**DIURETIC BLOCKER**

**Hydrochlorothiazide HCT HYDRODIURIL 25-50mg tab**
- 12.5-25mg effective & less SE; evidence for ↓ morbidity/mortality, *↑* HDL cholesterol, *↓* triglycerides, *↑* HDL cholesterol.
- If Scr>150mg/dl, switch to → LAMAX
- Use cautiously in volume depletion, diabetics, elderly, JVP ↑.
- Low dose 12.5 mg considered → Accuretic, InhibRx, Vaseretic.

**Chlorthalidone HYGROTON 50-100mg tab**
- Similar to HCT; best trial evidence: (5-12.5mg od)
- (minimal lipid & change, more potent & longer acting than HCT)

**Indapamide LOZIDE 1.25-2.5mg tab**
- Less effect on lipid/glucose; still THIAZIDE type; more frequent GI effects if HCT

**Spirraclonate SPIRITONE 25-100mg tab**
- If renal dysfunction, ↓Scr, ↓BUN, ↓K & hypercholesterolemia.

**AlDAZONE DIAZIDE tab**
- ↓25mg t/meterone 50mg MODURET → HCT 50mg, almidine 50mg.

**Metolopir LOPRESOR, BTELACOL 25-50mg tab, SR, 100mg tab**
- *↑* CHF, ↓ left atrial hypertrophy, angina, ↓ MI.
- If ↑K or ↑Scr, risks of hyperkalemia, dialysis may be required.

**Acebutolol MONTICAL 100, 200mg, 400mg tab**
- Infradose sympathetic activity, *↓* blood pressure, ↓ heart rate.
- Non-selective # blockers (not recommended) in angina/Hx MI.

**Atenolol TENORMIN 25-500mg, 250-5000mg tab**
- ↓CHF, ↓ proteinuria, ↓ heart rate, ↓ angina.
- ↓cyclic AMP levels, ↓ascending aortic pressure.

**Propranolol INERAL 12.5, 25, 50, 100mg tab**
- *↑* CNS SE; ↑Lipids; ↓Use; GI bleeding, thyrotoxicosis, migraine & anxiety.

**Lisinopril ZESTRIL PRINIVIL 5, 10, 20, 40, 50mg tab**
- *↑* CHF, ↓ proteinuria, ↓ JVP, ↓ left atrial hypertrophy.
- If ↓K or ↓Scr risks of hyperkalemia, dialysis may be required.

**Ramipril ALTACE 1.25, 5, 2.5, 10mg tab**
- *↑* diuretic & *↑*k, *↓* lithium levels, *↓* NSAIDS effect & potassium.

**Captopril CAPTOPRIL 6.25, 12.5, 25.5, 50, 100mg tab**
- *↓* short acting; option for initiation of Tx / hypertensive urgency.

**Benazepril LOTENSOS 5, 10, 20mg tab**
- *↑* CHF, ↓ proteinuria, ↓ JVP, ↓ left atrial hypertrophy.

**Losartan COZAAR 25, 50, 75mg tab**
- ↓CHF, ↓ proteinuria, ↓ JVP, ↓ left atrial hypertrophy.

**Valsartan DIOVAN 80, 160mg tab, DIOVAN HCT 160, 240, 320, 480mg tab**
- ARB’s are priced ~$1.15 per tab/cap → use scored tablets to ↓cost.

**Irbesarten AVAPRO 75, 150, 300mg tab**
- ↓Aldosterone, ↓ left atrial hypertrophy.

**Losartan COZAAR 25, 50, 75mg tab**
- ↓CHF, ↓ proteinuria, ↓ JVP, ↓ left atrial hypertrophy.

**Valsartan DIOVAN 80, 160mg tab, DIOVAN HCT 160, 240, 320, 480mg tab**
- ARB’S are priced ~$1.15 per tab/cap → use scored tablets to ↓cost.

**BENAGAS**

**Feldopidine RENEDIL, PLENDIL 2.5, 5, 10mg ext, releas tab**
- *↓* less negative inotropic events β blockers → Don’t crush/ditch.
- *↑* safe HD CI: carabazine, cytoxpin, flavocloro, grapefruit.

**Amloidipine NORYASC 5, 10mg tab**
- *↑* long acting, long half CI: cytoxpin, flavocloro, grapefruit.
- *↑* may be beneficial in diastolic dysfunction.

**Nifedipine APLIN 5mg tab, CA 10, 20mg tab, XL 20,30mg tab**
- *↑* long acting, long half CI: cytoxpin, flavocloro, grapefruit.
- *↑* may be beneficial in diastolic dysfunction.

**Diltiazem CARIDEM CD, TIAZAC 30,60mg, tab, XR 60mg, 90mg, 120mg tab**
- *↓* negative inotropic, reflex HR CI: cytoxpin, flavocloro, grapefruit.
- *↑* reg. caps NO for acute ↓ BP due to association of ↑MI/stroke.

**Verapamil ISOPRAN Regular/SR tab**
- *↓* negative inotropic, reflex CI: cytoxpin, flavocloro, grapefruit.

**Cardiovascular**

**Captopril CAPTOPRIL 25, 50, 100mg tab**
- *↓* negative inotropic, reflex CI: cytoxpin, flavocloro, grapefruit.
- ↓carb level, ↓cimetidine, ↓diltiazem, ↓cytoxpin, ↑cyclo, ↓digoxin, ↓kg level, ↓lovasatin & simvastatin.

**Clonidine**

**Candesartan CILITEN 8, 16, 32mg tab, TACAND PLUS 16, 25mg tab**
- *↑* less negative inotropic events β blockers → Don’t crush/ditch.chew.
- *↑* safe HD CI: carabazine, cytoxpin, flavocloro, grapefruit.

**Amloidipine NORYASC 5, 10mg tab**
- *↑* long acting, long half CI: cytoxpin, flavocloro, grapefruit.
- *↑* may be beneficial in diastolic dysfunction.

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### ORAL ANTIHYPERTENSIVES Summary/Guidelines Comparison

**Prepared by:** Brent Jensen, Loren Regier BSP  
**www.RxFiles.ca**  
**Sept 04**

<table>
<thead>
<tr>
<th>Generic/ TRADE / Strength</th>
<th>Comments/ Drug Interactions</th>
<th>2004CND side effects by CLASS</th>
<th>Indications</th>
<th>Usual Dose $/day$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonidine</td>
<td>CATAPRES 0.1,0.25mg tab</td>
<td><em>used for acute JBP DI: cyclosporine,mirtazapine, TCAs</em></td>
<td>sedation,dry mouth,JHR,depression &amp; rebound HTN on withdrawal</td>
<td>CI: CHEF/heart block,diabetes, vasomotor syncope</td>
</tr>
<tr>
<td>Methyldopa</td>
<td>ALDOMET 125,250,500mg tab</td>
<td>DI: levodopa, HCT, TCAs</td>
<td>sedation, dry mouth, impotence, depression, hypotension, lumps like Sx &amp; ↓ platelets/RBC</td>
<td>1st line HTN in pregnancy</td>
</tr>
<tr>
<td>Furosemide</td>
<td>MINIPRESS 1,2.5,5mg tab</td>
<td>ALPHA BLOCKERS $^{2â€”3â€”4}$</td>
<td>nephrotoxicity</td>
<td>0.1mg QID (0.2mg TID)</td>
</tr>
<tr>
<td>Terazosin</td>
<td>HYTRIN 1.25,10mg tab</td>
<td>DI: angina, headache,dizzy, fluid retention, lumps like 20mg/d &amp; hepatitis</td>
<td>First dose syncope → minimize by gradual dose titration &amp; give @ HS</td>
<td>0.5mg BID (5mg TID)</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>APRESOLINE 10,25,50mg tab</td>
<td>VASODILATOR</td>
<td>&amp; priapism.</td>
<td>1mg HS (10mg BID)</td>
</tr>
<tr>
<td>Labelator</td>
<td>TRANDATE 100,200mg tab</td>
<td>ALPHA &amp; BETA BLOCKADE</td>
<td>&amp; with systolic hypertension</td>
<td>10mg QID (50mg QID)</td>
</tr>
</tbody>
</table>

#### 2004 CND Recommendations: Disease & Risk Factors (consider for ALLHAT) ![](https://via.placeholder.com/150)

<table>
<thead>
<tr>
<th>DISEASE or RISK FACTOR</th>
<th>1st LINE INITIAL THERAPY</th>
<th>SECOND STEP THERAPY</th>
<th>NOTES &amp; CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncomplicated Hypertension {Hypertension without other compelling indications}</td>
<td>Thiazide like diuretic (eg. HCT or thalidomide $^{2â€”3â€”4â€”5}$ mg od)</td>
<td>Combinations of 1 line drugs</td>
<td>( \alpha ) blockers not recommended as initial therapy (If used may consider additional antihypertensive agent). Monitor for Hypokalemia: seldom if using low dose thiazide (K$^-$ sparing diuretics rarely needed)</td>
</tr>
<tr>
<td>Isolated Systolic Hypertension (ISH)</td>
<td>Thiazide like diuretic (eg. HCT or thalidomide $^{2â€”3â€”4}$ mg od)</td>
<td>Calcium channel blockers→L-AH-DP , ARBs</td>
<td>ISOETIC effects/RENAAL (sodium)</td>
</tr>
<tr>
<td>Diabetes mellitus with nephropathy (albuminuria ≥ 30/50mg)</td>
<td>ACE inhibitor or ARBs</td>
<td>Long acting calcium channel blockers</td>
<td>Thiazide/HCT=125mg BID</td>
</tr>
<tr>
<td>Diabetes mellitus without nephropathy (albuminuria &lt; 30/50mg)</td>
<td>Thiazide diuretic</td>
<td>Calcium channel blockers→L-AH-DP</td>
<td>&amp; with systolic hypertension</td>
</tr>
<tr>
<td>Diabetes mellitus without nephropathy &amp; with systolic hypertension</td>
<td>ACE inhibitor or ARBs (or Thiazide diuretic)</td>
<td>Thiazide diuretic</td>
<td>Low dose thiazides have evidence for CV outcome benefits in diabetes &amp; minimal effect on glucose. ALLHAT included &gt;15,000 patients with diabetes, the largest antihypertensive trial ever in this population.</td>
</tr>
<tr>
<td>Angina, stable</td>
<td>( \beta ) blocker</td>
<td>Calcium channel blockers→L-AH-DP</td>
<td>Vasostatic angina→long acting CCB avoid ( \beta )-blocker. AVOID short-acting nifedipine.</td>
</tr>
<tr>
<td>Prior MI</td>
<td>( \beta ) blocker &amp; ACE inhibitors</td>
<td>Combinations of additional agents</td>
<td></td>
</tr>
<tr>
<td>Systolic Dysfunction (Heart Failure)</td>
<td>ACE inhibitor (ARBs) $^{2â€”3â€”4â€”5}$ {Hypertension or not}</td>
<td>ARBs or (Hydralazine + isosorbide dinitrate) $^{2â€”3â€”4}$ &amp; Amlodipine or felodipine (helpful in diastolic dysfx; $^{2â€”3â€”4}$)</td>
<td>( \beta )-blocker &amp; ACEI, ARB (or Thiazide diuretic)</td>
</tr>
<tr>
<td>Past Cerebrovascular Accident or TIA</td>
<td>ACE inhibitor &amp; Diuretic Combination</td>
<td>Long acting calcium channel blockers</td>
<td>( \beta ) blocker, ( \beta )-blocker &amp; ACEI, ARB (or Thiazide diuretic)</td>
</tr>
<tr>
<td>Renal disease</td>
<td>ACE inhibitor (diuretics as additive therapy)</td>
<td>Combinations of agents (ACEI + ARB)</td>
<td>AVOID ACE if bilateral renal artery stenosis.</td>
</tr>
<tr>
<td>Left Ventricular Hyper trophy (LHV)</td>
<td>LVH: ACE inhibitor, ARBs, LA-DH, diuretics, ( \beta ) blocker</td>
<td>Combinations of agents (ACEI + ARB)</td>
<td>Avoid diuretics with advanced disease.</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>Peripheral Arterial Disease (PAD)</td>
<td>LVH dosed to target Sx, ↓ cholesterol, systolic, diastolic, systolic BP &amp; wave tone</td>
<td>AVOID ( \beta ) blocker in pts with severe disease.</td>
</tr>
</tbody>
</table>

### ACE=angiotensin converting enzyme  
**ARB=angiotensin receptor blocker**  
**CCB=calcium channel blocker**  
**HCT=hydrochlorothiazide**  
**HTN=heart failure**  
**TIA=transient ischemic attack**  
**CD=Cholesterol**  
**DASH=Diabetes, Hypertension, Stroke**  
**LDL=low density lipoprotein**  
**HDL=high density lipoprotein**  
**LIFE=Los Angeles Collaborative Study**  
**ALLHAT=Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial**  
**NORDIL=Nor-Diltiazem**  
**RISK Factors**  
**TARGETS**  
**DIURETICS:** symptomatic gout, sulphur allergy, anuria, hyponatremia.  
**BLOCKERS:** asymptomatic asthma, 2$^{st}$ or 3$^{rd}$ degree heart block, severe bradycardia, uncompensated heart failure, severe PAD.  
**ACEI/ARB:** bilateral artery stenosis (or solitary kidney stenosis if only 1 kidney), history of angioedema, pregnancy-especially 2$^{nd}$ & 3$^{rd}$ trimester.  
**CONTRAINDICATIONS:** smoking, diabetes, pulmery disease, renal or cardiac disease.  
**MONITOR:** urinalysis, CBC, electrolytes, calcium, BUN,SRC, ECG, fasting glucose & lipids. (Baseline: rule out secondary causes if indicated, drug interaction or toxicity).  
**PROBLEM COMBO’S:** hydralazine & diuretic $\Rightarrow$ renal & sympathetic activity unless \( \beta \)-blocker  
**SYNERGISTIC COMBO’S:** FRAX $\Rightarrow$ effect on CV risk factors  
**TARGETS**  
**Systolic BP <140/90**  
**DASH=Diabetes, Hypertension, Stroke**  

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**Notes:**  
1. CI = Unlikely to provide clinical benefit.  
2. **NIH Guidelines for Blood Pressure Control in Adults**  
3. **American Journal of Hypertension**  
4. **Lancet**  
5. **American Journal of Cardiology**
2 Major Outcomes in High-Risk Hypertensive Patients Randomized to Angiotensin-Converting Enzyme Inhibitor or Calcium Channel Blocker vs Diuretic. The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT). The ALLHAT Officers and Coordinators for the ALLHAT Collaborative Research Group. JAMA. 2002;288:2981-2997.
5 1999 Canadian recommendations for the management of hypertension. CMAJ 1999;161(Suppl):S1-S16.
12 Treatment Guidelines: Drugs for Hypertension from The Medical Letter Feb 2003.
13 The 2004 Canadian Hypertension Education Program Recommendations www.chs.md