

Comparison of JNC Guidelines

JNC7

- Nonsystematic literature review and expert opinion
- Range of study designs
- No grading system for recommendations
- Recommendations:
 - Lifestyle modifications
 - Initial therapy for HTN
 - Compelling indications
 - Addressed secondary HTN and resistant HTN

JNC8

- Systematic review
- Randomized, controlled trials (RCT) only
- Graded recommendations
- Recommendations:
 - No specific lifestyle recommendations
 - Initial therapy for HTN
 - Racial, CKD, and diabetic subgroups addressed
 - Addressed three key questions

JNC8: Key Questions

- In adults with HTN, does initiating antihypertensive pharmacologic therapy at **specific BP thresholds** improve health outcomes?
- In adults with HTN, does treatment with antihypertensive pharmacologic therapy to a **specified BP goal** lead to improvements in health outcomes?
- In adults with HTN, do various **antihypertensive drugs** or drug classes differ in comparative benefits and harms on specific health outcomes?

JNC8: Methods

- Excluded sample size < 100 and f/up period < 1 year
- Only included randomized, controlled trials rated as good or fair
- Only included studies reporting effects of interventions on:
 - MI
 - Stroke
 - ESRD, doubling of Scr, or halving of GFR
 - Heart failure (HF) or hospitalization for HF
 - Coronary revascularization or other revascularization
 - Mortality (Overall mortality, CVD-related mortality, CKD-related mortality)

JNC8: Strength of Recommendation

Grade	Strength of Recommendation
A	<u>Strong</u> : High certainty net benefit is substantial
B	<u>Moderate</u> <ul style="list-style-type: none">• Moderate certainty net benefit is moderate to substantial, or• High certainty that net benefit is moderate
C	<u>Weak</u> : At least moderate certainty of small net benefit
E	<u>Expert Opinion</u> <ul style="list-style-type: none">• Insufficient evidence, or• Evidence is unclear or conflicting• Further research is recommended in this area

Recommendations for General Population Age \geq 60 Years

JNC 7

- BP Goal < 140/90 mmHg
(No age recommendations)

JNC8

- BP Goal < 150/90 mmHg
– Rated Grade A

Evidence for JNC8

- HYVET Trial
- SHEP Trial
- JATOS Trial
- VALISH Trial

Recommendations for General Population Age < 60 Years

JNC 7

- BP Goal < 140/90 mmHg

JNC8

- SBP Goal < 140 mmHg
 - Grade E
- DBP Goal < 90 mmHg
 - Ages 30-59 years (Grade A)
 - Ages 18-29 years (Grade E)

Evidence for JNC8

- HDFP Trial
- Hypertension-Stroke Cooperative Trial
- MRC Trial
- ANBP Trial
- VA Cooperative Trial

Recommendations for General Non-black Population (Including DM)

JNC 7

- First-line: Thiazide diuretics
(no racial distinction made)

JNC8

- First-line
 - Thiazide diuretics
 - CCB
 - ACE inhibitor
 - ARB
- **Grade B**

Evidence for JNC8

- ALLHAT Trial
 - BP control more important than medication used
 - Alpha blockers not recommended first-line
- LIFE Study
 - Beta-blockers not recommended first-line
- Insufficient evidence to recommend other classes

Recommendations for General Black Population (Including DM)

JNC 7

- First-line: Thiazide diuretics (no racial distinction made)

JNC8

- Initial treatment for black population (Grade B) with DM (Grade C)
 - Thiazide diuretics
 - CCB

ALLHAT Trial

- Pre-specified subgroup analysis
- Thiazide more effective in improving CV outcomes compared to ACEi in black patient subgroup
 - 51% higher rate of stroke (RR 1.51; 95% CI 1.22-1.86) with use of ACEi as initial therapy in black patients (compared to CCB)
- 46% of patients in subgroup analysis had DM

Recommendations for General Population Age ≥ 18 with CKD

JNC 7

- Goal BP: $< 130/80$ mmHg
- First-line agent: ACEi or ARB

JNC8

- Goal BP: $< 140/90$ mmHg
 - Grade E
- Initial or add-on treatment: ACEi or ARB
 - Grade E
 - Regardless of race or DM status

Evidence for JNC8

- AASK Trial
- MDRD Trial
 - Potential benefit of goal $<130/80$ for patients with proteinuria ($>3g/24$ hours)
- REIN-2 Trial
- No trials showed goal $<130/80$ mmHg significantly lowered kidney or CV end points compared to $140/90$

Comparison of JNC8 and IM HTN Algorithm: BP Goals

IM HTN Algorithm

- Age \geq 60 years
 - Not addressed
- General population: $<$ 140/90
 - No grade of evidence
- Hypertension & DM: $<$ 130/80
 - No grade of evidence
 - ADA Guidelines: $<$ 140/80
- Hypertension & CKD
 - Not addressed

JNC8

- Age \geq 60 years: $<$ 150/90
Grade A
- General population: $<$ 140/90
 - Grade E (Grade A: DBP, age 30-59)
- Hypertension & DM: $<$ 140/90
Grade E
- Hypertension & CKD: $<$ 140/90
Grade E

Comparison of JNC8 and IM HTN Algorithm: Preferred Agents

IM HTN Algorithm

- General population
 - Thiazide Diuretic : HCTZ
- Black population
 - Not addressed
- DM
 - ACEi or ARB
- CKD
 - Excluded from algorithm

JNC8

- General population
 - Thiazide, CCB, ACEi, ARB (Grade B)
- Black population
 - CCB or Thiazide (Grade B)
 - Grade C for black patients with DM
- DM
 - Thiazide, CCB, ACEi, ARB (Grade B)
- CKD
 - ACEi or ARB (Grade B)

JNC8: Treatment Strategies (Grade E)

- If goal BP not met after 1 month of treatment:
 - Increase dose of initial drug, or
 - Add a second drug (Thiazide, CCB, ACEi, or ARB)
- If goal BP not met with 2 medications:
 - Add and titrate a third medication (Thiazide, CCB, ACEi, or ARB)
 - Do not use ACE and ARB together
- Other classes may be used in the following scenarios:
 - Goal BP not met with 3 medications
 - Contraindication to thiazide, ACE/ARB, or CCB

Strategies to Dose Antihypertensive Drugs

- Titrate to max dose, then add a second drug
 - Add a second drug before achieving max dose of the initial drug
 - Start with 2 drugs at the same time
 - If SBP \geq 160mmHg and/or DBP \geq 100 mmHg
 - If SBP \geq 20mmHg above goal and/or DBP \geq 10mmHg above goal
- ***Consider scheduling follow-up with the Enhanced Care Clinic for titration of BP Meds