



Appendix D: Commonly Used Antihypertensive Drugs ^{1-4, a}

Generic Name (trade name) (strengths and dosage form)	Usual Adult Dosages for Hypertension ^b	Annual Cost ^c	PharmaCare Coverage	Common Adverse Effects	Therapeutic Considerations
Diuretics					
chlorthalidone G Tabs: 50 mg	Initial: 12.5 mg once daily Usual: 12.5 mg to 25 mg once daily Maximum: 50 mg per day (some sources: max 25 mg per day)	\$12-25	Regular Benefit	Common • Hypotension, muscle cramps, weakness, erectile dysfunction	<ul style="list-style-type: none"> • Monitor SCr and potassium. • Generally ineffective in CrCl < 30 mL/min. • Use cautiously in patients with history of or predisposition to gout (may precipitate gout) or renal impairment (cumulative effects may develop). • May change glycemic control in patient with diabetes or prediabetes. • Consider an alternative antihypertensive for patients with or predisposed to arrhythmias. • May be available in combination with other entity. See other agents for available combination products.
hydrochlorothiazide G Tabs: 12.5, 25, 50, 100 mg	Initial: 12.5 mg daily Usual: 12.5 mg to 25 mg once daily Maximum: 50 mg per day (some sources: max. 25 mg per day)	\$12-13	Regular Benefit	<ul style="list-style-type: none"> • Hypokalemia, hyponatremia, hyperglycemia, hyperlipidemia, hyperuricemia 	
triamterene/hydrochlorothiazide <i>Triazide, G</i> Tabs: 50/25 mg	Initial: 25/12.5 mg once daily Usual: 50/25 mg once daily	\$25		Less Common • Allergic reactions (cross sensitivity to sulfonamides not proven), photosensitivity, fatigue, blood dyscrasias, azotemia	
indapamide <i>Lozide, G</i> Tabs: 1.25, 2.5 mg	Initial: 1.25 mg once daily Usual: 1.25 mg to 2.5 mg once daily Maximum: 2.5 mg per day	\$30-45	Limited Coverage		
spironolactone <i>Aldactone, G</i> Tabs: 25, 100 mg	Initial: 12.5 mg once daily Usual: 25-50 mg once daily Maximum: 200 mg per day	\$50-115	Regular Benefit	Common • Gynecomastia, breast tenderness, headache, erectile dysfunction • Hyperkalemia, hyponatremia, hypochloremia	<ul style="list-style-type: none"> • Monitor SCr and potassium. • May change glycemic control in patient with diabetes or prediabetes. • Particularly effective in ISH, the elderly and black patients. • Use cautiously in patients with history of or predisposition to gout (may precipitate gout) <p>Combination: Lower incidence of hypokalemia than with hydrochlorothiazide alone</p>
spironolactone/hydrochlorothiazide <i>Aldactazide, G</i> Tabs: 25/25, 50/50 mg				Less Common • Allergic reactions, irregular menses	
Angiotensin-Converting Enzyme Inhibitor (ACE-I)					
ramipril <i>Altace, G</i> Caps: 1.25, 2.5, 5, 10, 15 mg	Initial: 2.5 mg once daily Usual: 2.5 to 10 mg once daily Maximum: 20 mg per day	\$30-80	Regular Benefit, RDP	Common • Dry cough • Hyperkalemia	<ul style="list-style-type: none"> • Monitor SCr and potassium at initiation of therapy and periodically. • Reduce initial dose by 50% if on concomitant diuretics (risk of hypotension with hypovolemia). • Cough associated with ACE-I is dry, hacking and non-productive and typically occurs within months of initiation of therapy. • Risk factors for hyperkalemia include renal dysfunction, diabetes and concomitant use of potassium supplements, potassium-sparing diuretics or potassium-containing salts. • Consider a thiazide diuretic or CCB instead of an ACE-I or ARB as initial antihypertensive therapy in black patients. • For patients who experience reduced antihypertensive effect near the end of the 24-hour dosing interval, divide total daily dose into two equal doses given every 12 hours or increase once daily dose. <p>For combination products, see other entity for additional adverse effects</p> <p>For combination products, see other entity for additional therapeutic considerations</p>
ramipril/hydrochlorothiazide <i>Altace-HCT, G</i> Tabs: 2.5/12.5, 5/12.5, 5/25, 10/12.5, 10/25 mg		\$50-80	Reference Drug	Less Common • Angioedema • Precipitation of renal failure in patients with renovascular disease, volume depletion or concomitant NSAID use	
benazepril <i>Lotensin, G</i> Tabs: 5, 10, 20 mg	Initial: 10 mg once daily Usual: 20 mg once daily Maximum: 40 mg per day	\$365-742	Partial Benefit, RDP		
captopril <i>Capoten, G</i> Tabs: 6.25, 12.5, 25, 50, 100 mg	Initial: 12.5 - 25 mg BID to TID Usual: 50 mg BID to TID Maximum: 450 mg per day <i>Administer one hour prior to meals</i>	\$230-1570	Partial Benefit, RDP		
cilazapril <i>Inhibace, G</i> Tabs: 1, 2.5, 5 mg	Initial: 2.5 mg once daily Usual: 2.5 to 5 mg once daily Maximum: 10 mg per day	\$70-160	Partial Benefit, RDP		
cilazapril/hydrochlorothiazide <i>Inhibace Plus, G</i> Tabs: 5/12.5 mg		\$160			

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enalapril <i>Vasotec, G</i> Tabs: 2.5, 5, 10, 20 mg	Initial: 5 mg once daily Usual: 10 mg to 40 mg daily as a single dose or two divided doses Maximum: 40 mg per day	\$85-240	Partial Benefit, RDP		
enalapril/hydrochlorothiazide <i>Vaseretic, G</i> Tabs: 5/12.5, 10/25 mg		\$290-400			
fosinopril <i>Monopril, G</i> Tabs: 10, 20 mg	Initial: 10 mg once daily Usual: 20 mg once daily Maximum: 40 mg per day	\$85-200	Partial Benefit, RDP		
lisinopril <i>Prinivil, Zestril, G</i> Tabs: 5, 10, 20 mg	Initial: 10 mg once daily Usual: 10 to 40 mg once daily Maximum: 80 mg per day	\$65-150	Partial Benefit, RDP		
lisinopril/hydrochlorothiazide <i>Zestoretic, G</i> Tabs: 10/12.5, 20/12.5, 20/25 mg		\$80-100			
perindopril erbumine <i>Coversyl, G</i> Tabs: 2, 4, 8 mg	Initial: 4 mg once daily Usual: 4 to 8 mg once daily Maximum: 8 mg per day	\$75-100	Partial Benefit, RDP		
perindopril erbumine/indapamide <i>Coversyl Plus, G</i> Tabs: 2/0.625, 4/1.25, 8/2.5 mg		\$280-370	Non-benefit		
perindopril arginine/amlo地平ine <i>Viacoram</i> Tabs: 3.5/2.5, 7/5, 14/10 mg	Initial: 3.5/2.5 mg once daily Usual: 3.5/2.5 to 7/5mg once daily Maximum: 14/10 mg per day		Non-benefit		
quinapril <i>Accupril, G</i> Tabs: 5, 10, 20, 40 mg	Initial: 10 mg once daily Usual: 10 to 20 mg once daily Maximum: 40 mg per day	\$90	Partial Benefit, RDP		
quinapril/hydrochlorothiazide <i>Accuretic, G</i> Tabs: 10/12.5, 20/12.5, 20/25 mg		\$270			
trandolapril <i>Mavik, G</i> Caps: 0.5, 1, 2, 4 mg	Initial: 1 mg once daily Usual: 1 to 2 mg once daily Maximum: 4 mg per day	\$65-95	Partial Benefit, RDP		
		\$670-750			
Angiotensin II Receptor Blockers (ARB)					
candesartan <i>Atacand, G</i> Tabs: 4, 8, 16, 32 mg	Initial: 8 mg once daily Usual: 8 to 32 mg once daily Maximum: 32 mg per day	\$90	Limited Coverage, RDP Reference Drug	Common • Hyperkalemia Less Common • Angioedema • Precipitation of renal failure in patients with renovascular disease, volume depletion or concomitant NSAID use For combination products , see other entity for additional adverse effects	<ul style="list-style-type: none"> • Monitor SCr and potassium at initiation of therapy and regularly. • Reduce initial dose if using concomitant diuretics (risk of hypotension with hypovolemia). • Risk factors for hyperkalemia include renal dysfunction, diabetes and concomitant use of potassium supplements, potassium-sparing diuretics or potassium-containing salts • Consider a thiazide diuretic or CCB instead of an ACE-I or ARB as initial antihypertensive therapy in black patients.
candesartan/hydrochlorothiazide <i>Atacand Plus, G</i> Tabs: 16/12.5, 32/12.5, 32/25 mg		\$85			
losartan <i>Cozaar, G</i> Tabs: 25, 50, 100 mg	Initial: 25-50 mg once daily Usual: 50 to 100 mg once daily Maximum: 100 mg per day	\$95	Limited Coverage, RDP Reference Drug		
losartan/hydrochlorothiazide <i>Hyzaar, G</i> Tabs: 50/12.5, 100/12.5, 100/25 mg		\$100-120			

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telmisartan <i>Micardis, G</i> Tabs: 40, 80 mg	Initial: 40 mg once daily Usual: 40 to 80 mg once daily Maximum: 80 mg per day	\$85	Limited Coverage, RDP Reference Drug		
telmisartan/ amlodipine <i>Twynsta</i> Tabs: 40/5, 40/10, 80/5, 80/10 mg		\$270			
telmisartan/ hydrochlorothiazide <i>Micardis Plus, G</i> Tabs: 80/12.5, 80/25 mg		\$80			
valsartan <i>Diovan, G</i> Tabs: 40, 80, 160, 320 mg	Initial: 80 mg once daily Usual: 80 to 320 mg once daily Maximum: 320 mg per day	\$85	Limited Coverage, RDP Reference Drug		
valsartan/ hydrochlorothiazide <i>Diovan HCT, G</i> Tabs: 80/12.5, 160/12.5, 160/25, 320/12.5, 320/25 mg		\$90			
azilsartan <i>Edarbi</i> Tabs: 40, 80 mg	Initial: 20 mg once daily Usual: 40 to 80 mg once daily Maximum: 80 mg per day	\$450	Non-benefit		
azilsartan/ chlorthalidone <i>Edarbyclor</i> Tabs: 40/12.5, 40/25 mg		\$450			
eprosartan <i>Teveten</i> Tabs: 400, 600 mg	Initial: 600 mg once daily Maximum: 800 mg per day	\$420	Limited Coverage, Partial benefit RDP		
eprosartan/ hydrochlorothiazide <i>Teveten Plus</i> Tabs: 600/12.5 mg		\$420			
irbesartan <i>Avapro, G</i> Tabs: 75, 150, 300 mg	Initial: 75-150 mg once daily Usual: 150 to 300 mg once daily Maximum: 300 mg per day	\$90	Limited Coverage, Partial benefit RDP		
irbesartan/ hydrochlorothiazide <i>Avalide, G</i> Tabs: 150/12.5, 300/12.5, 300/25 mg		\$90			
olmesartan <i>Olmotec, G</i> Tabs: 20, 40 mg	Initial: 20 mg once daily Usual: 20 to 40 mg once daily Maximum: 40 mg per day	\$100	Limited Coverage, Partial benefit RDP		
olmesartan/ hydrochlorothiazide <i>Olmotec plus</i> Tabs: 20/12.5, 40/12.5, 40/25 mg		\$210			

Generic Name (trade name) (strengths and dosage form)	Usual Adult Dosages for Hypertension ^b	Annual Cost ^c	PharmaCare Coverage	Common Adverse Effects	Therapeutic Considerations
Beta₁-Adrenergic Antagonists (Beta-Blockers)					
Beta₁-selective					
atenolol Tenormin, G Tabs: 25, 50, 100 mg	Initial: 50 mg once daily Usual: 50 to 100 mg once daily Maximum: 100 mg per day	\$45-70	Regular Benefit	Common • Bradycardia, fatigue, decreased exercise tolerance, headache, erectile dysfunction, vivid dreams	<ul style="list-style-type: none"> • Low doses of beta1-selective beta-blockers may be used in patients with mild to moderate reversible airway disease (ensure access to a bronchodilating beta2-agonist is readily available). • Initiate cautiously and titrate slowly in patients with heart failure. • When discontinuing in chronic users, gradually taper doses over 1 to 2 weeks (abrupt discontinuation may precipitate cardiac events, sinus tachycardia and rebound hypertension). • Consider alternatives in patients at high risk of heart block (contraindicated in 2nd or 3rd degree heart block without pacemaker). • Avoid in severe PAD. • Avoid beta-blockers as initial therapy in patients > 60 years without other compelling indications.
bisoprolol Monacor, G Tabs: 5, 10 mg	Initial: 5 mg once daily Usual: 10 mg once daily Maximum: 20 mg per day	\$30-80	Regular Benefit	Less Common • Hyperglycemia, heart failure, heart block, depression	
metoprolol Lopressor, Betaloc, G Tabs: 50, 100 mg SR tabs: 100, 200 mg	Initial: 50 mg BID Usual: IR: 50 to 100 mg BID SR: 100 to 200 mg once daily Maximum: 400 mg per day <i>Regular release: dose BID; Sustained release: dose once daily.</i>	\$50-245	Regular Benefit	<i>Cardiac selectivity of beta1-selective beta-blockers may result in fewer non-cardiac adverse effects.</i>	
Non-selective with intrinsic sympathomimetic activity (ISA)					
labetalol Trandate, Tabs: 100, 200 mg Duration of action: 8-12 h	Initial: 100 mg BID Usual: 200 to 400 mg BID Maximum: 1200 mg per day	\$285-1500	Regular Benefit	Common • Bradycardia, fatigue, decreased exercise tolerance, headache, erectile dysfunction, vivid dreams Less Common • Hyperglycemia, heart failure, heart block, depression Adverse effects specific to labetalol • Edema, postural hypotension, dizziness, nasal congestion	<ul style="list-style-type: none"> • Beta-blockers with ISA have a lesser effect on resting heart rate compared to agents without ISA. • Avoid non-selective beta-blockers in reactive airways disease. • Initiate cautiously and titrate slowly in patients with heart failure. • When discontinuing in chronic users, gradually taper doses over 1 to 2 weeks (abrupt discontinuation may precipitate cardiac events, sinus tachycardia and rebound hypertension). • Consider alternatives in patients at high risk of heart block (contraindicated in 2nd or 3rd degree heart block without pacemaker). • Avoid in severe PAD. • Avoid beta-blockers as initial therapy in patients > 60 years without other compelling indications.
Non-selective					
propranolol Inderal, G [regular release], Inderal-LA (24h) Tabs: 10, 20, 40, 80, 120 mg LA tabs: 60, 80, 120, 160 mg	Initial: 40 mg BID using <u>regular release</u> tablets Usual: 60 to 320 mg once daily (LA tabs) for patients stabilized on maintenance dosage of regular release formulation Maximum: 320 mg per day <i>Some patients may require upward titration of the total daily dose of extended release propranolol when switching from regular release tablets.</i>	\$100-1020	Regular Benefit	Common • Bradycardia, fatigue, decreased exercise tolerance, headache, erectile dysfunction, vivid dreams Less Common • Hyperglycemia, heart failure, heart block, depression <i>Propranolol has higher lipophilicity than other beta-blockers and is more likely to cause CNS adverse effects (e.g., insomnia, depression, vivid dreams).</i>	<ul style="list-style-type: none"> • Avoid non-selective beta-blockers in reactive airways disease (risk of bronchospasm or bronchoconstriction). • Initiate cautiously and titrate slowly in patients with heart failure. • When discontinuing in chronic users, gradually taper doses over 1 to 2 weeks (abrupt discontinuation may precipitate cardiac events, sinus tachycardia and rebound HTN). • Consider alternatives in patients at high risk of heart block (contraindicated in 2nd or 3rd degree heart block without pacemaker). • Avoid in severe PAD. • Avoid beta-blockers as initial therapy in patients > 60 years without other compelling indications.

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Calcium Channel Blockers (CCB)					
Dihydropyridine (DHP)					
amlodipine <i>Norvasc, G</i> Tabs: 2.5, 5, 10 mg	Initial: 5 mg once daily Usual: 5 to 10 mg once daily Maximum: 10 mg per day	\$50-75	Regular Benefit, RDP Reference Drug	Common • Adverse effects related to vasodilation (e.g., pedal edema, flushing, headache, palpitations) Serious • Angina, heart failure, pulmonary edema, tachycardia, bradycardia, skin rashes	<ul style="list-style-type: none"> Do not use immediate release DHP-CCBs for acute reduction of BP (strokes have been reported). Do not use immediate release nifedipine to treat essential HTN. DHP-CCBs may worsen heart failure symptoms. Grapefruit juice may increase drug levels and potentiate adverse effects (particularly with felodipine). When discontinuing, taper doses gradually (abrupt withdrawal may provoke chest pain).
telmisartan/amlodipine <i>Twynsta</i> Tabs: 40/5, 40/10, 80/5, 80/10 mg		\$270	Limited Coverage, RDP Reference Drug		
felodipine <i>Plendil, G</i> XR tabs: 2.5, 5, 10 mg	Initial: 2.5 to 5 mg once daily Usual: 2.5 to 10 mg once daily Maximum: 20 mg per day	\$145-385	Partial Benefit RDP		
nifedipine <i>Adalat XL, G</i> XL tabs: 20 (brand only), 30, 60 mg	Initial: 20 to 30 mg once daily Usual: 30 to 60 mg once daily Maximum: 90 mg per day	\$235-590	Partial Benefit RDP		
Non-dihydropyridine (non-DHP)					
diltiazem <i>Cardizem CD, Tiazac XC, Tiazac (ER), G</i> CD, ER, T, TZ, or XR capsule or tablet: 120, 180, 240, 300, 360 mg	Initial: 120 to 240 mg once daily Usual: 240 to 360 mg once daily Maximum: 360 mg per day <i>Note: a SR formulation is available for BID dosing</i>	\$85-300	Regular Benefit	Common • Headache, peripheral edema, dizziness, bradycardia, flushing, nausea, constipation Serious • Heart block, worsening of heart failure, hypotension, ECG abnormality, asthenia, arrhythmia	<ul style="list-style-type: none"> Contraindicated post-MI in patients with moderate or severe left ventricular dysfunction. Use cautiously in patients with heart failure, or 2nd or 3rd degree heart block without pacemaker. Grapefruit juice may increase drug levels and potentiate adverse effects. When discontinuing, taper doses gradually (abrupt withdrawal may provoke chest pain).
verapamil <i>Isoptin, Isoptin SR, G</i> Tabs: 80, 120 mg SR tabs: 120, 180, 240 mg	<i>Immediate-release (IR):</i> Initial: 80 mg TID Usual: 160 mg TID Maximum: 480 mg per day <i>Sustained-release (SR):</i> Initial: 180 to 240 mg once daily Usual: 180-240 mg BID Maximum: 480 mg per day				

Abbreviations: ACE-I = angiotensin-converting enzyme inhibitor; ARB = angiotensin II receptor blockers; BID = twice daily; BP = blood pressure; CCB = calcium channel blocker; CD = controlled delivery; CR = controlled release; CNS = central nervous system, CrCl = creatinine clearance in millimeters per minute, CV = cardiovascular, DHP = dihydropyridine; ECG = electrocardiogram; ER = extended release; G = generics available; HCTZ = hydrochlorothiazide; HTN = hypertension; IR = immediate release; ISA = intrinsic sympathomimetic activity; MI = myocardial infarction, mg = milligram; NSAID = nonsteroidal anti-inflammatory drugs; PAD = peripheral arterial disease; RDP = reference drug program; SCr = Serum creatinine; SR = sustained release; Tabs = tablets; TID = three times daily; XL = extended release.

Footnotes: ^a Not an exhaustive list; ^b For normal renal and hepatic function. Consult product monograph for detailed dosing instructions and dose adjustments for unique patient populations; ^c Pricing is approximate of usual dose as per October 2019 and does not include dispensing fees or additional markups.

Note: Please review product monographs at www.canada.ca/en/health-canada/drug-product-database and regularly review current Health Canada advisories, warnings and recalls at <https://healthycanadians.gc.ca/recall-alert>.

PharmaCare Coverage Definitions: Regular Benefit: Eligible for full reimbursement*; does not require Special Authority. **Limited Coverage:** Requires Special Authority to be eligible for reimbursement*. **RDP:** Reference Drug Program. Drugs included in the RDP are comparable agents of the same therapeutic class. **RDP Reference Drug:** Eligible for full reimbursement* within the therapeutic class, subject to Benefit status of the therapeutic class. **Partial Benefit RDP:** Eligible for limited reimbursement* under the RDP program up to the price of the Reference Drug. **Non-benefit:** Not eligible for coverage under any circumstances.

Note: Information on which products PharmaCare covers can be obtained using the B.C. PharmaCare Formulary Search (www2.gov.bc.ca/gov/pharmacare-for-bc-residents).

*Reimbursement is subject to the rules of a patient's PharmaCare plan, including any deductibles. In all cases, coverage is subject to drug price limits set by PharmaCare. See: www2.gov.bc.ca/drug-coverage for further information.

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