Recent AAFP Clinical Practice Guidelines on Hypertension and Atrial Fibrillation: Interpreting and Applying the Evidence in Your Practice

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Michael LeFevre, MD

Future of Family Medicine Professor/Vice Chair, Department of Family and Community Medicine, University of Missouri (MU) School of Medicine, Columbia; Medical Director, Population Health, MU Health Care, Columbia

Dr. LeFevre earned his medical degree from the MU School of Medicine in Columbia and completed his family medicine residency at the University of Missouri Hospital and Clinics. In his current role at the MU School of Medicine, he has administrative oversight of family medicine, urgent care, and quick care practices in eight locations with more than 150,000 annual visits. He teaches residents and medical students in the inpatient and outpatient settings, and maintains an active practice across the full breadth of family medicine, including inpatient work. His practice included obstetrics through 2012. He served as Chief Medical Information Officer for MU Health Care and directed the implementation of the electronic health record (EHR) system across the health system. Much of Dr. LeFevre's academic effort has been in evidence-based medicine and clinical policies. In April 2016, he completed more than a decade of work on the U.S. Preventive Services Task Force (USPSTF), including three years as co-vice chair and a year as chair. In addition, he was a member of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and was elected to the Institute of Medicine in 2011. He has received numerous awards, including the 2010 MU School of Medicine/Medical Alumni Organization Distinguished Service Award, the 2013 Citation of Merit Award, and the 2013 University of Missouri Alumni Association Faculty-Alumni Award.

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Kenneth Lin, MD, MPH, FAAFP

Professor of Family Medicine, Georgetown University School of Medicine, Washington, DC; Deputy Editor, American Family Physician

Dr. Lin earned his medical degree from New York University (NYU) School of Medicine and his Master of Public Health (MPH) degree from Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland. He completed a family medicine residency at Lancaster General Hospital in Pennsylvania, and a medical editing/faculty development fellowship at Georgetown University. From 2015 to 2017, Dr. Lin chaired the Subcommittee on Clinical Practice Guidelines of the AAFP's Commission on Health of the Public and Science. He posts regularly to "Common Sense Family Doctor," his personal blog on health and conservative medicine, and serves as an expert video commentator for Medscape Family Medicine. Previously, he authored "Healthcare Headaches," a consumer health blog for *U.S. News & World Report*. Dr. Lin is a nationally recognized speaker on the benefits and harms of cancer screening, medical writing and publication, and the uses of social media in health advocacy and policy.

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Learning Objectives

1. Articulate key steps in the AAFP's grading of recommendations and development of evidence-based clinical practice guidelines.

2. Compare and contrast hypertension and atrial fibrillation guidelines created by AAFP and other groups to determine key differences in methodology and recommendations.

3. Identify best practices for implementation of key recommendations for hypertension and atrial fibrillation in the context of shared-decision making.

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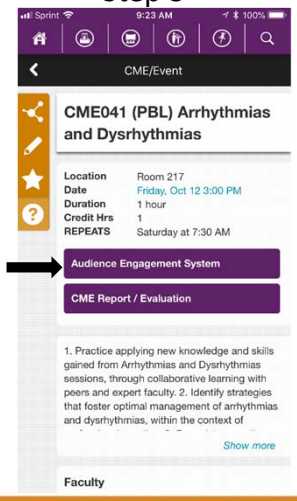
Audience Engagement System

Step 1

Step 2

Step 3



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HOW DO WE MAKE GOOD CLINICAL DECISIONS?

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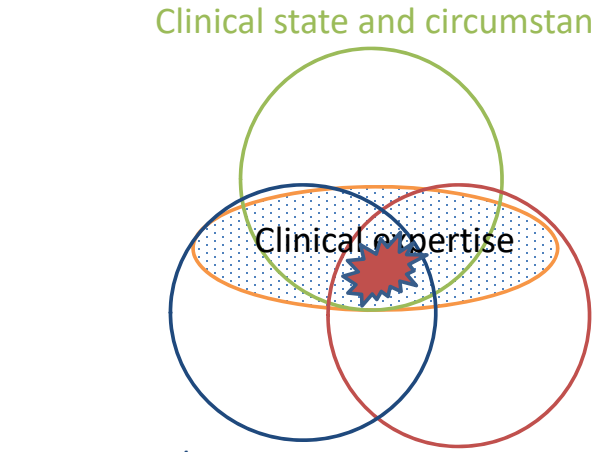

See EBM Volume 7 March/April 2002; 36-38 Haynes et al

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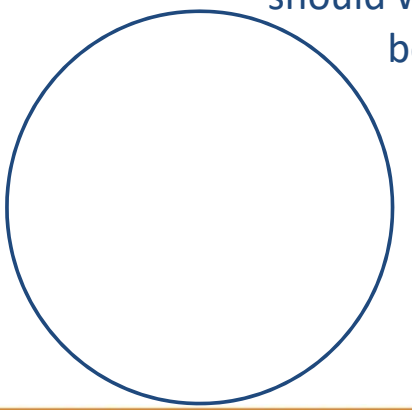
What knowledge/science should we bring to the bedside?



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CLINICAL PRACTICE GUIDELINES…

PROVIDE PHYSICIANS A SHORT CUT TO THE ANSWER TO THE QUESTION, “WHAT SCIENCE INFORMS THIS SPECIFIC CLINICAL DECISION?”

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Who Develops Practice Guidelines?

- Medical Specialty Societies (AAFP, ACP, AAP, ACOG, etc.)
- Special Interest Groups (ACS, AHA, ATS, ADA, etc.)
- Federal Government-supported
  - USPSTF (clinical prevention)
  - ACIP (vaccines)
  - CPSTF (community preventive services)
- National Heart, Lung, and Blood Institute (NHLBI)
  - Stopped guideline production in 2013
- Agency for Healthcare Research and Quality (AHRQ)
  - Does not develop them, but does (did) catalogue them

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What Are Problems With Guidelines?

- Large number of them
- Large differences in quality
- Some conflict with each other
- Some are poorly worded, lengthy and impractical
- Conflicts of interest are frequent
- They are not implemented
- They may get out of date quickly
- Co-morbid conditions are usually not considered

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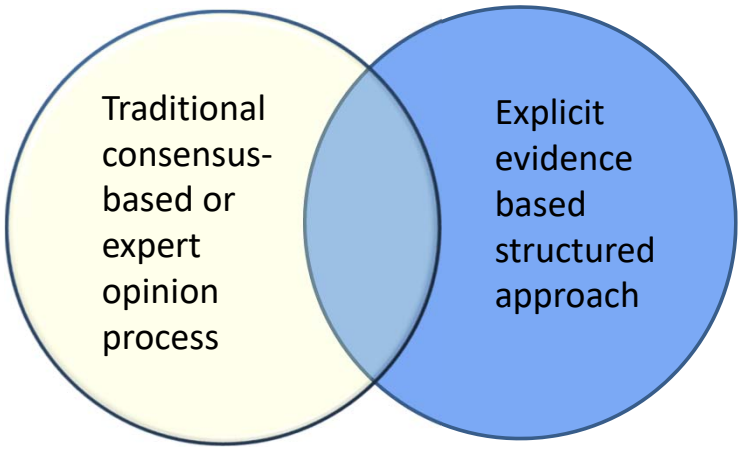
Contrasting approaches to clinical guidelines



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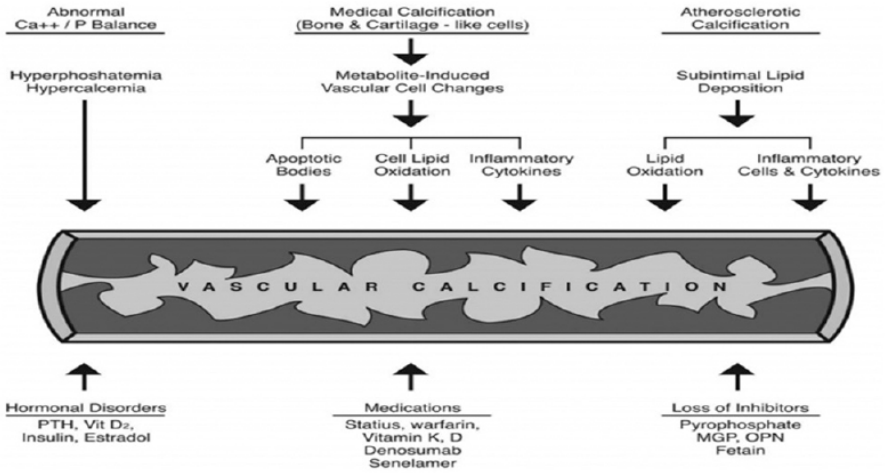
Old paradigm

"in my experience" + plausible pathophysiology rationale



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New paradigm

- The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients

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Is everyone on board?

The discipline of Family Medicine in general, and the AAFP specifically, have provided leadership in the field of high quality clinical practice guidelines

Types of Questions and Outcomes

- Disease oriented
  - Intermediate, physiologic or surrogate end points
    - Blood pressure, blood chemistry, physiology

- Patient oriented
  - Outcomes that matter to patients
    - Mortality, symptoms, quality of life

Prioritized by AAFP

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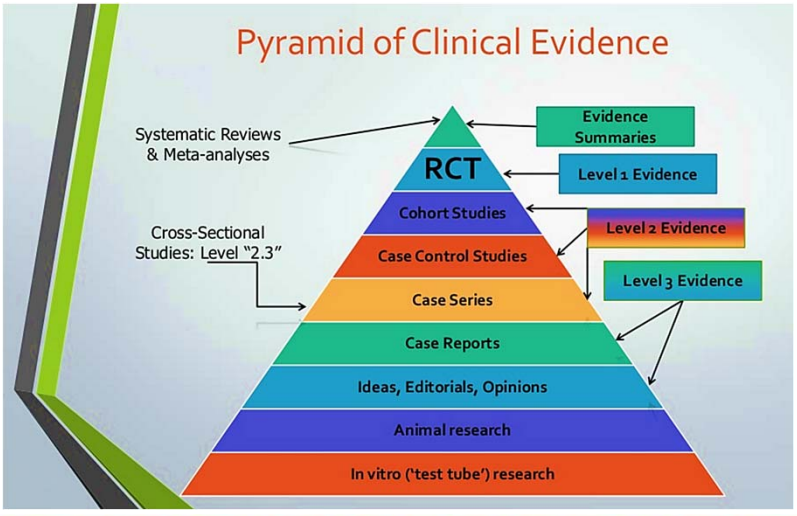
Assessing the Evidence



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Assessing the Evidence

- IOM (2011): a systematic literature search should be conducted and described
  - Independent evidence report is highly desirable
    - Search terms used
    - Databases used
    - Predetermined inclusion and exclusion criteria
- Avoid cherry picking

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Making Recommendations

- Two major considerations
  - Quality of the evidence
  - Strength of recommendation
- AAFP prefers the two to correlate
  - Strong recommendation should be based on high level evidence

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Quality of evidence and definitions

(http://www.gradeworkinggroup.org/)

- **High quality**— Further research is very unlikely to change our confidence in the estimate of effect
- **Moderate quality**— Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
- **Low quality**— Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate
- **Very low quality**— Any estimate of effect is very uncertain

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Strength of Recommendation

- Strong or weak
  - AAFP: “strongly recommend“ or “recommend”
- Depends on
  - The balance between desirable and undesirable consequences of alternative management strategies
  - Quality of supporting evidence
  - Variability in values and preferences
  - Resource use

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HYPERTENSION PRACTICE GUIDELINES

who + how = what

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AES Question #1

What blood pressure threshold do you use to diagnose hypertension in an adult?

- A. 140/90
- B. 150/90 for adults ≥60 years, 140/90 for younger adults
- C. 130/80
- D. 120/80
- E. Individualized, depends on patients' CV risk and comorbidities

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Joint National Committee (JNC)
Hypertension guidelines

NHLBI-sponsored

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JNC 1-7

- JNC 1 – 1977
- JNC 2 - 1980
- JNC 3 - 1984
- JNC 4 - 1988
- JNC 5 - 1993
- JNC 6 - 1997
- JNC 7 – 2003

Gradual lowering the bar for high blood pressure

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JNC 7

- Treat to goal **<140/90** in all persons; drug therapy after trial of lifestyle modifications
- Treat to goal **<130/80** in persons with diabetes and/or chronic kidney disease

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JNC 1-7

- JNC 1 – 1977
- JNC 2 - 1980
- JNC 3 - 1984
- JNC 4 - 1988
- JNC 5 - 1993
- JNC 6 - 1997
- JNC 7 – 2003

Guideline development: consensus based

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JNC 8

- March 2008 NHLBI convened panels for CVD prevention: BP, cholesterol, risk assessment, obesity, behavioral change
  - "The JNC 8 will review and synthesize the latest available scientific evidence..."

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Attributes of good practice guidelines

- Comprehensive, systematic evidence search
- Evidence linked directly to recommendations via strength of recommendation grading system
- Recommendations based on patient-oriented rather than disease-oriented outcomes
- Development process is transparent
- Potential conflicts of interest identified and addressed
- Prospective validation
- Clinical flexibility

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5 years later…

JNC 8

JNC Ain't

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NHLBI gets out of the guideline generating business (2013)

- "We plan to refocus our health education agenda on our core mission of knowledge generation and synthesis"
- Turned over JNC 8 guideline development process (begun in 2008) to American College of Cardiology and American Heart Association

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NHLBI gets out of the guideline generating business (2013)

- American Academy of Family Physicians and American College of Physicians declined to send representatives to ACC/AHA guideline panel, due to concerns about COI and reliance on expert consensus rather than evidence-linked process

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NHLBI gets out of the guideline generating business (2013)

- Original JNC 8 panel decided to publish their report in JAMA rather than be absorbed by ACC/AHA guideline

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Strong Recommendations

- In the general population age 30-59 years
  - Diastolic threshold/goal of < 90 mm Hg
- In the general population age ≥ 60 years
  - Threshold and goal < 150/90

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Lower systolic goal? ACCORD BP studied lower goal in Type II DM

The NEW ENGLAND JOURNAL of MEDICINE

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ORIGINAL ARTICLE

Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus

The ACCORD Study Group*

N Engl J Med 2010; 362:1575-1585 | April 29, 2010 | DOI: 10.1056/NEJMoa1001286

Share:

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Study methods same as the SPRINT trial

- Automated office blood pressure
- Intensive treatment
  - Target systolic BP < 120
- Standard treatment
  - Target a systolic BP of 135 to 139 mm Hg

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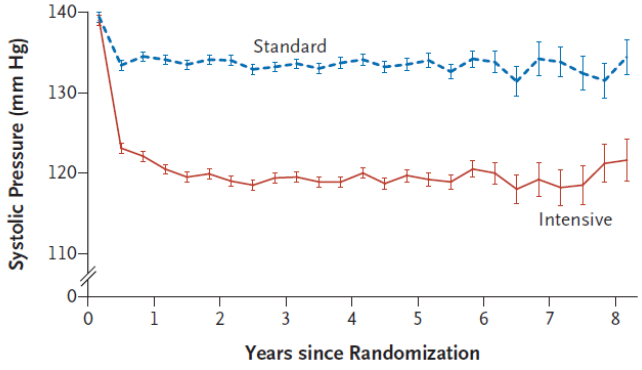
BP Outcome



Systolic BP 14.2 mm Hg lower in intensive group

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Health outcomes

- Primary outcome was a composite of CVD events
  - 1.87% per year in intensive
  - 2.09% per year in control
- Hazard ratio 0.88 (0.73-1.06), p=0.20

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Secondary Outcomes

- Stroke
  - Intensive 0.32 % per year
  - Standard care 0.53 % per year
  - Hazard ratio 0.59 (0.39–0.89)
- NNT over duration of study 91

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JNC 8

- Did NOT take evidence from specific subpopulations (e.g. DM) and apply it to the general adult population
- Did NOT consider the presence of a statistically significant secondary outcome sufficient evidence to adopt the lower standard for diabetics

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JNC 8 Recommendation

- In the *diabetic* population (including those aged ≥ 60 years)
  - Threshold and goal 140/90
  - *Expert opinion*

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FAST FORWARD FOUR YEARS:
A tale of two guidelines

ACP/AAFP vs ACC/AHA

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AES Question #2

Which of the following is true with respect to treatment of BP in adults?

- A. A limited number of RCTs support a SBP goal of 140 mm Hg
- B. A large RCT shows that a target BP of 120/80 in adults with DM reduces a composite of CVD events
- C. Strong evidence supports a target BP of 150/90 in adults ≥ 60 years of age
- D. Meta-analyses of RCT of BP goals < 140/90 show a reduction in CVD mortality and all-cause mortality

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One new study drives the current hypertension dialogue

SPRINT: RCT of intensive vs standard BP control

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What?

- Methods essentially identical to ACCORD BP

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Who?

- Increased cardiovascular risk
  - 10-year risk of cardiovascular disease of *15% or greater* on the basis of the Framingham risk score
  - Clinical or subclinical cardiovascular disease or CKD
- Or…age of 75 years or older

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Who not included?

- Patients with diabetes mellitus or prior stroke were excluded

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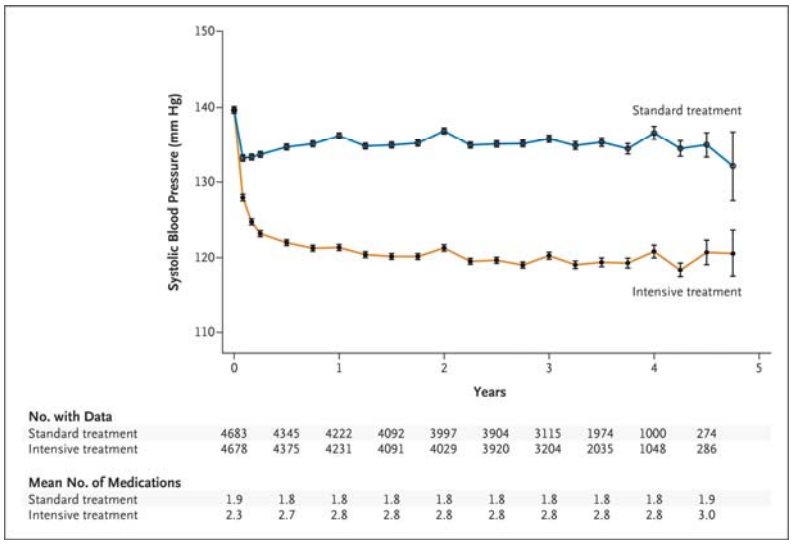

No. with Data										
Standard treatment	4683	4345	4222	4092	3997	3904	3115	1974	1000	274
Intensive treatment	4678	4375	4231	4091	4029	3920	3204	2035	1048	286
Mean No. of Medications										
Standard treatment	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Intensive treatment	2.3	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0

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Primary Outcome: Composite*

Ave f/u 3.26 years

	Goal < 120	Goal < 140	H.R. (95% c.i.)
Overall	5.2%	6.8%	.75 (.64-.89)
Age < 75	4.2%	5.2%	.80 (.64-1.0)
Age ≥ 75	7.7%	10.9%	.67 (.51-.86)

*MI, stroke, heart failure, CV death

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Sprint: Serious adverse events

	Intensive Rx	Standard Rx
Overall	38.3%	37.1%
Hypotension	2.4%	1.4%
Syncope	2.3%	1.7%
Electrolyte abnormality	3.1%	2.3%
AKI	4.1%	2.5%

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How should SPRINT be incorporated into hypertension guidelines?

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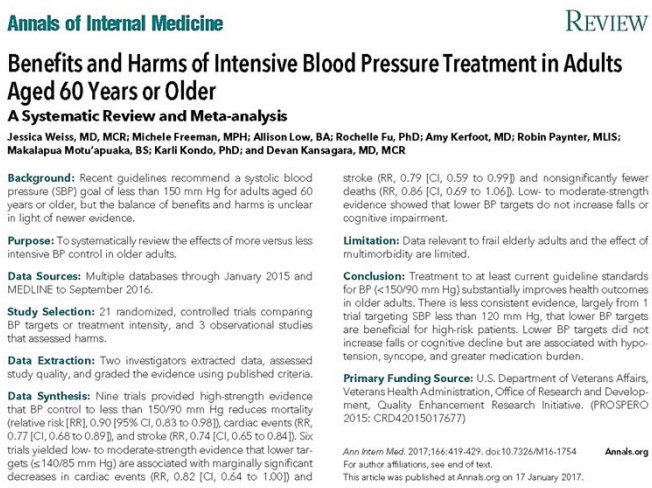
2017 ACP/AAFP guideline for adults ≥60 years



Annals of Internal Medicine REVIEW

Benefits and Harms of Intensive Blood Pressure Treatment in Adults Aged 60 Years or Older

A Systematic Review and Meta-analysis

Jessica Weiss, MD, MCR; Michele Freeman, MPH; Allison Low, BA; Rochelle Fu, PhD; Amy Kerfoot, MD; Robin Paynter, MLIS; Makalapua Motu'apuaka, BS; Karli Kondo, PhD; and Devan Kansagara, MD, MCR

Background: Recent guidelines recommend a systolic blood pressure (SBP) goal of less than 150 mm Hg for adults aged 60 years or older, but the balance of benefits and harms is unclear in light of newer evidence.

Purpose: To systematically review the effects of more versus less intensive BP control in older adults.

Data Sources: Multiple databases through January 2015 and MEDLINE to September 2016.

Study Selection: 21 randomized, controlled trials comparing BP targets or treatment intensity, and 3 observational studies that assessed harms.

Data Extraction: Two investigators extracted data, assessed study quality, and graded the evidence using published criteria.

Data Synthesis: Nine trials provided high-strength evidence that BP control to less than 150/90 mm Hg reduces mortality (relative risk [RR], 0.90 [95% CI, 0.83 to 0.98]), cardiac events (RR, 0.77 [CI, 0.68 to 0.89]), and stroke (RR, 0.74 [CI, 0.65 to 0.84]). Six trials yielded low- to moderate-strength evidence that lower targets (≤ 140/85 mm Hg) are associated with marginally significant decreases in cardiac events (RR, 0.82 [CI, 0.64 to 1.00]) and stroke (RR, 0.79 [CI, 0.59 to 0.99]) and nonsignificantly fewer deaths (RR, 0.86 [CI, 0.69 to 1.06]). Low- to moderate-strength evidence showed that lower BP targets do not increase falls or cognitive impairment.

Limitation: Data relevant to frail elderly adults and the effect of multimorbidity are limited.

Conclusion: Treatment to at least current guideline standards for BP (<150/90 mm Hg) substantially improves health outcomes in older adults. There is less consistent evidence, largely from 1 trial targeting SBP less than 120 mm Hg, that lower BP targets are beneficial for high-risk patients. Lower BP targets did not increase falls or cognitive decline but are associated with hypotension, syncope, and greater medication burden.

Primary Funding Source: U.S. Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Quality Enhancement Research Initiative. (PROSPERO 2015: CRD42015017677)

Ann Intern Med. 2017;166:419-429. doi:10.7326/M16-1754 **Annals.org**
For author affiliations, see end of text.
This article was published at Annals.org on 17 January 2017.

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2017 ACP/AAFP guideline for adults ≥ 60 years

Reaffirms JNC-8 treatment threshold

- Treat **SBP >150 mm Hg** to reduce the risk for stroke, cardiac events, and possibly mortality.
  - *Strong recommendation, high-quality evidence*
- Consider **SBP >140 mm Hg if high cardiovascular risk,** based on individualized assessment**.**
  - *Weak recommendation, low-quality evidence*

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ACC/AHA 2017 guideline

283 pages,
99 recommendations

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Categories of BP in adults

BP category	BP
Normal	<120/<80
Elevated	120-129/<80
Stage I hypertension	130-139/80-89
Stage II hypertension	>140/>90

BP indicates blood pressure based on an average of ≥ 2 careful readings obtained on ≥ 2 occasions

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ACC/AHA: Pharmacologic Treatment

- For **BP ≥130/80** drug therapy recommended
  - If CVD, CKD, or diabetes present
  - If age ≥ 65
  - If estimated 10-year risk of CVD of ≥10%
- For **BP ≥140/90** drug therapy recommended for all

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What evidence supported these lower targets?

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Assessing the Evidence

- Totality of the evidence considered

SPRINT?

(avoid cherry picking)

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ACC/AHA meta-analysis

- Nine trials incorporated
  - All trials selectively enrolled persons at high risk of cardiovascular disease (CVD)
- The two largest trials: SPRINT & ACCORD

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ACC/AHA meta-analysis

- No statistically significant benefit
  - all-cause mortality
  - CVD mortality
  - heart failure
  - renal events
- Difference for fatal or nonfatal myocardial infarction was borderline nonsignificant.

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ACC/AHA meta-analysis: statistically significant results

- Composite major CVD events
  - 6.2% vs. 7.3%;
  - relative risk = 0.84; number needed to treat = 91
- Combination of fatal and nonfatal stroke
  - 2.4% vs. 2.9%;
  - relative risk = 0.82; number needed to treat = 200

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ACC/AHA 2017 hypertension guideline

- No discussion of harms of intensive treatment
- AAFP declined to endorse

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AES Question #3

Which of the following is true with respect to treatment of BP in adults?

- A. A limited number of RCTs support a SBP goal of 140 mm Hg
- B. A large RCT shows that a target BP of 120/80 in adults with DM reduces a composite of CVD events
- C. Strong evidence supports a target BP of 150/90 in adults ≥ 60 years of age
- D. Meta-analyses of RCT of BP goals < 140/90 show a reduction in CVD mortality and all-cause mortality

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What now?

- My comments
  - Treatment of hypertension is a preventive service
  - Most persons who receive preventive medication will not benefit, and many will be harmed
  - Choosing a threshold and target for treatment should be based on the science supporting CVD risk reduction, while considering the benefits and harms in individual patient circumstances and respecting patient choice

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Pharmacologic management of newly detected atrial fibrillation

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Pharmacologic management of newly detected atrial fibrillation

- 2017 AAFP clinical practice guideline written for use by primary care clinicians
- Applicable to adults with nonvalvular atrial fibrillation not due to a reversible cause
- Guideline development panel included 5 family physicians and one consumer representative, all with no competing financial/intellectual interests
- Recommendations based on 2 AHRQ systematic reviews with an updated literature search through December 31, 2015

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Rate vs. rhythm control

- The AAFP **strongly recommends** rate control in preference to rhythm control for the majority of patients who have atrial fibrillation. Preferred options for rate-control therapy include non-dihydropyridine calcium channel blockers and beta blockers.
  - Rhythm control may be considered for certain patients based on patient symptoms, exercise tolerance, and patient preferences.
- The AAFP **recommends** lenient rate control (<110 beats per minute resting) over strict rate control (<80 beats per minute resting) for patients who have atrial fibrillation.

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Risk of stroke, risk of bleeding and anticoagulation

- The AAFP **recommends** that clinicians discuss the risk of stroke and bleeding with all patients considering anticoagulation. Clinicians should consider using the continuous $CHADS_2$ or continuous CHA_2DS_2VASc for prediction of risk of stroke and HAS-BLED for prediction of risk for bleeding in patients who have atrial fibrillation.
- The AAFP **strongly recommends** that patients who have atrial fibrillation receive chronic anticoagulation unless they are at low risk of stroke ($CHADS_2<2$) or have specific contraindications.
- The AAFP **strongly recommends against** dual treatment with anticoagulant and antiplatelet therapy in most patients who have atrial fibrillation.

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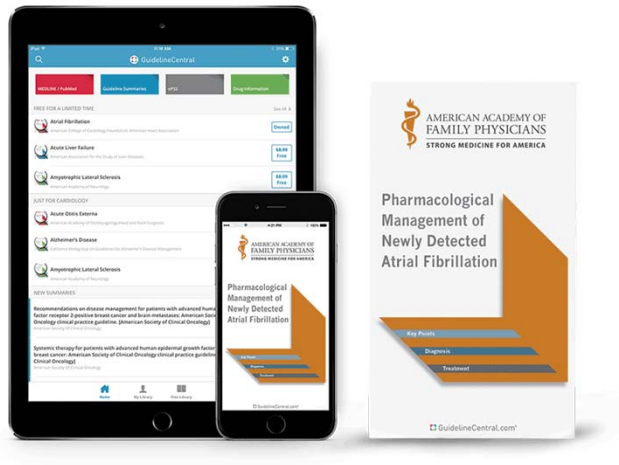
Tools for using the guideline in practice



Web/mobile app, flipbook, and print formats available at https://www.aafp.org/patient-care/clinical-recommendations/pocket-guides/a-fib.html

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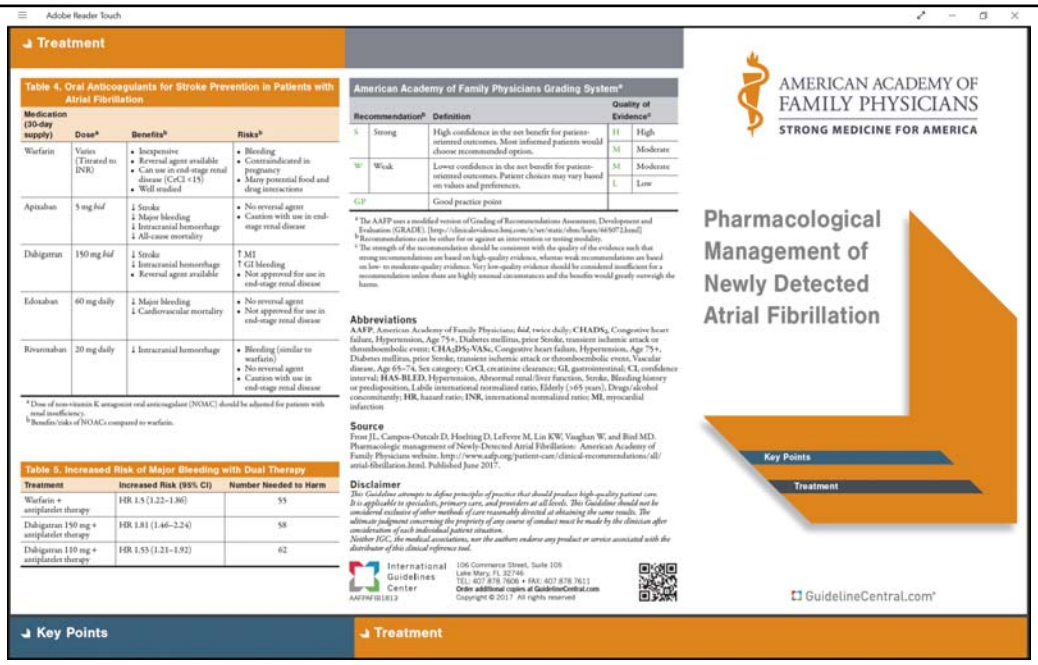

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AES Question #4

How does the AAFP guideline differ from the 2014 ACC/AHA/HRS guideline on atrial fibrillation?

- A. Prefers lenient over strict rate control
- B. Prefers rate over rhythm control
- C. No recommendation favoring specific calcium channel or beta blockers for rate control
- D. No preference between $CHADS_2$ or CHA_2DS_2VASc stroke risk scores
- E. Recommends use of HAS-BLED bleeding risk score

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Best Practice Recommendations

1. Prioritize clinical practice guidelines that are based on a systematic literature review and make recommendations linked to patient-oriented outcomes
2. For age < 60, treat BP to a target of < 140/90
3. For age ≥ 60, treat SBP >150 mm Hg to reduce the risk for stroke, cardiac events, and possibly mortality
4. For age ≥ 60, consider SBP >140 mm Hg if high cardiovascular risk, based on individualized assessment
5. For most patients with newly diagnosed atrial fibrillation, lenient rate control is preferred to strict rate control or rhythm control.
6. Patients with atrial fibrillation should receive chronic anticoagulation unless they are at low risk of stroke ($CHADS_2$<2) or have specific contraindications.

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Questions

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