From Principles to Practice: What Do the Latest Trials in Clinical Hypertension Tell Us

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Note: The webinar will be archived and hosted on www.guidelineadvantage.org within one week.
From Principles to Practice: What do the Latest Trials in Clinical Hypertension Tell Us

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Program Model

1. Providers can use several different technology platforms

2. Technology vendors submit collective clinical data to DCRI for The Guideline Advantage

3. Data are processed, analyzed and sent back to the providers or medical practices

4. Performance is measured, Professionals can set measurable goals and chart improvements in performance
Benefits of Participation

• **Flexible data extraction model** working with EHR vendors or directly with platform
• Accepts data currently collected for other programs – “give us what you’ve got”
• Provides **quarterly reports** on data quality and performance feedback on treatment to guidelines
• Includes access to valuable **ACS/ADA/AHA resources**, including professional education and patient education materials

Future opportunities

• Offers **national recognition** for the work physicians do each day
• Allows physicians to participate in **key research** that will change healthcare
Ways to Participate

• **EHR or health information technology vendors** may map and submit data to the program on behalf of their customers.

• Practices with **technological staff may choose to map and submit** directly to the program.

• Practices may **export a standard flat file of data** from their EHR system to DCRI, and DCRI will map the data for the practice.
About The Guideline Advantage

Heart disease, cancer, stroke and diabetes collectively account for more than 1.5 million U.S. deaths each year. Compounding the tragedy is the knowledge that so many of those deaths could be avoided through prevention or disease management. That's why the American Cancer Society, American Diabetes Association and American Heart Association joined forces to address the challenge, focusing on the outpatient setting, where 83 percent of Americans visit physicians each year. The result is a program designed for outpatient practices ranging from general health clinics to specialized physician practices. Offered at no cost to healthcare providers, The Guideline Advantage supports consistent use of evidence-based guidelines for prevention and disease management through existing healthcare technology.

The program utilizes data collected through existing electronic health record (EHR) or health technology platforms to report on adherence to established guidelines. The Guideline Advantage provides quarterly feedback reports, including both state and national benchmarks, as well as quality improvement resources and formal recognition for active participation in the program.

www.GuidelineAdvantage.org
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Faculty Disclosures

- Consultant: AstraZeneca, Takeda
- Speakers Bureau: AstraZeneca, Boeringer-Ingelheim, Novartis, Takeda
Learning Objectives

• Determine the role of early or even initial combination therapy in patients with hypertension
• Identify the absolute benefit of treating hypertension in the elderly, especially the very old
• Determine appropriate BP goals in patients with type 2 diabetes
Outline: Focus on Practical Implications

- Quick review of JNC7
- How aggressively should we be treating older patients with isolated systolic hypertension?
  - HYVET Study
- What choices should be used for early combination anti-hypertensive therapy and how should they be introduced?
  - ACCOMPLISH Study
- What should be our BP goal in patients with type 2 diabetes?
  - ACCORD BP arm
- What might we expect from JNC 8?
Insider’s Guide to JNC 7 Guidelines

Evolution of Guidelines
Risk Stratification
Treatment Goals
Therapeutic Options
### Evolution of Joint National Committee (JNC) Guidelines


* JNC 8 expected 2011

Adapted from Ballantyne C. *Eur Heart J Suppl.* 2002;4 (Suppl J).
### JNC 7: Classification and Management of BP for Adults

<table>
<thead>
<tr>
<th>BP Classification</th>
<th>SBP* (mm Hg)</th>
<th>DBP* (mm Hg)</th>
<th>Lifestyle Modification</th>
<th>Initial Drug Therapy Without Compelling Indications</th>
<th>With Compelling Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt; 120</td>
<td>and &lt; 80</td>
<td>Encourage</td>
<td>No antihypertensive drug indicated</td>
<td>Drug(s) for the compelling indications†</td>
</tr>
<tr>
<td>Pre-HTN</td>
<td>120-139</td>
<td>or 80-89</td>
<td>Yes</td>
<td>One-Drug Therapy Indicated</td>
<td>Drug(s) for the compelling indications</td>
</tr>
<tr>
<td>Stage 1 HTN</td>
<td>140-159</td>
<td>or 90-99</td>
<td>Yes</td>
<td>One-Drug Therapy Indicated</td>
<td>Other antihypertensive drugs as needed to control BP</td>
</tr>
<tr>
<td>Stage 2 HTN</td>
<td>≥ 160</td>
<td>or ≥ 100</td>
<td>Yes</td>
<td>Two-drug combination indicated for most</td>
<td>Drugs for the compelling indications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other antihypertensive drugs as needed to control BP</td>
</tr>
</tbody>
</table>

ACEI = angiotensin converting enzyme inhibitor; ARB = angiotensin receptor blocker; BB = beta blocker; CCB = calcium channel blocker

* Treatment determined by the highest BP category
† Treat patients with chronic kidney disease (CKD) or DM to BP goal of < 130/80 mm Hg others to < 140/90
‡ Initial combined therapy should be used cautiously in those at risk for orthostatic hypotension

# Lifestyle Modification:
Indicated in All Patients With HTN and Pre-HTN

<table>
<thead>
<tr>
<th>Modification</th>
<th>~SBP Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction (in overweight patients)</td>
<td>5-20 mm Hg (10-kg weight loss)</td>
</tr>
<tr>
<td>Adopt DASH eating plan(^2)</td>
<td>8-14 mm Hg</td>
</tr>
<tr>
<td>Dietary sodium reduction</td>
<td>2-8 mm Hg</td>
</tr>
<tr>
<td>Increase physical activity</td>
<td>4-9 mm Hg</td>
</tr>
<tr>
<td>Moderation of alcohol intake</td>
<td>2-4 mm Hg</td>
</tr>
</tbody>
</table>

Optimize Dosages or Add Additional Drugs
Until Goal BP Is Achieved

Lifestyle Modifications

Not at Goal BP
(<140/90 mm Hg or <130/80 mm Hg for those with DM or CKD)

Initial Drug Choices

HTN Without Compelling Indications

HTN With Compelling Indications

Stage 1 HTN
(SBP 140-159 or DBP 90-99 mm Hg)
Thiazide-Type Diuretics for Most
May Consider ACEI, ARB, BB, CCB, or Combination

Stage 2 HTN
(SBP ≥ 160 or DBP ≥ 100 mm Hg)
2-Drug Combination for Most
(usually thiazide-type diuretic and ACEI or ARB or BB or CCB)

Drug(s) for the Compelling Indications
Other Antihypertensive Drugs
(diuretics, ACEI, ARB, BB, CCB) as Needed

Not at Goal BP

Optimize Dosages or Add Additional Drugs
Until Goal BP Is Achieved
Consider Consultation With HTN Specialist

Hypertension Control Rates Have Improved But Are Still Suboptimal

NHANES Data

- 49.9% (33 million Americans) do not have adequate BP control (2007-2008)
- Why Not Controlled (2005-2008)
  - 52.2% Untreated
  - 34.4% Treated with 1-2 medications
  - 28.0% Apparently Treatment Resistant (prescribed at least 3 medications)

Unrecognized or undertreated hypertension is more common than treatment resistant hypertension.

How aggressively should we be treating older patients with isolated systolic hypertension?

HYVET Study
Case Vignette 1

85 year old male presents to your office for a ‘checkup’ and has no complaints. Has been told that his BP was a ‘little bit high’ for the past 10 years, but he has never been on BP meds since his previous practitioner said his SBP was <100+age.

- BP at last 2 visits: 158/64, 156/60 (means of 3 readings)
- No history of DM, CKD, TIA/CVA or established CVD
- He is a nonsmoker and does not exercise and drinks occasional alcohol
- He is 220 pounds and his BMI was 29
- BP today initially was 160/70 and decreased to 154/64 and 152/58 after resting. The remainder of his exam is unremarkable

Would you initiate anti-hypertensive therapy?
Increased Potential for Benefit of Anti-hypertensive Therapy at Older Age

CI: confidence interval; IHD: ischemic heart disease; SBP: systolic blood pressure

Treating HTN in the Very Old: The HYVET Study

- Randomized, double-blind, placebo-controlled trial
- Subjects: ≥ 80 years of age with persistent HTN (160-199/<110* mm Hg)
- Patients received either indapamide or matching placebo
- Perindopril or matching placebo could be added to reach target BP of < 150/80 mm Hg
- Prespecified end points
  - Primary: Fatal and nonfatal stroke
  - Secondary: Death from any cause, death from CV diseases, death from cardiac causes, and death from stroke
- Few adverse events in active treatment vs. placebo groups (358 vs. 448, respectively; $p = 0.001$); only 5 classified as medication-related

Study stopped early after 2 years because of 28% reduction in total mortality ($P = .001$)

* Amended in 2003; originally was 90-109 mm Hg

HYVET Results: Primary End Point

No. of Events per 100 Patients

Placebo Group

Active Treatment Group

P = .06.

No. at Risk

Placebo Group

Active Treatment Group

Cautionary Tales in the Interpretation of Clinical Studies Involving Older Persons

“Be aware that characteristics of patients entered into trials may be substantially different from those in clinical practice”

In HYVET:
- Not a U.S. trial, patients enrolled from:
  - Western Europe (86)
  - Australasia (19)
  - Eastern Europe (2144)
  - Tunisia (70)
- Mean baseline sitting diastolic BP = 90.8 mmHg
- Mean baseline standing BP = 168/88 mmHg

# Achieved BP in Isolated Systolic HTN Intervention Studies in Elderly

<table>
<thead>
<tr>
<th></th>
<th>SHEP¹</th>
<th>Syst-Eur²</th>
<th>HYVET³</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subjects, n</strong></td>
<td>4736</td>
<td>4695</td>
<td>3845</td>
</tr>
<tr>
<td><strong>Inclusion BP</strong>&lt;br&gt;Criteria, mm Hg</td>
<td>160-219/&lt; 90</td>
<td>160-219/&lt; 95</td>
<td>160-190/&lt; 110</td>
</tr>
<tr>
<td><strong>Goal SBP, mm Hg</strong></td>
<td>&lt; 160 or ≥ 20&lt;br&gt;mm reduction</td>
<td>&lt; 150 or ≥ 20&lt;br&gt;mm reduction</td>
<td>&lt; 150</td>
</tr>
<tr>
<td><strong>Mean Achieved BP, mm Hg</strong></td>
<td>143/68</td>
<td>151/79</td>
<td>144/78</td>
</tr>
<tr>
<td><strong>Follow-up, y</strong></td>
<td>4.5 (mean)</td>
<td>2.0 (median)</td>
<td>1.8 (mean)</td>
</tr>
</tbody>
</table>

Take Home Messages: Case Vignette #1

• Modest treatment of Stage 2 isolated systolic hypertension (ISH) in elderly leads to significant and clinically meaningful reduction in cardiovascular events\(^1\)\(^-\)\(^3\)
  – Even in otherwise healthy patients ≥ 80 years of age (including benefit in total mortality)\(^3\)
  – Treat at least into 140’s systolic and/or with 1-2 BP medications

• Benefits of more intensive treatment and treatment of Stage 1 ISH in elderly remain unproven
  – Potentially, can be inferred from epidemiologic studies and data on Stage 2 ISH

What choices should be used for early combination antihypertensive therapy and how should they be introduced?

ACCOMPLISH Study
Case Vignette #2

BE is a 59-year-old Hispanic American man with known HTN and type 2 diabetes (T2DM) now coming back to your office after being lost to follow-up for 12 months.

He is not currently taking antihypertensive medication, though it has been prescribed for him in the past. He does not smoke and has no history of CKD, stroke, or MI, or HF.

Current medications: pravastatin 20 mg daily, metformin 500 mg bid

BP = 152/90 mm Hg
EKG: normal
Urine for microalbumin < 20 μg/mg
Initial Combination Therapy for HTN: ACCOMPLISH Study Design

• High-risk patients ≥ 55 years of age with HTN and evidence of CV disease, renal disease, or target organ damage
  – N = 11,506
• Patients randomized to 2-month forced titration of either
  – Benazepril HCl + HCTZ
  – Benazepril HCl + amlodipine (CCB)
• Doses were increased and other antihypertensive agents were added to reach target BP
  – < 140/90 mm Hg for most, < 130/80 for DM or CKD
• End points
  – Primary: CV morbidity/mortality
  – Secondary: CV morbidity/mortality (excluding coronary revascularization)

ACCOMPLISH Study
Effect on BP over Course of Trial

24-Hour Ambulatory BP Monitoring Sub-study (N = 573)
- ACEI-Diuretic combination: 122.3 mm Hg
- ACEI-CCB combination: 123.9 mm Hg

ACCOMPLISH
Results: Primary and Other End Points

Incidence of Adjudicated End Points
(intent-to-treat population)

Composite CV events/mortality

Composite CV endpoint
(CV death, nonfatal MI, nonfatal stroke)

All-cause mortality

Risk Ratio (95% CI)
P Value*
0.80 (0.72-0.90)
P < .001
0.79 (0.67-0.92)
P = .002
0.90 (0.76-1.07)
P = .24

Favors CCB/ACEI
Favors ACEI/HCTZ

* The P values are derived from a log-rank test.

Can ACCOMPLISH Results Be Explained by Choice of Thiazide-Type Diuretic?

Diuretic used:
- ALLHAT and most landmark clinical trials: Chlorthalidone
- ACCOMPLISH and most clinical practice: HCTZ

As compared to chlorthalidone, HCTZ is associated with:
- Less BP-lowering efficacy on a mg per mg comparison
- Shorter duration of action
- Less compelling evidence of reductions in CV end points

Take Home Messages: Case Vignette #2

• In the right setting, BP can be controlled in most patients using combinations of commonly available medications

• Initial fixed-dose, single-pill combination therapy is a reasonable option for initial therapy of hypertension
  – Especially in patients with BP greater than 20/10 mm Hg of goal

• Based on data from ACCOMPLISH, ACEI + CCB combination has greater efficacy than ACEI + HCTZ in reducing CV events¹
  – Future studies comparing ACEI + CCB to other combinations of anti-hypertensive medications in patients at least 20/10 mm Hg from goal are warranted

Take Home Messages: Case Vignette #2 (continued)

• Future end point trials should focus on comparing different combinations of antihypertensive drugs rather than monotherapies

• Chlorthalidone may be an important alternative to HCTZ, especially in tough to control BP

• ARBs and ACEIs lead to similar outcomes, and there is no advantage to combining them, in patients without established heart or renal disease (ONTARGET Study)
What should be our BP goal in patients with TYPE 2 Diabetes Mellitus (T2DM)?

ACCORD BP Study
Case Vignette #3. Should we increase anti-hypertensive therapy?

MB is a 55 year old man with known T2DM, HTN and dyslipidemia for many years (at least 8).

• No known history of established CVD
• Medications include:
  – Simvastatin 40 mg daily
  – Benazepril-Amlodipine 20/5 mg bid
  – Metformin 850 mg bid
• On exam, BP averages 136/76 for the past 2 visits and home BPs are similar.
• Remainder of exam is unremarkable
• Labs:
  – Tchol 180 LDL-C 86; HDL-C 38; Trigs 180
  – HgbA1C 6.8; TSH and LFTs normal; urine MA nl
ACCORD Design and Eligibility

• Type 2 diabetes with A1C at least 7.5%
• Age
  – 40 or older with known CVD
  – 55 or older with early atherosclerosis, albuminuria, LVH, or at least 2 risk factors
• Exclusion criteria
  – BMI at least 45
  – Serum creatinine > 1.5 m/dl
• Primary Outcome = composite of MI, stroke, CV death
• Study Design:
  – Main Trial (glycemic control)
  – Lipid Trial
  – BP trial
## ACCORD Design and Eligibility

<table>
<thead>
<tr>
<th></th>
<th>BP</th>
<th>Lipid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intensive (SBP&lt;120)</td>
<td>Intensive</td>
</tr>
<tr>
<td></td>
<td>Standard (SBP&lt;140)</td>
<td>Standard</td>
</tr>
<tr>
<td>Intensive Glycemia</td>
<td>1178</td>
<td>1383</td>
</tr>
<tr>
<td>(A1C&lt;6%)</td>
<td>1193</td>
<td>1374</td>
</tr>
<tr>
<td>Standard Glycemia</td>
<td>1184</td>
<td>1370</td>
</tr>
<tr>
<td>(A1C 7-7.9%)</td>
<td>1178</td>
<td>1391</td>
</tr>
<tr>
<td></td>
<td>2362*</td>
<td>2753*</td>
</tr>
<tr>
<td></td>
<td>2371*</td>
<td>2765*</td>
</tr>
</tbody>
</table>

*Primary analyses compare the marginals for main effects*
Epidemiologic data shows:
- Log linear relationship between SBP and risk
- Presence of T2DM increases risk of CV events 3x at every level of BP

**HOT DM Sub-Group** 51% RRR in DBP <80 vs <90 mmHg

**UKPDS-Intensive Group** (<150/85 vs <180/105)
  - Reduced Micro and Macrovascular events

**Evidence very modest for BPs <144/<80**
<table>
<thead>
<tr>
<th>Trial</th>
<th>N</th>
<th>Mean SBP &lt; intense</th>
<th>Mean SBP &gt; intense</th>
<th>CVD Risk Reduction</th>
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</thead>
<tbody>
<tr>
<td>SHEP</td>
<td>583</td>
<td>155</td>
<td>146</td>
<td>22-56%</td>
</tr>
<tr>
<td>Syst-EUR</td>
<td>492</td>
<td>162</td>
<td>153</td>
<td>62-69%</td>
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<tr>
<td>HOT</td>
<td>1,501</td>
<td>148</td>
<td>144</td>
<td>30-67%</td>
</tr>
<tr>
<td>UKPDS</td>
<td>1,148</td>
<td>154</td>
<td>144</td>
<td>32-44%</td>
</tr>
<tr>
<td>ABCD</td>
<td>470</td>
<td>138</td>
<td>132</td>
<td>No CVD ↓</td>
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<tr>
<td>ADVANCE</td>
<td>11,140</td>
<td>140</td>
<td>135</td>
<td>14% mortality ↓</td>
</tr>
</tbody>
</table>
In middle-aged or older men and women with type 2 diabetes who are at high risk for having a CVD event, in the context of good glycemic control, does a therapeutic strategy that targets a systolic blood pressure $<120$ mm Hg reduce the rate of CVD events more than a strategy that targets a systolic blood pressure of $<140$ mmHg?
ACCORD BP—Achieved BP

Standard Regimens including ACEI or ARB with CCBs, diuretics and others as needed

<table>
<thead>
<tr>
<th>Years since Randomization</th>
<th>Systolic Pressure (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td>0</td>
<td>140</td>
</tr>
<tr>
<td>1</td>
<td>130</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
</tr>
<tr>
<td>3</td>
<td>110</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>80</td>
</tr>
<tr>
<td>7</td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>60</td>
</tr>
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</table>

Mean No. of Medications Prescribed

<table>
<thead>
<tr>
<th></th>
<th>Intensive</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive</td>
<td>3.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Standard</td>
<td>3.4</td>
<td>2.1</td>
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</table>

No. of Patients

<table>
<thead>
<tr>
<th></th>
<th>Intensive</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive</td>
<td>2174</td>
<td>2208</td>
</tr>
<tr>
<td>Standard</td>
<td>2071</td>
<td>2136</td>
</tr>
</tbody>
</table>

Event rate 2%/year was only 50% of predicted and used on power calculations

**ACCORD BP—Primary Outcome**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Intensive Therapy (N = 2363)</th>
<th>Standard Therapy (N = 2371)</th>
<th>Hazard Ratio (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary outcome*</td>
<td>208</td>
<td>237</td>
<td>0.88 (0.73–1.06)</td>
<td>0.20</td>
</tr>
<tr>
<td>Prespecified secondary outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfatal myocardial infarction</td>
<td>126</td>
<td>146</td>
<td>0.87 (0.68–1.10)</td>
<td>0.25</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>36</td>
<td>62</td>
<td>0.59 (0.39–0.89)</td>
<td>0.01</td>
</tr>
<tr>
<td>Nonfatal</td>
<td>34</td>
<td>55</td>
<td>0.63 (0.41–0.96)</td>
<td>0.03</td>
</tr>
<tr>
<td>Death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From any cause</td>
<td>150</td>
<td>144</td>
<td>1.07 (0.85–1.35)</td>
<td>0.55</td>
</tr>
<tr>
<td>From cardiovascular cause</td>
<td>60</td>
<td>58</td>
<td>1.06 (0.74–1.52)</td>
<td>0.74</td>
</tr>
<tr>
<td>Primary outcome plus revascularization or nonfatal heart failure</td>
<td>521</td>
<td>551</td>
<td>0.95 (0.84–1.07)</td>
<td>0.40</td>
</tr>
<tr>
<td>Major coronary disease event†</td>
<td>253</td>
<td>270</td>
<td>0.94 (0.79–1.12)</td>
<td>0.50</td>
</tr>
<tr>
<td>Fatal or nonfatal heart failure</td>
<td>83</td>
<td>90</td>
<td>0.94 (0.70–1.26)</td>
<td>0.67</td>
</tr>
</tbody>
</table>

* The primary outcome was a composite of nonfatal myocardial infarction, nonfatal stroke, or death from cardiovascular causes.
† Major coronary disease events, as defined in the protocol, included fatal coronary events, nonfatal myocardial infarction, and unstable angina.
Conclusions from ACCORD BP

<table>
<thead>
<tr>
<th></th>
<th>Systolic BP Goal (mmHg)</th>
<th>Strength of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Patients with</td>
<td>&lt;140</td>
<td>Strong, based on primary endpoint</td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes Patients</td>
<td>&lt;120#</td>
<td>Less Strength, based on secondary endpoint</td>
</tr>
<tr>
<td>with Higher Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Defined as personal or family history of TIA/stroke, smoker, unable to tolerate statin therapy or antiplatelet therapy when appropriate, LVH or poor glycemic control

#With close monitoring for bradycardia, hypotension, changes in electrolytes, and worsening renal function
What may we (or should we) expect from JNC 8?

Risk stratification and BP Goals
Treatment strategies
NHLBI: Integrated Cardiovascular Risk Reduction Guidelines for Adults

- Cholesterol Guideline Update (ATPIV)
- Hypertension Guideline Update (JNC 8)
- Obesity Guideline Update (Obesity 2)
- Integrated Cardiovascular Risk Reduction Guideline
  - Evidence-based and weighted
  - Consistent approach to risk assessment
  - Consistent approach to lifestyle intervention
  - Expected to be posted for public comment by spring 2011

www.nhlbi.org
What May We (or Should We) Expect from JNC8

- Greater emphasis on Global Risk Assessment to determine BP goals (including achieved metabolic control)
- Possible expansion of ‘High Risk’ category of patients requiring more intensive BP goals (consistent with AHA scientific statement)
- Call for new studies to determine appropriate BP goals in primary prevention (CARDIO-SIS and SPRINT)
- Less emphasis on beta-blockers as initial therapy for HTN (in the absence of established CAD or HF)
- Greater emphasis on initial combination therapy with single-pill, fixed-dose anti-hypertensive medications (especially for those at least 20/10 mmHg from there goal)
- More guidance/research as to how to design appropriate add-on therapy in patients with resistant or poorly controlled BP
- Greater emphasis on practice redesign and chronic care model to overcome therapeutic inertia
“It is much more important to know what sort of a patient has a disease than what sort of a disease a patient has.”

- William Osler
Questions?

Type question into the Q&A tab at the top of your screen.

Additional questions email laura.jansky@heart.org

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