

Drugs for Open Angle Glaucoma

full update February 2025

The following chart has info on available glaucoma meds, including cost, select side effects, mechanism of action, and dosing frequency. For general information on glaucoma pharmacotherapy, see **footnote c**.

Drug	Approximate Cost ^a	Select Side Effects ^{1,3,7,10}	Comments
Prostaglandin analogs			
Bimatoprost 0.01% Lumigan (US), Lumigan RC (Canada)	US: \$260/2.5 mL, \$530/5 mL, \$790/7.5 mL Canada: \$70/5 mL, \$100/7.5 mL	<ul style="list-style-type: none"> • Allergic Reactions • Anterior uveitis • Cystoid macular edema • Darkening of eyelid, eyelashes, and iris • Eye redness (lowest risk with latanoprost²), stinging, and itching • Foreign body sensation • Herpes virus activation • Increased and/or misdirected eyelash growth • Keratitis • Orbital soft tissue changes • Ptosis 	<ul style="list-style-type: none"> • Role: first-line due to efficacy, tolerability, and once-daily dosing.¹ • Most effective drugs for IOP reduction (25% to 33%).^{1,2} All prostaglandin analogs are similarly effective.² • MOA: increased aqueous humor outflow¹ • Usual dosing frequency: once daily in the evening³ • Avoid in: macular edema, history of herpetic keratitis, active uveitis¹ • Latanoprostene bunod is metabolized to the active moieties latanoprost acid and nitric oxide. They increase aqueous humor outflow via different mechanisms. Latanoprostene bunod does not reduce IOP much more than latanoprost alone.⁴
Bimatoprost 0.03% (Canada) Vistitan, Zimed PF	Vistitan: \$50/5 mL Zimed PF: \$60.5 mL		
Latanoprost 0.005% Xalatan, generics	US: \$10/2.5 mL Canada: \$10/2.5 mL		
Latanoprost 0.005% preservative-free Iyuzeh (US), Monoprost (Canada)	US: \$320/30 doses Canada: \$20/30 doses		
Latanoprost/Netarsudil (US) Rocklatan 0.005%/0.02%	US: \$350/2.5 mL		
Latanoprost/Timolol (Canada) Xalacom 0.005%/0.5%, generics	Canada: \$10/2.5 mL		
Latanoprostene bunod 0.024% Vyzulta	US: \$260/2.5 mL, \$520/5 mL Canada: \$30/5 mL		
Tafluprost 0.0015%. (US) Zioptan, generics	US: \$160/30 doses		
Travoprost 0.003% (Canada) Izba	Canada: \$20/5 mL		
Travoprost 0.004%, Travatan Z, generics	US: \$80/2.5 mL, \$160/5 mL Canada: \$45/5 mL		
Travoprost/Timolol (Canada) DuoTrav PQ 0.004%/0.5%, generics	Canada: \$50/5 mL		

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Beta-Blockers			
Betaxolol 0.5% solution (US)	US: \$50/5 mL; \$90/10 mL, \$140/15mL	<ul style="list-style-type: none"> Allergic reactions Bradycardia Bronchospasm Blurred vision Corneal anesthesia Exercise intolerance Eye irritation (highest risk with betaxolol), dryness, redness Depression Hypotension Impotence Keratitis Ptosis 	<ul style="list-style-type: none"> Role: second-line or adjunct.^{7,8} Efficacy: 20% to 25% IOP reduction.¹ MOA: decreased aqueous humor production¹ Usual dosing frequency: once daily in the morning, to BID.¹ Avoid in: severe COPD (nonselective agents), asthma (nonselective agents), acute heart failure, bradycardia, second- or third-degree heart block^{1,3} Could in theory mask hypoglycemia symptoms.⁵ Betaxolol is beta-1 selective, but not as effective as nonselective agents.^{1,2} Betaxolol 0.25% suspension is as effective as the 0.5% solution and is better tolerated.⁸ Ophthalmic administration of beta-blockers can result in significant blood levels. For example, one drop of timolol 0.5% in each eye can equal as much as 10 mg of oral timolol.⁶ See footnote c for information on administration techniques to limit systemic absorption.
Betaxolol 0.25% suspension Betoptic S	US: \$610/15 mL, \$410/10 mL Canada: \$15/5 mL		
Carteolol 1% (US)	US: \$15/5 mL, \$25/10 mL, \$35/15 mL		
Levobunolol (US) Betagan 0.25%, 0.5% (generic only)	US: \$20/5 mL (either strength)		
Timolol hemihydrate (US) Betimol 0.25%, 0.5% (generic available)	US: \$150/5 mL (Betimol 0.25%); 0.5% (generic): \$110/5 mL, \$210/10 mL, \$290/15 mL		
Timolol maleate See Prostaglandins , above, for combo products Xalacom and DuoTrav PQ.			
Isalol (US) 0.5%, generics	US: \$130/2.5 mL, \$240/5 mL		
Timoptic 0.25%, 0.5%, generics	US: <\$5/5 mL ^b (0.25%), <\$10/5 mL ^b (0.5%); Canada: \$25/10 mL (0.25%), <\$10/5 mL (0.5%), \$15/10 mL (0.5%)		
Timoptic in OcuDose (US) 0.25%. 0.5%, generics	US: \$400/60 doses (0.25%), \$210/60 doses (0.5%)		
Timoptic XE gel forming solution 0.25%, 0.5%, generics	US: \$180/5 mL (0.25%), \$190/5 mL (0.5%); Canada: \$20/5 mL (0.25%, 0.5%)		
Timolol/Brimonidine Combigan 0.5%/0.2%, generics	US: \$100/5 mL, \$200/10 mL, \$330/15 mL Canada: \$25/10 mL		
Timolol/Brinzolamide (Canada) Azarga 0.5%/1%	Canada: \$20/5 mL		
Timolol/Dorzolamide 0.5%/2%, Cosopt, Cosopt PF (US), generics; Cosopt Preservative-Free (Canada)	US: \$30/10 mL; \$120/60 doses (preservative-free) Canada: \$20/10 mL; \$50/60 doses (preservative-free)		

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Carbonic Anhydrase Inhibitors			
Acetazolamide (oral) 125 mg tablet (US), 250 mg tablet; 500 mg extended-release capsule (US)	500 mg ER BID dose or 250 mg IR QID dose: US: \$80/30 days Canada: \$20/30 days (IR)	Topical: <ul style="list-style-type: none"> Allergic dermatitis/ conjunctivitis Corneal edema Irritation of eye Keratitis Bad taste Oral: <ul style="list-style-type: none"> Anorexia Blood dyscrasias Depression Diarrhea Diuresis GI side effects Hypokalemia Hyponatremia Kidney stones Malaise Metabolic acidosis Metallic taste Paresthesia Stevens-Johnson syndrome Weakness 	<ul style="list-style-type: none"> Role: second or third-line, usually as part of combination therapy (topicals).^{1,7} Oral agents are usually reserved for short-term use (e.g., prior to surgery or for acute increases in IOP).⁷ Efficacy: 20% to 30% IOP reduction (oral); 15% to 20% IOP reduction (topical)¹ Do not combine orals and topicals; toxicity may be increased without additive efficacy.⁸ MOA: decreased aqueous humor production¹ Usual dosing frequency: BID to TID (topical);⁸ once daily to QID (oral)³ Avoid orals in: hypokalemia, hyponatremia, severe liver or kidney impairment, sulfonamide allergy, kidney stones^{1,3} Avoid topicals in: severe kidney impairment, sulfonamide allergy^{1,3}
Brinzolamide 1% Azopt 1%, generics (US) (See Beta-Blockers section for combo product Azarga [Canada])	US: \$300/10 mL, \$450/15 mL Canada: \$20/5 mL		
Brinzolamide/Brimonidine Simbrinza 1%/0.2%	US: \$210/8 mL Canada: \$50/10 mL		
Dorzolamide 2% Trusopt, generics Trusopt Preservative-Free (Canada) (See Beta-Blockers section for combo products Cosopt, Cosopt PF [US], Cosopt Preservative-Free [Canada])	US: \$20/10 mL Canada: <\$10/5 mL; \$80/60 doses (preservative-free)		
Methazolamide (oral)	50 mg BID dose: US: \$260/30 days Canada: \$40/30 days		
Alpha-2 Agonists			
Apraclonidine 0.5% Iopidine (generics [US])	US: \$60/5 mL; \$130/10 mL Canada: \$30/5 mL	<ul style="list-style-type: none"> Allergic dermatitis/ conjunctivitis Anterior uveitis Topical allergic reactions (more common with apraclonidine⁸) 	<ul style="list-style-type: none"> Role: second-line (brimonidine);⁸ short-term adjunctive therapy (apraclonidine).^{1,3} Note that apraclonidine 1% is not indicated for glaucoma.³ <ul style="list-style-type: none"> Apraclonidine use is limited by tachyphylaxis.⁸
Brimonidine Alphagan 0.2% (Canada), generics Alphagan P 0.1% (US only), 0.15%, generics <i>Continued...</i>	Alphagan 0.2% generic US ~\$10 (5, 10, 15 mL) Canada: \$<10/5 mL, \$10/10 mL		

Drug	Approximate Cost ^a	Select Side Effects ^{1,3,7,10}	Comments
<p>Brimonidine, continued</p> <p>(See Carbonic Anhydrase Inhibitors section for combo product Simbrinza. See Beta-Blockers section for combo product Combigan)</p>	<p>Alphagan P 0.1% generic US: \$160/5 mL, \$320/10 mL, \$470/15 mL</p> <p>Alphagan P 0.15% generic US: \$140/5 mL, \$280/10 mL, \$430/15 mL Canada: \$10/5 mL, \$20/10 mL</p>	<ul style="list-style-type: none"> • Dizziness • Dry mouth and nose • Fatigue • Headache • Hypotension • Lid retraction • Somnolence 	<ul style="list-style-type: none"> • Efficacy: 20% to 25% IOP reduction (brimonidine > apraclonidine).^{1,2} • <i>Alphagan P</i> and <i>Alphagan</i> have different preservatives (Purite and BAK, respectively).⁸ Purite enhances brimonidine eye penetration and is less irritating than BAK.⁸ • MOA: initial reduction in aqueous humor production, then increased aqueous humor outflow³ • Usual dosing frequency: TID³ • Avoid: use in children, use with a monoamine oxidase inhibitor¹⁰
Parasympathomimetics			
<p>Echothiophate Phospholine Iodide (US)</p>	<p>US: \$2,861.18/5 mL</p>	<ul style="list-style-type: none"> • Brow ache • Conjunctivitis • Increased lacrimation • Myopia with blurred vision • Retinal tears or detachment 	<ul style="list-style-type: none"> • Role: last-line.⁸ • Efficacy: 20% to 25% IOP reduction¹ • MOA: increased aqueous humor outflow¹ • Usual dosing frequency: once every-other-day to BID (echothiophate); QID (pilocarpine)⁸ • Avoid in: iritis, uveitis³
<p>Pilocarpine generics 1%, 2%, 4% (US); Isopto-Carpine 2% (Canada)</p>	<p>US: \$60/15 mL (1%, 2%), \$110/15 mL (4%)</p> <p>Canada: <\$10/15 mL</p>		
Rho Kinase (ROCK) Inhibitors			
<p>Netarsudil 0.02% (US) Rhopressa</p> <p>(See Prostaglandin analogs section for combo product Rocklatan.)</p>	<p>US: \$130/2.5 mL</p>	<ul style="list-style-type: none"> • Blurred vision • Conjunctival hemorrhage and redness • Corneal haze and verticillata • Keratitis • Pain with instillation • Tearing 	<ul style="list-style-type: none"> • Role: adjunct.¹⁰ • Efficacy: 25% to 30% IOP reduction¹⁰ Most effective in patients with lower pre-treatment IOP (<25 mmHg).⁹ • MOA: increased aqueous humor outflow³ • Usual dosing frequency: once daily in the evening³ • Discontinuation due to adverse effects greater than with timolol or latanoprost.¹⁰

Abbreviations: BAK = benzalkonium chloride; IOP = intraocular pressure

- a. Wholesale acquisition cost (WAC) of generic, if available. US medication pricing by Elsevier, accessed February 2025.
- b. Other sizes may be available.
- c. Considerations for choosing an agent include cost, efficacy, side effects, comorbidities, patient preference, and dosing schedule.^{1,10} If a single medication does not produce an adequate response, switch medication classes, or add another agent.^{1,10} Additional efficacy is seen when agents with different mechanisms of action are used in combination.^{8,10} Switching within a class can be tried to address adverse effects.¹⁰ Two or three medications may be required to achieve the desired IOP reduction.¹⁰ Counsel patients to wait three to five minutes between administration of different medications.¹⁰ Combination products may improve adherence and reduce eye exposure to preservatives.¹ To decrease systemic absorption, patients should be counseled to press on the bridge of the nose in the corner of the eye (i.e., nasolacrimal occlusion) during and for three to five minutes after administration, or close their eyes after administration.^{1,8}

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