CURRENT US HYPERTENSION GUIDELINES: ARE THEY AGE AND RACE APPROPRIATE?
12th Annual Leadership Summit on Health Disparities & Congressional Black Caucus Spring Health Braintrust
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UNLABELED / UNAPPROVED USES DISCLOSURE:
None
Adult (age ≥18 years)

Lifestyle Interventions to be applied throughout Treatment Algorithm

Set Blood Pressure Goal and Initiate Blood Pressure Lowering Medication Based on Age, Diabetes, and CKD

- **Age ≥60 years and No Diabetes and No CKD**
  - Goal SBP <150 mm Hg
  - Goal DBP <90 mm Hg
  - **Black**
    - Initiate thiazide-type diuretic or CCB alone or in combination
  - **Nonblack**
    - Initiate thiazide-type diuretic or ACEI or ARB or CCB alone or in combination

- **Age <60 years and No Diabetes and No CKD**
  - Goal SBP <140 mm Hg
  - Goal DBP <90 mm Hg
  - Initiate thiazide-type diuretic or ACEI or ARB or CCB alone or in combination

- **All Ages with Diabetes and No CKD**
  - Goal SBP <140 mm Hg
  - Goal DBP <90 mm Hg
  - Initiate ACEI or ARB alone or in combination

- **All Ages with CKD**
  - Goal SBP <140 mm Hg
  - Goal DBP <90 mm Hg
  - All Races
  - Initiate ACEI or ARB alone or in combination with other class

Select a treatment titration strategy: A: maximize first medication before adding second, B: add second medication before reaching maximum dose of first, or C: start with 2 medication classes separately or as fixed dose combination.
Hypertension: A Moving Target

**JNC BP Classifications: SBP**

<table>
<thead>
<tr>
<th>JNC I</th>
<th>JNC II</th>
<th>JNC III</th>
<th>JNC IV</th>
<th>JNC V</th>
<th>JNC VI</th>
<th>JNC 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No recommendations for SBP in JNC I or JNC II</td>
<td>ISH</td>
<td>Border-line</td>
<td>ISH</td>
<td>Stage 4</td>
<td>Stage 3</td>
<td>Stage 2</td>
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<tr>
<td></td>
<td></td>
<td>Normal</td>
<td></td>
<td>Stage 3</td>
<td>Stage 2</td>
<td>Stage 1</td>
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<td></td>
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<td></td>
<td>Stage 2</td>
<td>Stage 1</td>
<td>Stage 1</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>High-normal</td>
<td>High-normal</td>
<td>Stage 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Optimal</td>
<td>Optimal</td>
<td>Normal</td>
</tr>
</tbody>
</table>

SBP (mm Hg)

## JNC 8 Committee Members

<table>
<thead>
<tr>
<th>Co-Chair: Suzanne Oparil MD</th>
<th>Co-Chair: Paul A. James MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jackson T. Wright, Jr. MD, PhD</td>
<td>Laura Svetkey, MD, MHS</td>
</tr>
<tr>
<td>Sandra J. Taler, MD</td>
<td>Michael L. LeFevre, MD, MSPH</td>
</tr>
<tr>
<td>Joel Handler, MD</td>
<td>Raymond R. Townsend, MD</td>
</tr>
<tr>
<td>Barry L. Carter, PharmD</td>
<td>William C. Cushman, MD</td>
</tr>
<tr>
<td>Daniel T. Lackland, DrPH</td>
<td>Thomas D. MacKenzie, MD, MSPH</td>
</tr>
<tr>
<td>Sidney C. Smith, Jr., MD</td>
<td>Andrew S. Narva, MD (Ex-Officio)</td>
</tr>
<tr>
<td>Olugbenga Ogedegbe, MD, MPH, MS</td>
<td>Lawrence J. Fine, MD, DrPH (Ex-Officio)</td>
</tr>
<tr>
<td>Cheryl Dennison Himmelfarb, RN, ANP, PhD</td>
<td>Eduardo Ortiz, MD, MPH, NHLBI Lead, Ex-Officio, Non-Voting Member</td>
</tr>
</tbody>
</table>

* 4 panel members had relationships to disclose; 13 panel members had no relationships to disclose. Panel members disclose their relationships and recuse themselves from voting on evidence statements and recommendations relevant to their relationships.
Evidence Supporting a Systolic Blood Pressure Goal of Less Than 150 mm Hg in Patients Aged 60 Years or Older: The Minority View

Jackson T. Wright Jr., MD, PhD; Lawrence J. Fine, MD, DrPH; Daniel T. Lackland, PhD; Gbenga Ogedegbe, MD, MPH, MS; and Cheryl R. Dennison Himmelfarb, PhD, RN, ANP

Figure 1. Prevalence of High Blood Pressure In Adults by Age and Sex (NHANES 2005-2006)

Aronow WS et al. JACC 2011;57:2037-2114)
Ischemic Heart Disease

Age at risk:
- 80–89 years
- 70–79 years
- 60–69 years
- 50–59 years
- 40–49 years

IHD mortality
(floating absolute risk and 95% CI)

systolic blood pressure (mm Hg)
## US CVD Death Rates for Individuals

### Less than and Older than 65 years

<table>
<thead>
<tr>
<th>Condition (Cause of death by underlying Cause)</th>
<th>Age &lt; 65 or ≥ 65 years</th>
<th>1989-1998 Yearly Average Death Rate per 100,000</th>
<th>1999-2010 Yearly Average Death Rate per 100,000</th>
<th>1989-1998 Average annual % change in age-adjusted death rates (AAPC (%))</th>
<th>1999-2010 Average annual % change in age-adjusted death rates (AAPC (%))</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD &lt; 65</td>
<td>36</td>
<td>30</td>
<td>-3.6</td>
<td>-3.4</td>
<td>-3.4</td>
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<tr>
<td>CHD ≥ 65</td>
<td>1319</td>
<td>1038</td>
<td>-2.7</td>
<td>-5.6</td>
<td>-5.6</td>
</tr>
<tr>
<td>Stroke &lt; 65</td>
<td>9</td>
<td>7</td>
<td>-1.3</td>
<td>-2.3</td>
<td>-2.3</td>
</tr>
<tr>
<td>Stroke ≥ 65</td>
<td>436</td>
<td>356</td>
<td>-0.9</td>
<td>-5.3</td>
<td>-5.3</td>
</tr>
</tbody>
</table>

*Age-Adjusted to the 2000 U.S. Standard Population - Analysis from CDC Wonder by Dr. Micheal Musslino, NHLBI, Epidemiology Branch.*

BLACK RACE AND HYPERTENSION RISK

• Mortality in African American males—30% hypertension-related, females—20%
• Nonfatal strokes—1.3 x greater than whites
• Fatal strokes—1.8 x greater than whites
• Heart disease deaths—1.5 x greater than whites
• End-stage renal disease—4.2 x greater than whites (HTN-related—20 x greater)

Go AS et al. Circ 2013;127:e6
Another Contributor with a Different Secular Pattern

Age Adjusted SBP in Adults 60 + Yrs. 1999 to 2010 NHANES

- No Change 1988 to 1999
- 10 mm Delta


NIH National Heart, Lung, and Blood Institute

Deaths/100,000 Population

*White  *Black  American Indian  Hispanic  Asian

Male  Female

0  25  50  75  100  125

0  25  50  75  100

Year 99  01  03  05  07  09  99  01  03  05  07  09

* Non-Hispanic.
STRENGTH OF THE 2014 JAMA HTN GUIDELINE RECOMMENDATION OF SBP <150 IN THOSE > AGE 60?

2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC8)

- Panel originally formed by NHLBI similar to other US guidelines
- The current report did **NOT** go thru approval process required for endorsement by NHLBI and other organizations that endorsed other US guidelines
- Though published as Grade A recommendation, 5 of 17 voting members voted against it; 6 negative votes would have defeated it (Note: neurology/stroke not represented on panel)
THE PRESENT AND FUTURE

STATE-OF-THE-ART REVIEW

2014 Hypertension Recommendations From the Eighth Joint National Committee Panel Members Raise Concerns for Elderly Black and Female Populations

Lawrence R. Krakoff, MD,* Robert L. Gillespie, MD,† Keith C. Ferdinand, MD,‡ Icilma V. Fergus, MD,§ Ola Akinboboye, MD, MBA,∥ Kim A. Williams, MD,¶ Mary Norine Walsh, MD,# C. Noel Bairey Merz, MD,** Carl J. Pepine, MD††
The American Heart Association and the American College of Cardiology announced that they will publish another guideline.

While the current guideline will be taken into consideration for those guidelines, they will consider the guideline published in 2003 the national standard for treating hypertension.

First meeting of the ACC/AHA panel at the AHA Meeting Nov 14
SYSTOLIC BP INTERVENTION TRIAL (SPRINT)
SBP 120 vs 140 mmHg

- SPRINT Clinical Center Networks (CCN):
  - Case Western Reserve Univ: Jackson T. Wright, Jr, MD, PhD (PI)
  - Depart of Veterans Affairs: William C. Cushman, MD (PI)
  - University of Alabama: Suzanne Oparil, MD (PI)
  - University of Utah: Alfred K. Cheung, MD (PI)
  - Wake Forest University: David C. Goff Jr, MD, PhD (PI)
- 100 clinical centers
- Have recruited 9,361 pts, 38% Blacks and minorities
- ~30% > age 75, 20% with CVD
- Study scheduled to end patient follow-up in 2016
Lowering of SBP by 20 mm Hg Reduces Cardiovascular Risk by Half

SUMMARY OF BP RECOMMENDATIONS

• Age is a powerful risk factor for hypertension complications, esp in Black and other high risk groups

• For the past 20 yrs, current recommendation of < 140/90 has been associated with dramatic reductions in HTN complications with BP↓

• There is no evidence of benefit and clear risk of harm if BP targets > 140/90 are recommended at this time in > 50% of hypertensive population, esp in Blacks and other higher risk groups

• The 2014 JAMA HTN Guideline was the only HTN guideline in the world recommending backing off on BP control in pts as young as 60 yrs
SUMMARY OF BP RECOMMENDATIONS

• Though not an NIH endorsed guideline, the 2014 US guideline has inappropriately been assigned credibility of past NIH guidelines

• It was dangerously irresponsible for the 2014 US guideline panel to abandon the target of <140/90 mmHg in hypertensive patients, esp in Blacks and other high risk grps

• If the increase in SBP target is followed and results in an increase in cardiovascular and especially strokes, I firmly believe this will have been a criminally inappropriate test of the higher BP target.

• All policy makers are urged to end this dangerous public health experiment.
The
End
# Recent Hypertension Guideline Recommendations

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Evidence Review Methodology</th>
<th>BP Target in General Adult Population</th>
<th>BP Target in High CVD Risk Grps</th>
<th>BP Target in CKD and DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNC-7</td>
<td>Consensus (Graded)</td>
<td>&lt;140/90 mmHg</td>
<td>&lt;140/90 mmHg</td>
<td>&lt;130/80 mmHg</td>
</tr>
<tr>
<td>AHA/ACC HTN in Elderly (2011)</td>
<td>Consensus</td>
<td>Age &lt; 80: ≤140/90</td>
<td>Age ≥ 80: ≤140-145/90</td>
<td>(CHD only &lt;130/80)</td>
</tr>
<tr>
<td>NICE (2011)</td>
<td>Systematic Review</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age ≤ 80: &lt;150/90</td>
</tr>
<tr>
<td>NKF-KDOQI (2012)</td>
<td>Consensus (Graded)</td>
<td>&lt;140/90</td>
<td>NR</td>
<td>&lt;140/90</td>
</tr>
<tr>
<td>ESH/ESC (2013)</td>
<td>Consensus (Graded)</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age ≥ 80: &lt;150/90</td>
</tr>
<tr>
<td>ASH/ISH (2014)</td>
<td>Consensus</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age &lt; 80: &lt;140/90</td>
<td>Age ≥ 80: &lt;150/90</td>
</tr>
<tr>
<td>JAMA 2014 HTN Guideline</td>
<td>Systematic Review</td>
<td>Age &lt;60: &lt;140/90</td>
<td>Age &lt; 60: &lt;140/90</td>
<td>Age ≥60: &lt;150/90</td>
</tr>
<tr>
<td>VA/DOD 2014</td>
<td>Systematic Review</td>
<td>&lt;150/90 (initiate meds at &gt;160/90)</td>
<td>&lt;150/90 (140/90 in CVA)</td>
<td>&lt;150/85</td>
</tr>
</tbody>
</table>
Figure 8. Absolute Risk of Stroke Mortality in Relation to Blood Pressure

Aronow WS et al. JACC 2011;57:2037-2114)

Deaths/100,000 Population

Male

Female

Year

*White  *Black  Hispanic  American Indian  Asian

CHD: Coronary heart disease.
* Non-Hispanic.