



General	Hypertension	Diabetes	Dyslipidemia
<p><b>Tobacco Use</b></p> <ul style="list-style-type: none"> <li>Screen at each visit</li> </ul> <p><b>Obesity</b></p> <ul style="list-style-type: none"> <li>BMI and/or waist circumference annually</li> <li>Overweight: BMI 25-29.9</li> <li>Obese: BMI &gt; 30</li> <li>Waist circumference &gt; 40 (males) or 35 (females) is overweight</li> </ul>	<p>Screen adults &gt; 18 yo every 2 years</p> <p>Screen adults with CVD risk factors more frequently</p> <p><b>Prehypertension</b></p> <ul style="list-style-type: none"> <li>120-139/80-89</li> </ul> <p><b>Stage 1 HTN</b></p> <ul style="list-style-type: none"> <li>140-159/90-99</li> </ul> <p><b>Stage 2 HTN</b></p> <ul style="list-style-type: none"> <li>≥160 / ≥100</li> </ul>	<p>Consider screening adults ≥ 45 yo, especially if overweight</p> <p>Screen &lt; 45 yo if overweight and additional risk factors for CVD or DM, every 3 years</p> <p>Screen all with HTN and/or dyslipidemia</p> <p><b>Prediabetes</b></p> <ul style="list-style-type: none"> <li>Impaired Fasting Glucose (IFG): FPG 100-125</li> <li>Impaired Glucose Tolerance (IGT): 2 hr OGTT 140-199</li> </ul> <p><b>Diabetes Mellitus</b></p> <ul style="list-style-type: none"> <li>FPG ≥ 126 or</li> <li>Symptoms + Random gluc ≥ 200 or</li> <li>2 hr OGTT ≥ 200</li> </ul>	<p>Screen men &gt; 35 yo and women &gt; 45 yo every 5 years</p> <p>Screen all adults with HTN or CVD risk factor</p> <p>Screen diabetics at minimum annually</p> <p>Screen patients with DM, HTN, or other CVD risk factors with fasting lipid profile. Others may be screened with non-fasting total cholesterol and HDL.</p>
<p><b>Tobacco Use</b></p> <p><b>5 As</b></p> <ul style="list-style-type: none"> <li>ask about smoking at each visit</li> <li>assess interest in stopping</li> <li>advise against tobacco</li> <li>assist smokers to stop</li> <li>arrange followup</li> </ul> <p><b>Obesity</b></p> <ul style="list-style-type: none"> <li>Therapeutic lifestyle change and behavioral management*</li> <li>Consider initial goal of 10% weight loss from baseline</li> <li>Physical activity 30-45 min at least 3 days/wk</li> </ul> <p><b>Anti-Platelets</b></p> <ul style="list-style-type: none"> <li>Consider ASA (75-162 mg/day) for men &gt; 40 yo, postmenopausal women, and anyone &gt; 30 yo with CVD risk factors</li> <li>Discuss potential benefits (prevention of MI and stroke) and potential harms (GI and intracranial bleeding).</li> <li>Balance of benefits and harm is most favorable in high risk patients (5 yr CHD risk ≥ 3%, or 10 yr risk ≥ 10%)</li> </ul>	<p><b>Lifestyle modification for prehypertension and hypertension</b></p> <ul style="list-style-type: none"> <li>Weight reduction</li> <li>DASH diet (rich in fruits/vegetables and lowfat dairy products; low in saturated fat/cholesterol)</li> <li>Sodium reduction &lt; 2.4 g/day</li> <li>Physical activity</li> <li>Moderation of alcohol</li> </ul> <p><b>Stage 1 HTN</b></p> <ul style="list-style-type: none"> <li>Thiazide diuretic unless compelling indication</li> <li>Recheck monthly until at target</li> </ul> <p><b>Stage 2 HTN</b></p> <ul style="list-style-type: none"> <li>Consider dual therapy</li> <li>Thiazide + 2<sup>nd</sup> agent</li> <li>Recheck at minimum monthly until at target</li> </ul> <p><b>If patient has DM or CKD (eGFR &lt; 60 or proteinuria):</b></p> <ul style="list-style-type: none"> <li>Treat to target BP &lt; 130/80</li> <li>ACE or ARB preferred</li> </ul> <p><b>Other compelling indications</b></p> <ul style="list-style-type: none"> <li>ACE or ARB if LV systolic dysfunction</li> <li>Beta-Blocker if CHF or post-MI</li> </ul>	<p><b>Prediabetes</b></p> <ul style="list-style-type: none"> <li>Lifestyle Modification with goal to prevent and/or delay DM</li> <li>Provide counseling on benefits of modest amounts of weight loss</li> <li>Recheck in 1-2 years</li> </ul> <p><b>Diabetes</b></p> <p><b>Treat all with lifestyle intervention*</b></p> <ul style="list-style-type: none"> <li>Medical nutrition therapy</li> <li>Physical activity</li> <li>Self-management education</li> </ul> <p><b>Check A1C every 3 mos until &lt; 7%, then at least every 6 mos.</b></p> <p><b>Initial treatment with Metformin</b></p> <ul style="list-style-type: none"> <li>Add 2<sup>nd</sup> oral agent or basal insulin if A1C &gt; 7%</li> <li>Intensify insulin therapy with intermediate- or long-acting basal insulin in combination with premeal rapid- or short-acting insulin</li> </ul> <p><b>LDL goal &lt; 100</b></p> <ul style="list-style-type: none"> <li>consider goal LDL &lt; 70 if overt CVD</li> </ul> <p><b>BP goal &lt; 130/80</b></p>	<p><b>Therapeutic Lifestyle Changes (TLC) for all patients*</b></p> <ul style="list-style-type: none"> <li>Weight loss</li> <li>Increase physical activity</li> <li>Reduce saturated fats, trans-fatty acids, cholesterol</li> </ul> <p><b>Assess CV Risk*</b></p> <ul style="list-style-type: none"> <li>Age &gt; 45 for men, &gt; 55 for women</li> <li>Smoking, HTN, HDL &lt; 40, FHx premature CHD</li> </ul> <p><b>0-1 Risk Factor</b></p> <ul style="list-style-type: none"> <li>Goal LDL &lt; 160</li> <li>Drug therapy if LDL &gt; 190</li> </ul> <p><b>2+ Risk Factors (&amp; 10 yr risk ≤ 20%)</b></p> <ul style="list-style-type: none"> <li>Goal LDL &lt; 130</li> <li>Drug therapy if LDL &gt; 130 &amp; 10 yr risk 10-20%</li> <li>Drug therapy if LDL &gt; 160 &amp; 10 yr risk &lt; 10%</li> </ul> <p><b>CHD, DM, or other CHD equivalent (10 yr risk &gt; 20%)</b></p> <ul style="list-style-type: none"> <li>Goal LDL &lt; 100</li> <li>Drug therapy if LDL &gt; 130</li> <li>Consider goal LDL &lt; 70 if overt CVD</li> </ul> <p><b>Statin first line drug if tolerated</b></p>
<p><b>Tobacco Use</b></p> <ul style="list-style-type: none"> <li>Complete cessation</li> <li>Avoid environmental exposure</li> </ul> <p><b>Obesity</b></p> <ul style="list-style-type: none"> <li>Target BMI 18.5 - 24.9</li> </ul> <p><b>Physical Activity</b></p> <ul style="list-style-type: none"> <li>30-45 minutes of moderate exercise at least 3 days/wk*</li> </ul>	<p><b>BP &lt; 130/80</b></p> <ul style="list-style-type: none"> <li>DM</li> <li>CKD</li> </ul> <p><b>BP &lt; 140/90</b></p> <ul style="list-style-type: none"> <li>Goal for all others</li> </ul>	<p><b>Target A1C &lt; 7% in general population</b></p> <p><b>Target A1C &lt; 6% for individual patients</b> (as close to normal without hypoglycemia)</p> <p><b>Target Glucose</b></p> <ul style="list-style-type: none"> <li>Premeal 90-130 mg/dl</li> <li>1-2 hr after starting meal &lt; 180 mg/dl</li> </ul>	<p><b>LDL &lt; 100 if CHD, DM, or CHD equivalent</b></p> <p><b>LDL &lt; 130 if 2+ risk factors (and 10 yr risk ≤ 20%)</b></p> <p><b>LDL &lt; 160 if 0-1 risk factors</b></p> <p><b>HDL &gt; 40</b></p> <p><b>TG &lt; 200</b></p>



## Clinical Pearls

### Optimal cardiovascular risk reduction requires:

- Identification and management of all risk factors
- Organized, systematic, team-based care; including tracking and reminder systems
- A vigorous stepped care approach to drug treatment for HTN, dyslipidemia, and DM

### Hypertension

- Most patients will require  $\geq 2$  medications for adequate control. If BP goal requires reduction  $> 20/10$  mmHg, start with 2 meds.
- Reaching target more important than choice of therapy
- SBP should be the primary target for the older population
- Unless there is a compelling indication, do not use beta blockers as a first line agent
- When using an ACEI or ARB, an increase in creatinine of up to 30% above baseline is acceptable as long as potassium is not elevated
- Aggressive BP lowering ( $< 130/80$ ) is considered appropriate in patients with DM, CKD, CAD, carotid artery disease, peripheral artery disease, abdominal aortic aneurysm, or 10 year CVD risk  $> 10\%$
- Medication adherence is improved by the use of combination therapy

### Chronic Kidney Disease

- Patients with CKD have very high risk of CV events
- Screen all patients with HTN, DM, or FamHx of CKD with serum creatinine to calculate eGFR, and spot urine dipstick or albumin/creatinine ratio
- Use ACEI or ARB if eGFR  $< 60$ , proteinuria (spot urine Alb/Cr ratio  $> 200$ ), or diabetic microalbuminuria (spot Alb/Cr ratio  $> 30$ )
- Target BP  $< 130/80$ ; consider target LDL  $< 100$

### Diabetes

- For preventing CV events, BP and cholesterol lowering have greater impact than glycemic control

### Dyslipidemia

- For high risk patients with high TG or low HDL levels, consider addition of a fibrate or nicotinic acid to LDL-lowering therapy
- Consider secondary causes, including hyperglycemia, hypothyroidism, obstructive liver disease, chronic kidney disease, drugs (progestins, steroids)

## Useful Links

### Links to Evidence-Based Guidelines

- Dyslipidemia: NCEP ATP III  
[www.nhlbi.nih.gov/guidelines/cholesterol](http://www.nhlbi.nih.gov/guidelines/cholesterol)
- Hypertension: JNC 7  
[www.nhlbi.nih.gov/guidelines/hypertension](http://www.nhlbi.nih.gov/guidelines/hypertension)
- Diabetes: ADA Standards of Care 2007  
[www.diabetes.org/for-health-professionals-and-scientists/cpr.jsp](http://www.diabetes.org/for-health-professionals-and-scientists/cpr.jsp)
- Chronic Kidney Disease:  
[www.unckidneycenter.org/health\\_pros/primarycare.htm](http://www.unckidneycenter.org/health_pros/primarycare.htm)  
[www.kdoqi.org](http://www.kdoqi.org)

### Practice Tools

- BMI calculator:  
[www.nhlbisupport.com/bmi](http://www.nhlbisupport.com/bmi)
- 10 year CHD risk calculator:  
<http://hp2010.nhlbihin.net/atpiii/calculator.asp?usertype=prof>
- 10 year CHD risk calculator with LDL goal:  
<http://healthlink.mcv.edu/article/1031002203.html>
- eGFR calculator:  
[www.kidney.org/professionals/KLS/gfr\\_calculator.cfm](http://www.kidney.org/professionals/KLS/gfr_calculator.cfm)

### Links to patient resources

- Tobacco Cessation:  
[www.quitnownc.org](http://www.quitnownc.org)  
1-800-QUIT-NOW (1-800-784-8669)
- Physical activity, nutrition  
[www.americanheart.org](http://www.americanheart.org)  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)  
[www.myeatsmartmovemore.com](http://www.myeatsmartmovemore.com)
- DASH diet for lowering blood pressure  
[www.nhlbi.nih.gov/hbp/prevent/h\\_eating/h\\_eating.htm](http://www.nhlbi.nih.gov/hbp/prevent/h_eating/h_eating.htm)
- TLC diet for lowering cholesterol  
[http://nhlbisupport.com/chd1/tlc\\_lifestyles.htm](http://nhlbisupport.com/chd1/tlc_lifestyles.htm)

## Lifestyle Modification Recommendations

### Limit unhealthy fats and cholesterol

- Avoid fatty cuts of meat (beef, lamb, pork, liver)
- Choose fish, lean meats, beans, tofu, nuts
- Bake, steam, roast, broil, or stew instead of frying
- Choose non-fat and low-fat dairy products (milk, cheese, yogurt)
- Use canola or olive oil instead of butter, lard, shortening
- Limit egg yolks; use egg whites or egg substitute

### Lower salt

- Flavor foods with herbs and spices instead of salt
- Avoid canned, smoked, or processed meats
- Avoid packaged mixes, canned soups, dressings and sauces with high sodium

### Eat a variety of fruits and vegetables every day

- Choose fresh, frozen, or low-sodium canned vegetables

### Eat whole grains and high fiber foods

- Choose whole wheat bread, brown rice, oatmeal

### Use moderation and balance

- One serving of pasta is 1/2 cup
- One serving of meat is the size of a deck of cards

### Dietary Goals

- $< 25\text{-}35\%$  of total daily calories from fat
- $< 7\%$  of daily calories from saturated fat
- $< 1\%$  of daily calories from trans fat
- Cholesterol  $< 300$  mg/d for healthy adults;  
 $< 200$  mg/day if dyslipidemia
- Sodium  $< 2,300$  mg/day (about one teaspoon)  
-greater BP reduction achieved with sodium restriction  $< 1,500$  mg/day

### Obesity/Weight Management

- Set initial goal to reduce body weight by 10% from baseline  
-reduce weight by 1-2 lbs per week for first 6 months
- Encourage low calorie diet with dietary fat reduction  
-deficit of 500-1000 kcal/day needed to achieve 1-2 lbs/wk weight loss
- Consider pharmacotherapy if BMI  $\geq 30$ , or  $\geq 27$  with obesity related risk factors, in conjunction with lifestyle changes
- Consider surgery in patients with BMI  $\geq 40$ , or  $\geq 35$  with comorbid conditions

### Exercise: FITT Principle

Frequency: 3-5 days/wk. More frequent is better  
Intensity: Start at a low to moderate intensity and gradually progress over the course of several weeks  
Time: 30-45 minutes, using a gradual progression  
Type: Low-impact activities (e.g., walking, cycling, aerobics, water exercise) that are convenient, accessible, and enjoyable

### Behavior Management Strategies for Promoting Physical Activity

- Establish realistic expectations.
- Allow patients to select their own goals and provide guidance in setting flexible, short-term goals.
- Query patients as to what rewards will work for them.
- Establish routine times and places for exercise.
- Discuss the benefits of social support to establish the exercise habit.
- Encourage patients to practice self-reinforcement, including a focus on increasing self-esteem and realizing the health benefits of exercise.
- Prepare patients for situations that may create a relapse and a challenge to exercise.