to us: green.team@hamiltonfht.ca

Appendix A:
Tips for Tapering SSRIs for Depression

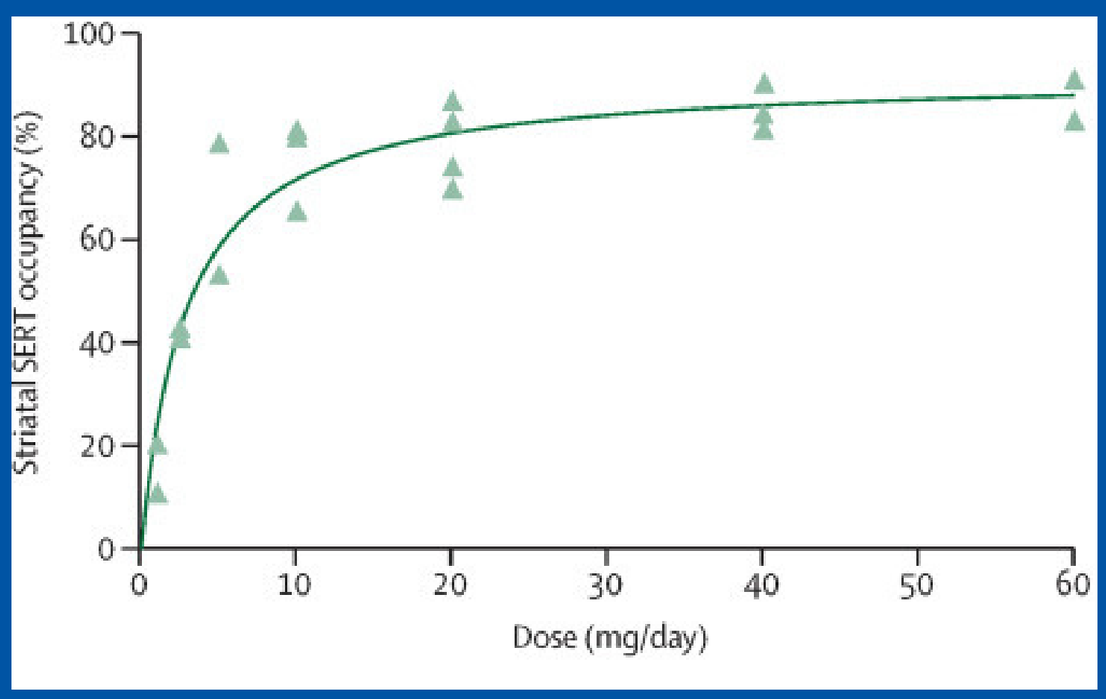
To Guide Stopping, Consider:

- The length of time a patient has been on an antidepressant (if they've been on for months, it may take weeks to stop, and years make take months to stop). It can take years for some to discontinue antidepressants.
- The type of antidepressant prescribed: some have more significant discontinuation symptoms (e.g. paroxetine, venlafaxine)

Strategies

- Set expectations with patients regarding potential withdrawal symptoms, including anxiety, disequilibrium, irritability, bouts of crying, sensory disturbances, sleep disturbances, changes in depression scale scores, GI symptoms, and flu-like symptoms. This will help differentiate medication withdrawal from recurrence.
- Allow patients to control taper rate to restrict symptoms to what is tolerable for them.
- Try 10% reduction to start, then try 25% if no symptoms occur.
- Alternating Days: Can be very unhelpful, particularly with shorter half-life drugs

Non-Linear Tapering



Tapering may need to be much slower towards the end (due to the serotonin receptor occupancy and not drug level). Liquid preps are often needed when there are significant withdrawal symptoms (working with a pharmacist can be very helpful).

Citalopram Dose (mg)	60	40	20	19	9.1	5.4	3.4	2.3	1.5	0.8	0.37
SERT Occupancy (%)	87.8	85.9	80.5	80	70	60	50	40	30	20	10

Horowitz & Taylor, 2019