THE CANADIAN
OTC GREEN QUICK GUIDE
2026

Bridging clinical best practice with sustainability to support faster, smarter, and lower-impact OTC choices at the point of care.

CAPhE
Canadian Association of Pharmacy for the Environment

The Canadian Coalition for Green Health Care
Coalition canadienne pour un système de santé écologique

About This Guide

The Canadian OTC Green Quick Guide is a concise reference designed to support clinicians in recommending and prescribing over-the-counter (OTC) medications, with a focus on environmentally sustainable options within Canadian healthcare practice.

This guide complements existing clinical and prescribing resources by incorporating sustainability considerations alongside patient safety, clinical effectiveness, and evidence-based care. It draws on current clinical guidelines, best-practice scientific literature, and input from practicing clinicians to support practical, informed decision-making.

Where available, the environmental impact of OTC products was assessed using Yewmaker, which quantifies carbon footprint data and categorizes medicines as low, moderate, or high carbon footprint, which are **colour-coded within the guide as green, yellow, and red,** respectively as carbon impact. This component will continue to expand as additional product-level sustainability data becomes available. More information is available at https://www.yewmaker.com

The guide also serves as a centralized reference for commonly used and frequently patient-inquired OTC products and supplements, supporting efficient responses to sustainability-related questions in clinical practice.

Mission Statement

The mission of the Canadian OTC Green Quick Guide is to support the integration of environmental sustainability into OTC prescribing and recommendation practices through clear, evidence-informed, and clinically relevant guidance.

Acknowledgements

This guide was prepared by Isha Brown, BSc, PharmD.

The author acknowledges the contributions of Dr. Tarek Hussein, PharmD, MBA, RPh and Dr. Myles Sergeant, MD, CCFP, whose expertise and clinical insight informed the development of this resource.

Analgesics

Overview: Analgesics provide relief for pain and fever, and include acetaminophen, NSAIDs, and topical agents. Choice depends on age, comorbidities, pregnancy, and GI, CV, renal risk. Sustainability considerations favour solid oral forms and avoiding unnecessary combination products.

	Acetaminophen	Ibuprofen	Acetylsalicylic Acid (ASA)	Naproxen Sodium
Indication	Pain and fever	Pain, fever and inflammation	Pain CVD 2° Prevention	Pain and fever
Recommended Adult Dose	325–1000 mg Q4–6H PRN (max 4 g/day)	200–400 mg Q6–8H PRN (max 1.2 g/day)	325–650 mg q4h for pain (max 4 g/day) 81 mg daily for CVD 2° Prevention	220 mg Q8–12H
Formulations	Tablets, caplets, liquid-gels suppositories	Tablets, caplets, liquid-gels, suspensions	Tablets, enteric-coated, chewables	Tablets, caplets, liquid-gels
Precautions	Hepatotoxic in overdose or with alcohol use. Avoid use with other acetaminophen-containing products (overdose risk).	Avoid use in renal impairment, GI bleed, 3rd trimester pregnancy and warfarin.	Avoid in <18 years with with viral illness (Reye's syndrome risk). Naproxen and Ibuprofen may reduce ASA cardioprotection; **give ASA ≥2 hrs before NSAIDs.**	**Avoid combining 2 NSAIDs.** Risk of GI bleed ↑, even when low doses of ASA are combined with other NSAIDs.
Eco-Note	• Solid dosage forms have a lower carbon footprint than liquids or gels. • Opt for bulk packaging to reduce plastic and mixed material waste.			
Carbon Impact				
Precautions	Safe in pregnancy	**Take with food** to limit GI upset.	Enteric-coated form may reduce GI upset.	Longer half-life than ibuprofen → twice-daily dosing improves adherence.

BEHIND THE COUNTER

Schedule II medications require pharmacist assessment and counseling, not available for self-selection, and may require prescriber referral when appropriate.

Codeine + Acetaminophen (with or without caffeine)
Codeine + ASA (with or without caffeine)

DISPOSAL **RETURN TO PHARMACY**

CVD = Cardiovascular disease; 2° = secondary; NSAIDs = non-steroidal anti-inflammatory drugs; GI = gastrointestinal

Cough & Cold

Overview: Includes suppressants, expectorants, decongestants, and antihistamines; evidence for many OTC cough products is limited. Key considerations include age restrictions, sedation and cardiovascular risk. Prefer solid, single-ingredient formulations to reduce unnecessary exposure and environmental impact.

	Dextromethorphan	Codeine	Guaifenesin
Indication	Cough suppressant	Cough suppressant	Expectorant (turns non-productive cough to productive)
Onset	15–30 mins	30–60 mins	30 mins
Recommended Adult Dose	10–20 mg Q4H PO or 30 mg Q6–8H PO (Max 120 mg/day)	15-30 mg Q4-6H PRN May increase dose based on response and tolerability up to 60 mg Q4-6H PRN	200-400 mg Q6H (max 1.6 g/day)
Formulations	Syrup, softgels, lozenges	Syrup, Tablets (available in combination)	Tablets, caplets, suspension and syrup
Precautions	Potential for misuse for euphoric effects.	Potential for dependence/addiction.	Not for chronic cough
Eco-Note	• Lozenges/tablets have a lower manufacturing and shipping footprint than syrups. • **Detected in aquatic environments** with developmental toxicity observed in zebrafish.	Intended for short-term illness; purchase small quantities to reduce waste and return unused product to a pharmacy for proper disposal.	
Carbon Impact			
Pearls	Less sedative than codeine. Sugar & alcohol in some products, but minimal concern in diabetes & children.	Reserve for use if other antitussives ineffective	Adequate fluid intake enhances effect.

DISPOSAL RETURN TO PHARMACY

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Cough & Cold

	Pseudoephedrine	Phenylephrine	1st Gen. Antihistamines	2nd Gen. Antihistamines
Indication	Decongestant		Allergic Symptoms Insomnia*	Allergic rhinitis Urticaria
Recommended Adult Dose	60 mg Q4-6H or 120 mg Q12H for extended release (max 240 mg/day)	10 mg orally Q4H PRN for ≤7 days 0.25 - 1% solution: Instill 2-3 sprays in each nostril no more than Q4H	**Diphenhydramine (Benadryl)** 25–50 mg Q4–6H	**Loratadine (Claritin)** 10 mg daily **Cetirizine (Reactine)** 5-20 mg once daily to BID **Fexofenadine (Allegra)** 60 mg BID or 120 mg once daily
Formulations	Tablet, caplet, capsule, syrup	Tablet, intranasal spray	Tablet, caplet, liquid, gels	Tablets, liquid gels, syrup
Precautions	Avoid in Hypertension, cardiac disease, hyperthyroidism, urinary retention, or MAOI use.	Limit oral use to ≤7 days and nasal use to ≤3 days to avoid rebound congestion.	Strong anticholinergic and sedating effects	Generally non-sedating, but cetirizine may cause mild drowsiness.
Eco-Note	Prefer solid oral dosage forms and avoid unnecessary single-dose blister packaging to reduce material waste.			
Carbon Impact				
Pearls	Often available in combination with 2nd gen. antihistamines	Limited evidence supports oral phenylephrine effectiveness for congestion.	Effective for allergy-related symptoms (sneezing, itching, rhinorrhea); **limited benefit for nasal congestion.**	preferred for routine use.

DISPOSAL RETURN TO PHARMACY

BID = twice daily

Iron

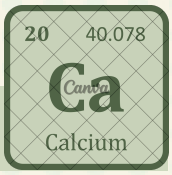
Overview: Oral iron prevents and treats iron deficiency anemia; use alternate-day dosing and solid formulations to improve tolerability and reduce environmental impact. Ferrous fumarate preferred.

	Ferrous Gluconate	Ferrous Sulphate	Ferrous Fumarate	Polysaccharide Iron Complex	Heme Iron Polypeptide
Indication	Prevention and treatment of iron deficiency anemia.				
Elemental Content	35 mg (12%) per 300 mg tab	60 mg (20%) per 300 mg tab	99 mg (33%) per 300 mg tab	150 mg (100%)	11 mg (100%)
Bioavailability	Requires acidic gastric pH Vitamin C 200–1000 mg ↑ absorption.			100% less efficacy than iron salts	100%
Tolerability	**GI effects most common:** stomach pain, constipation and dark stools.				
	Iron salts preferred for less GI adverse effects.			Higher elemental iron content ↑ GI adverse effects.	
Eco-Note	• **100–150 mg** elemental iron on **alternate days** provides similar efficacy, better tolerability, and a lower carbon footprint than 60 mg taken once or twice daily.[1] • Blister pack-free bottles reduces packaging waste.			High manufacturing complexity and energy use per unit associated high cost.	Animal-derived hemoglobin associated with higher greenhouse gas emissions.
Monitoring & Follow-up	Correction of anemia: 6–8 weeks, depending on severity Repletion of iron stores: 3 months beyond Hb recovery				
Pearls	• **Ferrous fumarate preferred for greatest elemental iron content.** • Ferrous sulphate may be used off-label for restless leg syndrome. • Best absorbed on empty stomach (1 hour before or 2 hours after meals). • **Take at night** to improve absorption and minimizes GI adverse effects. • Avoid concurrent use with antacids, PPIs, calcium, and tea/coffee which decrease absorption.				
Recommended Dietary Allowance (RDA)	**Males** 9–13 yrs: 8 mg/day 14–18 yrs: 11 mg/day >18 yrs: 8 mg/day	**Females** 9–13 yrs: 8 mg/day 14–50 yrs: 18 mg/day >50 yrs: 8 mg/day	**Pregnancy** 27 mg/day **Lactation** 9 mg/day		

DISPOSAL RETURN TO PHARMACY

Hb = Hemoglobin; PPI = Proton Pump Inhibitor

Calcium



Overview: Calcium salts are used for dietary supplementation, antacid effects and as a cost-effective phosphate binder in chronic kidney disease. Absorption varies with gastric pH and formulation.

	Calcium Carbonate	Calcium Citate
Indication	Antacid Dietary supplementation	Dietary Supplementation
Off-label Uses	Management of hyperphosphatemia in CKD when administered with meals Postmenopausal osteoporosis	Postmenopausal osteoporosis
Elemental Content	200 mg (40%) per 500 mg tab (1 chewable TUMS tablet)	63 mg (21%) per 300 mg tablet
Tolerability	**Most common**: constipation, gas and bloating. • Take with food to ↑ absorption. • Adverse effects more likely in older adults with reduced gastric acidity. • Caution in pregnancy, as excessive intake may cause milk alkali syndrome and hypercalcemia.	**Absorption independent of stomach acidity;** take without regards to meals
Eco-Note	Requires mining or quarrying; may contribute to CO_2 emissions.	Produced by reacting citric acid with calcium carbonate or other salts, upstream environmental footprint is largely driven by the mining and processing of base calcium sources.
Pearls	• **Divide doses > 600 mg** of elemental calcium daily for optimal absorption. • In CKD, total elemental intake (dietary + supplemental) **should not exceed 2000 mg/day.** • Administer 1 hr before or 2 hrs after other medications to avoid interactions. • Vitamin D supports absorption and is often used in combination.	

Recommended Dietary Allowance (RDA)	**Males**	**Females**	**Pregnancy** / **Lactation**
	9–18 yrs: 1,300 mg/day 19–70 yrs: 1,000 mg/day >70 yrs: 1,200 mg/day	9–18 yrs: 1,300 mg/day 19–50 yrs: 1,000 mg/day >50 yrs: 1,200 mg/day	1,000 mg/day 1,000 mg/day

DISPOSAL RETURN TO PHARMACY

CKD = Chronic Kidney Disease

Vitamin D

Overview: Vitamin D maintains bone health and supports calcium absorption. D_2 is plant-derived but less potent; D_3 is preferred clinically.

	Vitamin D_2 (ergocalciferol)	Vitamin D_3 (cholecalciferol)
Indication	Prevention and treatment of vitamin D deficiency; supports bone health, calcium absorption.	
Bioavailability	~70–80% potency of Vitamin D_3 Short half-life	More effective than D_2 for maintaining serum 25-hydroxyvitamin D levels; **preferred for general use.**
Source	Plant-based (yeast/ergosterol); suitable for vegans.	Animal-based (lanolin or fish oil).
Eco-Note	Tablets and capsules have lower environmental impact than liquids	
Carbon Impact		
Pearls	• **Take with or without food**; absorption may be enhanced with fat-containing meals. • All forms require consistent dosing. • Health Canada: adults ≥50 years should supplement with 400 IU (10 µg) daily to meet requirements, especially in winter months.	

DISPOSAL RETURN TO PHARMACY

Potassium

Overview: Potassium salts may be used for the management of hypokalemia (low potassium) or for the prevention of kidney stones. Potassium gluconate is the most widely available.

	Potassium Gluconate	Potassium Chloride	Potassium Citrate
Indication	Prevention & treatment of hypokalemia	Prevention & treatment of kidney stones	Prevention & treatment of hypokalemia
Elemental Content	2.5 mmol per 100 mg tab	2.5 mmol per 99 mg tab	8 mmol per 600 mg tab
Conversion	1 g elemental Potassium = 25.6 mEq = 25.6 mmol.		
Administration	• Swallow tablets whole with a full glass of water; do not crush, split, or chew. • Oral liquids, powders, and effervescent tablets should be fully diluted in 100–200 mL of water or juice and ingested slowly. • Administer **with or after food in 2–3 divided doses** to reduce GI irritation; single oral doses should not exceed 20 mmol.		
Eco-Note	**Consider a food-first approach** for patients with hypokalemia before continuing or escalating supplementation. Most individuals can meet their potassium needs naturally through diet, and dietary potassium is well absorbed (≈85–90%).		
Pearls	Potassium iodide not a source of potassium; not appropriate for the management of hypokalemia.		

DISPOSAL **RETURN TO PHARMACY**

Magnesium

Overview: Magnesium salts may be used as dietary supplements, laxatives, and antacids. The salts differ in bioavailability, GI tolerability, and safety in renal impairment, and solid oral formulations are generally preferred to reduce packaging and product waste.

	Magnesium Oxide	Magnesium Citrate	Magnesium Hydroxide (milk of magnesia)	Magnesium Bisglycinate
Indication	Dietary Supplementation Mg^{2+} deficiency	Short-term laxative	Antacid	Dietary supplementation
Off-Label/ 2nd Line Uses	Chronic idiopathic constipation	Migraine prophylaxis (in pregnancy/lactation) Opioid-induced constipation.	Short term-Laxative	Support for muscle cramps, stress, or sleep
Elemental Content	252 mg (60.5%) per 420 mg tab (Swiss Natural)	24 mg (16%) per 150 mg capsule (Natural Factors)	502 mg (41.8%) per 1200 mg/15 mL (Phillips')	24 mg (12%) per 200 mg tab
Tolerability	**Highest GI upset and diarrhea.**	Risk of diarrhea; short-term use only with adequate fluid intake.	Electrolyte risk with prolonged use.	Minimal GI side effects
Eco-Note	**Low environmental persistence.** Magnesium is a naturally occurring element; salts dissociate in water and do not bioaccumulate.			
Pearls	Take with food to improve absorption.	Better absorbed than oxide; solution = saline laxative	Can be mixed with citrus juice to mask taste.	Preferred for long-term supplementation
	Separate from other meds by ≥2 hours			

DISPOSAL RETURN TO PHARMACY

Mg^{2+} = Magnesium
Magnesium sulphate (Epsom salt) is intended for topical soaking for muscle aches and should not be used orally.

Magnesium

12 24.304 Mg Magnesium

	Magnesium Gluconate	Magnesium Chloride	Magnesium Carbonate
Indication	Dietary supplementation; Mg^{2+} deficiency		Dietary supplementation
Elemental Content	27 mg (5.4%) per 500 mg tab	Variable	840 mg (28%) per 3 g powder dose
Tolerability	Gentle on stomach.	• Better tolerated than oxide. • Caution in renal impairment	Take with food.
Eco-Note	**Many tablets daily** because ↓ Mg^{2+} content.	Low-complexity manufacturing; environmental impact driven by volume of use rather than persistence.	**Once daily dosing** because ↑ Mg^{2+} content.
Pearls	Separate from other meds by ≥2 hours		

Potassium

19 39.098 K Potassium

Overview: Potassium salts may be used for the management of hypokalemia (low potassium) or for the prevention of kidney stones. Potassium gluconate is the most widely available.

	Potassium Gluconate	Potassium Chloride	Potassium Citrate
Indication	Prevention & treatment of hypokalemia	Prevention & treatment of kidney stones	Prevention & treatment of hypokalemia
Elemental Content	2.5 mmol per 100 mg tab	2.5 mmol per 99 mg tab	8 mmol per 600 mg tab
Conversion	1 g elemental Potassium = 25.6 mEq = 25.6 mmol.		
Administration	• Swallow tablets whole with a full glass of water; do not crush, split, or chew. • Oral liquids, powders, and effervescent tablets should be fully diluted in 100–200 mL of water or juice and ingested slowly. • Administer **with or after food in 2–3 divided doses** to reduce GI irritation; single oral doses should not exceed 20 mmol.		
Eco-Note	**Consider a food-first approach** for patients with hypokalemia before continuing or escalating supplementation. Most individuals can meet their potassium needs naturally through diet, and dietary potassium is well absorbed (≈85–90%).		
Pearls	Potassium iodide not a source of potassium; not appropriate for the management of hypokalemia.		

DISPOSAL RETURN TO PHARMACY

Antacids

Overview: Antacids provide rapid relief of heartburn via acid neutralization. Onset is fast but duration is short. Combination products with alginic acid can offer additional mechanical reflux protection. **Also see calcium carbonate (p. 7) and magnesium hydroxide (p. 10).**

	Aluminum Hydroxide	Sodium Bicarbonate	Bismuth Subsalicylate
Indication	Relief of heartburn, acid indigestion, sour stomach, and upset stomach.		Relief of heartburn, acid indigestion, **nausea** and **diarrhea**. H. pylori eradication
Neutralizing Capacity	Highest to lowest: Calcium carbonate > Sodium bicarbonate > Magnesium hydroxide > Aluminum hydroxide.		
Tolerability	• Constipation is common. • Not suitable in renal impairment due to accumulation risk.	• Gas and bloating • Risk of metabolic alkalosis with excessive or prolonged use. • **High sodium load;** may worsen edema.	• Mild GI upset or constipation. • Black stool/tongue discoloration is harmless.
Eco-Note	Choose tablets over liquids for lower packaging waste.		
Pearls	Combo products with magnesium balance constipation-diarrhea effects.	Avoid with other sodium-containing products and in hypertension, heart failure, or ascites.	Rinse mouth after use to reduce black tongue. Avoid in <18 years with with viral illness (Reye's syndrome risk).

DISPOSAL **RETURN TO PHARMACY**

Proton Pump Inhibitors

Overview: PPIs reduce gastric acid production and are used for frequent heartburn. They require daily, timed dosing for full effect and are not for immediate relief. Minimizing unnecessary chronic use is important clinically and environmentally.

	Omeprazole	Esomeprazole
Indication	Frequent heartburn occurring ≥2 days/week	
Onset	Partial relief <1 hour. Maximum effect at 24 hours. **Duration:** Up to 72 hours.	Partial relief within 1-2 hours. **Duration:** ~24 hours.
Administration	• Take **30–60 minutes** before breakfast; not for immediate symptom relief. • If taken twice daily, dose before breakfast and before dinner.	• Take **60 minutes** before breakfast; not for immediate symptom relief. • Generally acceptable in pregnancy (less data than omeprazole) • Tablets may be dispersed in a half a glass of noncarbonated water.
Monitoring & Follow-up	Verify ongoing indication for PPI use: **Deprescribe when no clear indication** exists; if still required, step down to the lowest effective dose or switch to as needed use, with monitoring for symptom recurrence.[4]	
Eco-Note	PPIs persist in environmental wastewater; **deprescribing unnecessary long-term use reduces pharmaceutical load.**	
Carbon Impact		
Pearls	Initial treatment should be limited to **once daily for 14 days.**	

DISPOSAL RETURN TO PHARMACY

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