What is Controversial about Hypertension Management?

JNC 8 Guidelines: key new aspects
What is new and what is controversial?
Financial Disclosures

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In the context of my participation in this CME activity:

There is no conflict of interest to disclose.
What is new about Hypertension Management?

Key Objectives

1. Importance of BP as a major CV risk factor
2. JNC 8 Goal BP based on age > or < 60
3. JNC 8 Goal BP for DM or CKD patients
4. JNC 8 Type of Rx for DM or CKD patients
5. JNC 8 Type of Rx for blacks

**FOCUS ON WHAT IS NEW AND WHAT IS CONTROVERSIAL COMPARED TO JNC 7**

... and common sense...
Global Mortality 2000: Impact of Hypertension and Dyslipidemia

SBP > 115
- High blood pressure
- Tobacco
- High cholesterol
- Underweight
- Unsafe sex
- High BMI*
- Physical inactivity
- Alcohol

TC > 150

Attributable Mortality (in thousands; total 55,861,000)

*BMI = body mass index.

Systematic Assessment of changes in population Health resulting from modification of 26 risk factors
Stroke and IHD Mortality vs Usual Systolic BP by Age

IHD= ischemic heart disease.

61 cohort studies in 1 M Subjects 12.7 M-Y
3 simple questions JNC 8 addressed

- **When?** To start Rx "**THRESHOLD BP**"
- **Where?** To aim Rx "**GOAL BP**"
- **How?** To achieve that goal "**RX TYPE**"
## JNC 8 Guidelines Evidence Quality Rating

### Table 2. Evidence Quality Rating

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Quality Rating³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-designed, well-executed RCTs that adequately represent populations to which the results are applied and directly assess effects on health outcomes. Well-conducted meta-analyses of such studies. Highly certain about the estimate of effect; further research is unlikely to change our confidence in the estimate of effect.</td>
<td>High</td>
</tr>
<tr>
<td>RCTs with minor limitations affecting confidence in, or applicability of, the results. Well-designed, well-executed non-randomized controlled studies and well-designed, well-executed observational studies. Well-conducted meta-analyses of such studies. Moderately certain about the estimate of effect; further research may have an impact on our confidence in the estimate of effect and may change the estimate.</td>
<td>Moderate</td>
</tr>
<tr>
<td>RCTs with major limitations. Non-randomized controlled studies and observational studies with major limitations affecting confidence in, or applicability of, the results. Uncontrolled clinical observations without an appropriate comparison group (eg, case series, case reports). Physiological studies in humans. Meta-analyses of such studies. Low certainty about the estimate of effect; further research is likely to have an impact on our confidence in the estimate of effect and is likely to change the estimate.</td>
<td>Low</td>
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Abbreviations: RCT, randomized controlled trial

³The evidence quality rating system used in this guideline was developed by the National Heart, Lung, and Blood Institute’s (NHLBI’s) Evidence-Based Methodology Lead (with input from NHLBI staff, external methodology team, and guideline panels and work groups) for use by all the NHLBI CVD guideline panels and work groups during this project. As a result, it includes the evidence quality rating for many types of studies, including studies that were not used in this guideline. Additional details regarding the evidence quality rating system are available in the online Supplement.
JNC 7 2003 Guidelines BP Goal

• < 140 systolic and < 90 diastolic

• < 130 systolic and < 80 diastolic in diabetics and renal disease

• < 120/80 is optimal BP; 115/75 is associated with the lowest risk of CV and renal complications (observational studies)
### JNC 8 2014 Guidelines BP Goal

**JNC 8 Recommendations**

<table>
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<tr>
<th>Patient Subgroup</th>
<th>Target SBP (mm Hg)</th>
<th>Target DBP (mm Hg)</th>
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<td>≥ 60 years</td>
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<td>&lt;90</td>
</tr>
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*CKD = chronic kidney disease; DBP = diastolic blood pressure; SBP = systolic blood pressure*


SO what is really NEW about these guidelines?
The new and improved JNC 8 Target BP

**JNC 8 2014 Guidelines BP Goal**

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**SO what is really NEW about these guidelines?**
JNC 8 took 10 years to conceive in Dec 2013 10 years after JNC 7... *Was this wait really worth it?*

Is JNC 8 really a step forward?

Or more like 3 steps backward?
The Media reacted to JNC 8

If true experts cannot decide or agree on a GOAL BP, maybe Journalists should decide!

Time Magazine on January 14, 2014

Heart Disease

Why Doctors Are Fighting Over Blood Pressure Guidelines?

By Alexandria Sifferlin @acsifferlin Jan. 13, 2014

Alexandra Sifferlin is a writer and producer for TIME Healthland. She is a graduate from the Northwestern University Medill School of Journalism
Reactions to JNC 8 guidelines

- In an interview with the Associated Press, the **American Heart Association’s (AHA) president-elect Dr. Elliott Antman**, a cardiologist at Brigham and Women’s Hospital and a professor at Harvard Medical School in Boston, told the **Associated Press** the AHA was **uneasy with the decision**. “We are concerned that relaxing the recommendations may expose more persons to the problem of inadequately controlled blood pressure,” he said.
Some even lost their mind over the JNC 8 guidelines!

Dr. Suzanne Steinbaum, the director of women and heart disease at Lenox Hill Hospital in New York said she has not changed the way she treats her patients over age 60. “I have been waiting. I have been waiting for this editorial,” she says. “As a preventive cardiologist, these new guidelines have made me insane! What we have learned is that blood pressure treatment even for a patient above 80 has been shown to be critical. It goes against everything we know as cardiologists.”
How are decisions reached in JNC 8?

By majority vote

Or

Unanimously?
How are decisions reached in JNC 8?

By majority vote

Or

Unanimously?
So what would the minority do after JNC 8 is reported?

A. Keep quiet and simply yield to the majority. After all, that is how decisions are made in any civil society. We sometimes respectfully disagree but eventually come around to accept the majority vote

**OR**

B. Go out of their way to voice their discontent
So what would the minority do after JNC 8 is reported?

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OR

B. Go out of their way to voice their discontent
Minority View regarding Systolic BP goal change from < 140 to < 150 in subjects > 60 years old

We, the panel minority, believed that evidence was insufficient to increase the SBP goal from its current level of less than 140 mm Hg because of concern that increasing the goal may cause harm by increasing the risk for CVD and partially undoing the remarkable progress in reducing cardiovascular mortality in Americans older than 60 years.

In addition, one target would simplify implementation for clinicians.

Jackson T. Wright Jr., MD, PhD
Annals of Internal Medicine April 2014
SO why did JNC 8 change the GOAL BP to 150/90 in subjects 60 years and older?

NO compelling evidence a GOAL < 140/90 is SUPPORTED BY randomized controlled clinical trials in subjects 60 years of age and older
Why less stringent BP goals in JNC 8?

- The recommendation by the JNC 8 to use a less stringent goal was based on *two clinical trials conducted in Japan*, which failed to show that lowering systolic BP below 140 mmHg improved cardiovascular outcomes compared with a higher target goal in elderly hypertensive patients.

- So what are these new studies telling us?
JATOS Japanese Clinical Trial

DOES < 140 mm Hg GOAL SBP REDUCE CV complications MORE than GOAL SBP 140-160 mmHg in 65-85 year old hypertensive patients? ANSWER IS NO!!

Study drug was efonidipine, a long-acting calcium antagonist similar to amlodipine.

Final BP were significantly lower (136/75 vs. 146/78; p<0.001), but the primary endpoint was similar in the two groups (86 patients in each group; p=0.99).
In older subjects, is < 140 SBP more effective in reducing CV events compared to 150-159 mm Hg in a larger group of 3,260 older subjects?

At 3 years, BP reached was 5.4/1.7 mm Hg lower

No difference in the primary end point: 10.6/1000 vs. 12/1000 patient-years. Hazard ratio: 0.89; 95% CI: 0.60 to 1.34; P 0.38.
The lower the better Paradigm has VANISHED

- NO RCT support for < 140 mm Hg SBP goal in older patients

- The **SBP target of 140 mm Hg in the elderly**, although recommended by JNC 7 2003 guidelines, remains unsupported.
Which would you believe? VALISH AND JATOS Trials or Observational studies?

Should RCT evidence from 2 under powered trials in Japan weigh more than observational data even if the observational data are based on >50 studies over several decades and RCT evidence is limited to 2 RCT with important limitations?
Let us compare these weights!
>50 observational studies vs 2 underpowered randomized trials
Let us compare these weights!

For the JNC 8 Majority

>50 Observational Studies

- 1 million patients
- worldwide

2 underpowered studies
7,678 patients
In Japan

2 under powered clinical trials tip the scale and GOAL SBP SHOULD BE < 150 for subjects 60 y or older
Let us compare these weights!
For the JNC 8 Minority

- 2 underpowered studies
  - 7,678 patients
  - In Japan

- >50 Observational Studies
  - 1 million patients
  - Worldwide

>50 observational studies tip the scale and GOAL SBP SHOULD BE < 140 for subjects 60 y or older
So, what are the answers to:
3 simple questions JNC 8 addressed?

- **When?** To start Rx “**THRESHOLD BP**”
- **Where?** To aim Rx “**GOAL BP**”
- **How?** To achieve that goal “**RX TYPE**”
So, what are the answers to:
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JNC 8 Recommendation 1 > 60 y BP < 150/90

Recommendation 1
Subjects aged > 60 y, initiate therapy at BP ≥ 150/90 and treat to goal BP < 150/90 mm Hg

Strong Recommendation – Grade A

Corollary Recommendation
If pharmacologic treatment results in lower achieved SBP <140 mm Hg and treatment is not associated with adverse effects on health or quality of life, treatment does not need to be adjusted.

Expert Opinion – Grade E
Recommendation 2

Subjects < 60 y, initiate therapy at DBP of ≥ 90 and treat to goal DBP < 90 mm Hg.

For age 30-59 y: Strong Recommendation – Grade A

For ages 18 through 29 y, Expert Opinion – Grade E
Recommendation 3

Subjects < 60 years, initiate therapy at SBP ≥ 140 mm Hg and treat to goal SBP of < 140 mm Hg.

Expert Opinion – Grade E
JNC 8 Recommendation 4 CKD < 140/90

Recommendation 4

Subjects ≥ 18 y with CKD, initiate therapy at BP ≥ 140/90 and treat to goal BP < 140/90 mm Hg.

Expert Opinion – Grade E
WHY GOAL BP 140/90 in CKD?

• Evidence is insufficient to determine if there is a benefit in mortality, or CV outcomes with drug therapy to a lower BP goal <130/80 compared with <140/90 mm Hg.

• Evidence of moderate quality demonstrating no benefit in slowing the progression of kidney disease from treatment with therapy to BP goal <130/80 compared with a goal < 140/90 mm Hg.
Recommendation 5

Subjects $\geq 18$ y with diabetes, initiate treatment at BP of $\geq 140/90$ & treat to goal BP $< 140/90$ mm Hg.

*Expert Opinion – Grade E*
WHY Goal BP < 140/90 in JNC 8 for Diabetics?

No RCTs addressed whether treatment to goal SBP < 140 mm Hg compared with <150 mm Hg improves health outcomes in adults with diabetes and hypertension.

In the absence of such evidence, panel recommends BP goal < 140/90 Hg in this population based on *expert opinion*

**SBP <140 IS NOT PROVEN TO LOWER CV OUTCOMES VS < 150**
SBP goal of lower than 130 mm Hg is commonly recommended for adults with diabetes and hypertension. However, this lower SBP goal is not supported by any RCT.

ACCORD-BP compared SBP goal < 120 mm Hg with goal < 140 mm Hg. NO difference in the primary cardiovascular outcome.
So, what are the answers to: 3 simple questions JNC 8 addressed?

- **When?** To start Rx “THRESHOLD BP”
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- **How?** To achieve that goal “RX TYPE”

140/90 except for those > 60 years: 150/90 mm Hg
So, what are the answers to:
3 simple questions JNC 8 addressed?

- When? To start Rx “THRESHOLD BP”
- Where? To aim Rx “GOAL BP”
- How? To achieve that goal “RX TYPE”
JNC 8 Recommendation 6 Non black ± Diabetics

Recommendation 6

Non Blacks including diabetics, initial treatment should include a thiazide-type diuretic, CCB, ACEI or ARB.

Moderate Recommendation – Grade B
Recommendation 7
Blacks including diabetics, initial treatment should include a thiazide-type diuretic or CCB.

Blacks: Moderate Recommendation – Grade B
Blacks with diabetes: Weak Recommendation – Grade C
JNC 8 Recommendation 8 CKD ACEI/ARB

- **Recommendation 8**

- **Subjects ≥ 18 y with CKD and hypertension, initial (or add-on) antihypertensive treatment should include an **ACEI or ARB** to improve kidney outcomes. This applies to all **CKD** patients regardless of race or diabetes status.

- **Moderate Recommendation – Grade B**
Recommendation 9

The main objective of hypertension treatment is to attain and maintain goal BP. If goal BP is not reached within a month, increase the dose of initial drug or add a second drug from one of the classes in recommendation 6 (thiazide-type diuretic, CCB, ACEI, or ARB). If goal BP cannot be reached with 2 drugs, add and titrate a third drug from this list. **Do not use ACEI and ARB together in the same patient.**

**Expert Opinion – Grade E**
3 simple questions JNC 8 addressed

- **When?** To start Rx "**THRESHOLD BP**"
- **Where?** To aim Rx "**GOAL BP**"
- **How?** To achieve that goal "**RX TYPE**"
So what are the answers to the 3 simple questions JNC 8 addressed?

- **When?** To start Rx “THRESHOLD BP”
- **Where?** To aim Rx “GOAL BP”

140/90 or 150/90 depending on age < or > 60

- **How?** To achieve that goal “RX TYPE”

Diuretic, ACEI, ARB or CCB *no preference* unless CKD (ACEI or ARB) or Black (diuretic or CCB)