ACC/AHA and ESC/ESH Guidelines More Similar than Different

Hearts in the Americas Regional Workshop Punta Cana, May 17, 2019

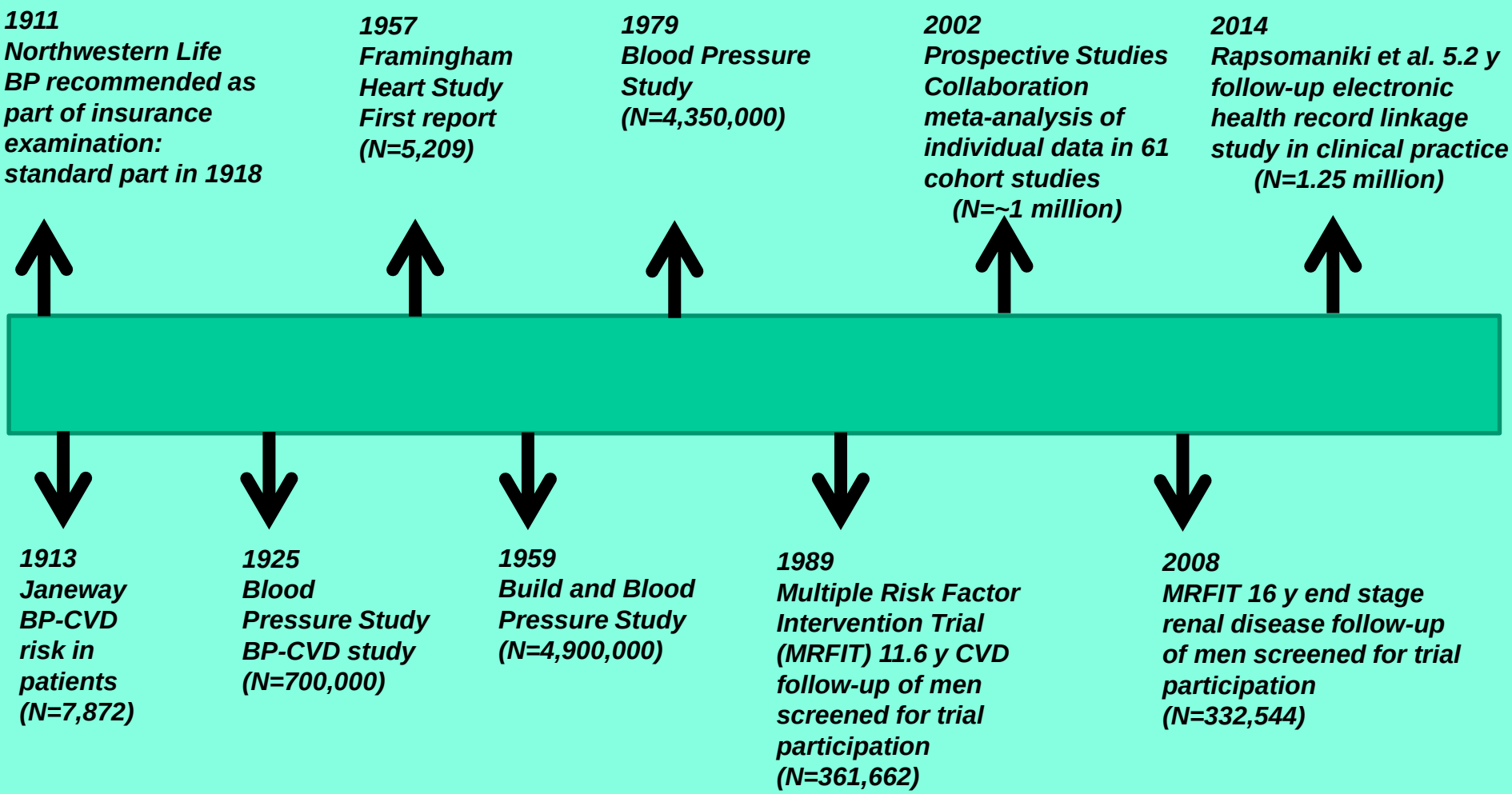
Paul K. Whelton, MB, MD, MSc
Show Chwan Chair of Global Public Health
Tulane University School of Public Health and Tropical Medicine
Tulane University School of Medicine

Conflicts of interest: None
Disclosures: Chair, ACC/AHA BP Guideline Writing Committee

BP Clinical Practice Guidelines (CPGs)

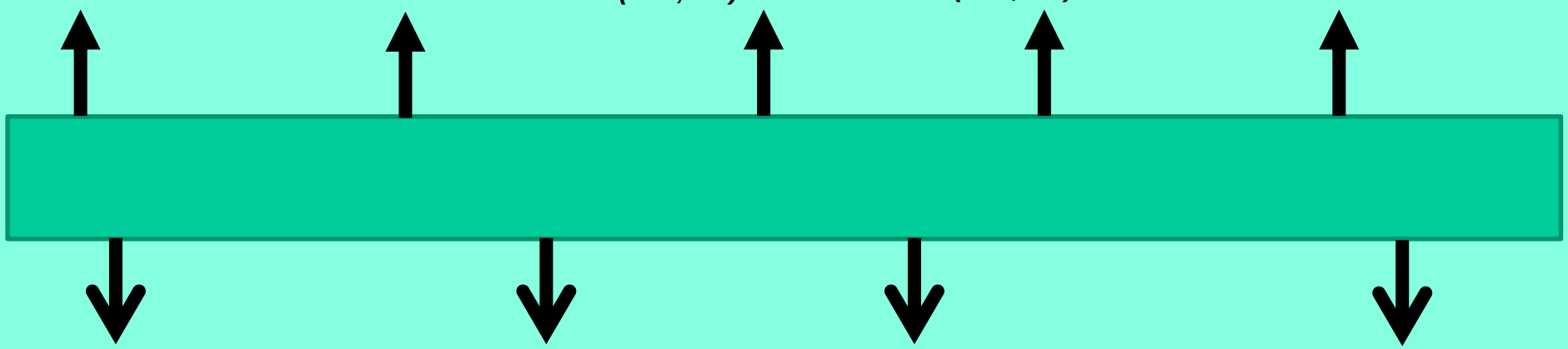
- ***CPGs especially helpful when:***
  - ***Condition common and/or expensive***
  - ***Practice patterns vary substantially***
  - ***Evidence of sufficient quality & quantity*** { ***- Risk*** ; ***- Treatment***

Timeline for Selected Studies of BP-related CVD Risk



Whelton PK. Can J Cardiol. 2019;35:570-581.

Timeline for Selected Randomized Controlled Trials of Antihypertensive Drug Therapy



1966
Wolff and Lideman
First antihypertensive randomized controlled trial
(N=87)

1967
Veterans Administration Cooperative Study Group DBP ≥105 mm Hg (N=143)

1970
Veterans Administration Cooperative Study Group DBP 90-104 mm Hg (N=380)

1979
Hypertension Detection and Follow-up Program (HDFP) Stepped care vs. Referred-care RCT (N=10,940)

1991
Systolic Hypertension in the Elderly Program (SHEP) RCT in adults ≥60 y with SBP 160-219 and DBP <90 mm Hg (N=4,736)

2002
Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) comparison of first-step antihypertensive drug therapies (N=42,418)

2008
Hypertension in the Very Elderly Trial (HYVET) RCT in adults >80 y and SBP >160 mm Hg (N=3,845)

2015
Systolic Blood Pressure Intervention Trial (SPRINT) RCT comparing SBP goal < 120 vs. <140 mm Hg (N=9,361)

2016
Prevention of Hypertension in Patients with PreHypertension (PREVER)-Prevention Trial
RCT in adults with SBP 120-139 or DBP 80-89 mm Hg (N=730)

Whelton PK. Can J Cardiol. 2019;35:570-581.

Timeline for Selected Randomized Controlled Trials of Nonpharmacological Therapy to Prevent/Treat High Blood Pressure

1989
Stamler R et al. Two-arm behavioral intervention RCT of nonpharmacological therapy to prevent hypertension (N=201)

1990
Hypertension Prevention Trial (HPT) exploratory four-arm behavioral intervention trial in adults with DBP 78-89 mm Hg (N=841)

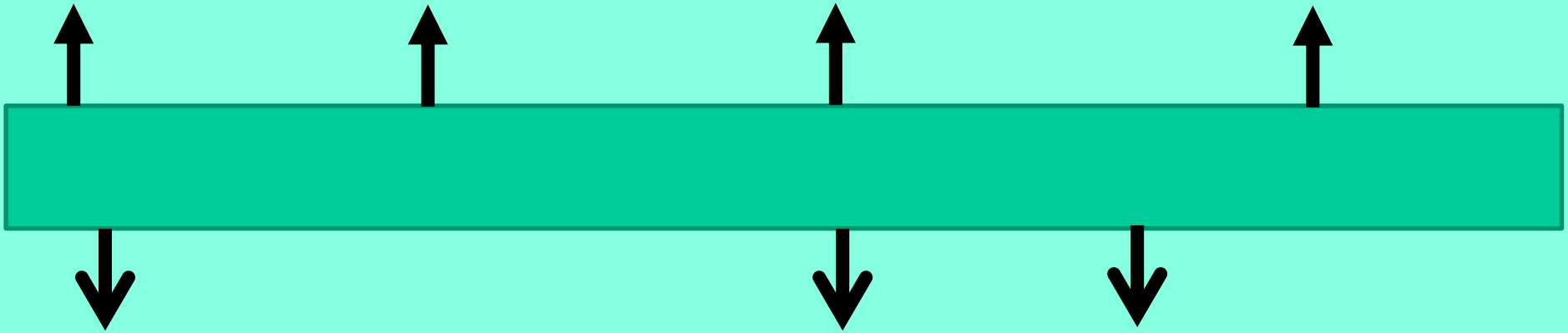
1992
Trials of Hypertension Ptevention (TOPH), Phase I RCT of 7 interventions for prevention of hypertension in adults with DBP 80-89 mm Hg (N=2,182)

1997
TOPH, Phase II 2-4 yr weight loss and sodium reduction behavioral RCT in overweight adults with DBP 83-89 mm Hg and SBP <140 mm Hg (N=2,382)

1997
Dietary Approaches to Stop Hypertension (DASH) 8-week randomized feeding trial of DASH diet, high fruits and vegetable diet, and control diet for treatment and prevention of hypertension (N=459)

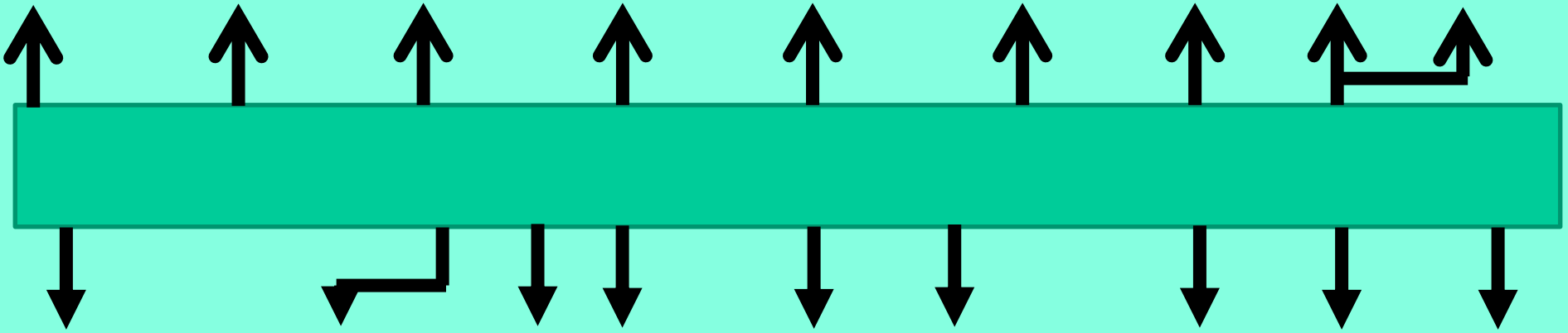
1998
Trial of Nonpharmacologic Intervention in the Elderly (TONE) behavioral RCT of weight loss and sodium reduction for treatment of hypertension in overweight and normal weight adults 60-80 y (N=975)

2001
DASH-Sodium Trial Randomized crossover 30-day feeding trial of DASH-low-sodium diet compared to control for prevention and treatment of hypertension (N=412)



Whelton PK. Can J Cardiol. 2019;35:570-581.

Timeline for Selected Sample of Blood Pressure Clinical Practice Guidelines



1977
1st JNC Report (updated in 1980, 1984, 1988, 1993, 1997, 2003)

1978
1st WHO Guideline

1986
1st WHO/ISH Guideline (updated in 1989, 1993, 1996, 1999, 2003)

1991
1st Brazilian Guideline (updated in 1994, 1998, 2004, 2007, 2010, 2016)

1989
BHS Report (updated in 1993, 1999)

1999
1st Chinese Guideline (updated in 2005, 2010, 2014, 2017)

2000
Canadian Recommendations (updated annually through 2018)

2000
1st JSH Guideline (updated in 2003, 2004, 2006, 2009, 2014)

2003
1st ESH/ESC Guideline (updates in 2007, 2009, 2013)

2004
NICE Guideline (updated in 2006, 2011)

2008
Australian Guideline (updated in 2016)

2003
ISHIB Consensus Statement (updated in 2007, 2010, 2015)

2014
JNC 8 Panel Report

2014
ASH/ISH Statement

2017
ACP/AAFP Guideline

2017
ADA Position Statement

2017
ACC/AHA Guideline

2018
ESC/ESH Guideline

Whelton PK. Can J Cardiol. 2019;35:570-581.

BP Clinical Practice Guidelines (CPGs)

- *Developed by professional societies, government agencies, international bodies*
  - *Often, multiple guidelines in same region/country (e.g. US, China, Europe)*
- *In early CPGs, substantial concerns related to COI and methodology*
- *In recent past, more rigor in development of major CPGs*
- *Since 1990, IOM has recommended best practices for CPG preparation*
- *Most recent IOM report in 2011 ("CPGs We Can Trust")*
  - *1) Transparency*
  - *2) Avoid/manage COI*
  - *3) Team specs*
  - *4) Systematic reviews*
  - *5) Evidence foundations*
  - *6) Articulation of findings*
  - *7) External review*
  - *8) Updates*
- *ACC/AHA Guideline Task Force procedures*
  - *Highly structured and rigorous (influenced by IOM recommendations)*

2017 ACC/AHA and 2018 ESC/ESH High Blood Pressure Clinical Practice Guidelines

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CLINICAL PRACTICE GUIDELINE

2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Writing Committee Members

Paul K. Whelton, MB, MD, MSc, FAHA, *Chair*
Robert M. Carey, MD, FAHA, *Vice Chair*

Wilbert S. Aronow, MD, FACC, FAHA*
Donald E. Casey, Jr, MD, MPH, MBA, FAHA†
Karen J. Collins, MBA‡
Cheryl Dennison Himmelfarb, RN, ANP, PhD, FAHA§
Sondra M. DePalma, MHS, PA-C, CLS, AACC‖
Samuel Gidding, MD, FAHA¶
Kenneth A. Jamerson, MD#
Daniel W. Jones, MD, FAHA†
Eric J. MacLaughlin, PharmD**
Paul Muntner, PhD, FAHA†
Bruce Ovbiagele, MD, MSc, MAS, MBA, FAHA†
Sidney C. Smith, Jr, MD, MACC, FAHA††
Crystal C. Spencer, JD‡
Randall S. Stafford, MD, PhD‡‡
Sandra J. Taler, MD, FAHA§§
Randal J. Thomas, MD, MS, FACC, FAHA‖‖
Kim A. Williams, Sr, MD, MACC, FAHA†
Jeff D. Williamson, MD, MHS¶¶
Jackson T. Wright, Jr, MD, PhD, FAHA##

*American Society for Preventive Cardiology Representative. †ACC/AHA Representative. ‡Lay Volunteer/Patient Representative. §Preventive Cardiovascular Nurses Association Representative. ‖American Academy of Physician Assistants Representative. ¶Task Force Liaison. #Association of Black Cardiologists Representative. **American Pharmacists Association Representative. ††ACC/AHA Prevention Subcommittee Liaison. ‡‡American College of Preventive Medicine Representative. §§American Society of Hypertension Representative. ‖‖Task Force on Performance Measures Liaison. ¶¶American Geriatrics Society Representative. ##National Medical Association Representative.

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ESC/ESH Guidelines

2018 ESC/ESH Guidelines for the management of arterial hypertension

The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension

Authors/Task Force Members: Bryan Williams (ESC Chairperson) (UK)*, Giuseppe Mancia (ESH Chairperson) (Italy)*, Wilko Spiering (The Netherlands), Enrico Agabiti Rosei (Italy), Michel Azizi (France), Michel Burnier (Switzerland), Denis L. Clement (Belgium), Antonio Coca (Spain), Giovanni de Simone (Italy), Anna Dominiczak (UK), Thomas Kahan (Sweden), Felix Mahfoud (Germany), Josep Redon (Spain), Luis Ruilope (Spain), Alberto Zanchetti (Italy)†, Mary Kerins (Ireland), Sverre E. Kjeldsen (Norway), Reinhold Kreutz (Germany), Stephane Laurent (France), Gregory Y.H. Lip (UK), Richard McManus (UK), Krzysztof Narkiewicz (Poland), Frank Ruschitzka (Switzerland), Roland E. Schmieder (Germany), Evgeny Shlyakhto (Russia), Costas Tsioufis (Greece), Victor Aboyans (France), and Ileana Desormais (France)

Journal of Hypertension 2018, 36:1953–2041
Correspondence to Bryan Williams, Institute of Cardiovascular Science, University College London, Maple House, 1st Floor, Suite A, 149 Tottenham Court Road, London W1T 7DN, UK. Tel: +44 20 3108 7907; e-mail: bryan.williams@ucl.ac.uk; Giuseppe Mancia, University of Milano-Bicocca, Milan, Italy; and Hypertension Center Istituto Universitario Policlinico di Monza, Verano (MB), Piazza dei Daini, 4-20126 Milan, Italy. Tel: +39 347 4327142; e-mail: giuseppe.mancia@unimib.it

*Bryan Williams and Giuseppe Mancia contributed equally to the document.

†Professor Zanchetti died toward the end of the development of these Guidelines, in March 2018. He contributed fully to the development of these Guidelines, as a member of the Guidelines' Task Force and as a section co-ordinator. He will be sadly missed by colleagues and friends.

ESC Committee for Practice Guidelines (CPG), European Society of Hypertension (ESH) Council, ESC National Cardiac Societies having participated in the review process, ESH National Hypertension Societies having participated in the review process: listed in the Appendix.

ESC entities having participated in the development of this document:

Associations: European Association of Cardiovascular Imaging (EACVI), European Association of Preventive Cardiology (EAPC), European Association of Percutaneous Cardiovascular Interventions (EAPCI), European Heart Rhythm Association (EHRA), Heart Failure Association (HFA).

Councils: Council for Cardiology Practice, Council on Cardiovascular Nursing and Allied Professions, Council on Cardiovascular Primary Care, Council on Hypertension, Council on Stroke.

Working Groups: Cardiovascular Pharmacotherapy, Coronary Pathophysiology and Microcirculation, e-Cardiology.

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BP Classification: ACC/AHA, ESC/ESH and Australian BP Guidelines

2017 ACC/AHA	SBP		DBP	2018 ESC/ESH and Australian
Normal	<120	and	<80	Optimal
Elevated	120-129	or	80-84	Nornal
Stage 1 hypertension	130-139	or	85-89	High Normal
Stage 2 hypertension	140-159	or	90-99	Gade 1 Hypertension
	160-179	or	100-109	Grade 2 Hypertension
	≥180	or	≥110	Grade 3 Hypertension
	≥140	and	<90	Isolated Systolic Hypertension

Whelton PK et al.
Hypertension. 2018;71:1269-1324.
J Am Coll Cardiol. 2018;71:2199-2269.

Williams B et al.
Eur Heart J. 2018;39:3021-3104.
J Hypertens. 2018;36:1953-2041.

Gabb GM et al.
Med J aust. 2016;205:85-89.

Treatment Decisions

Based on level of BP and underlying risk of CVD

ACC/AHA- 2 categories of BP and 2 categories of risk

ASCVD Risk based on ACC/AHA pooled cohort equations

***High*: Clinical CVD or 10-year risk of ASCVD ≥ 10%**

***Low*: No clinical CVD and 10-year risk of ASCVD <10%**

Whelton PK et al. Hypertension. 2018;71:1269-1324./J Am Coll Cardiol. 2018;71:2199-2269.

ESC/ESH – 4 categories of BP and 3 categories of risk

CV risk based on SCORE CV mortality - chart or app

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High-normal SBP 130–139 DBP 85–89	Grade 1 SBP 140–159 DBP 90–99	Grade 2 SBP 160–179 DBP 100–109	Grade 3 SBP ≥ 180 DBP ≥ 110
Stage 1 (uncomplicated)	No other risk factors	Low risk	Low risk	Moderate risk	High risk
	1 or 2 risk factors	Low risk	Moderate risk	Moderate to high risk	High risk
	≥ 3 risk factors	Low to moderate risk	Moderate to high risk	High risk	High risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade 3, or diabetes mellitus without organ damage	Moderate to high risk	High risk	High risk	High to very high risk
Stage 3 (established disease)	Established CVD, CKD grade ≥ 4, or diabetes mellitus with organ damage	Very high risk	Very high risk	Very high risk	Very high risk

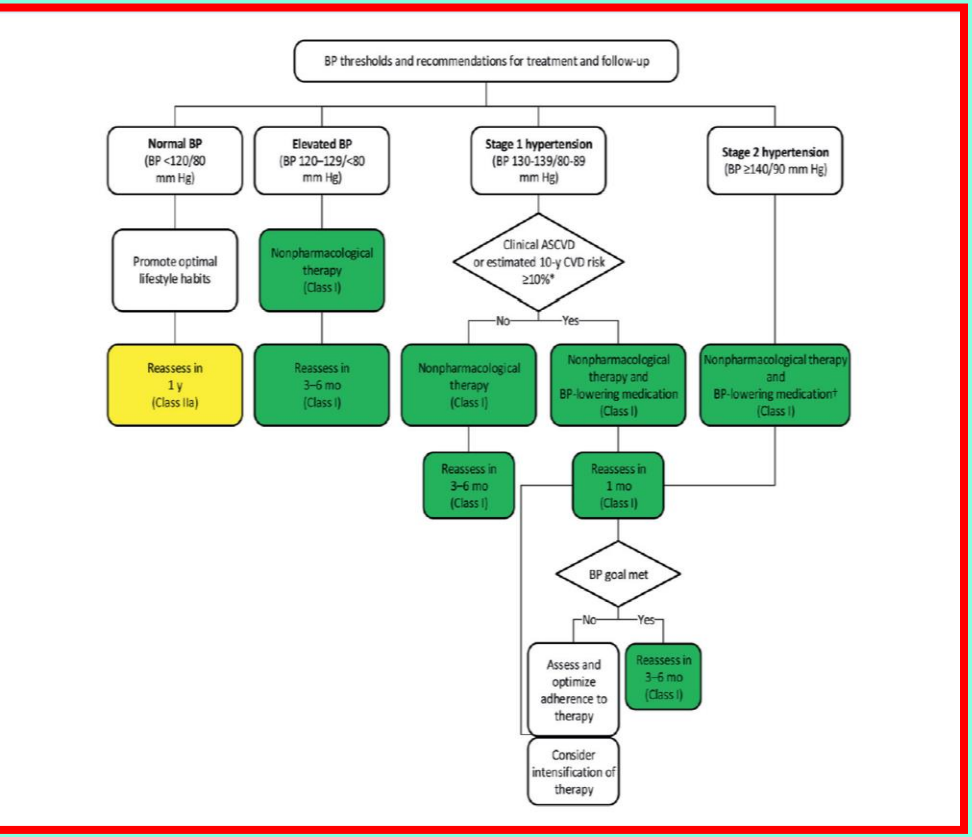
BP = blood pressure; CKD = chronic kidney disease; CV = cardiovascular; DBP = diastolic blood pressure; HMOD = hypertension-mediated organ damage; SBP = systolic blood pressure; SCORE = Systematic Coronary Risk Evaluation. CV risk is illustrated for a middle-aged male. The CV risk does not necessarily correspond to the actual risk at different ages. The use of the SCORE system is recommended for formal estimation of CV risk for treatment decisions.

Two European versions
- High risk countries
- Low risk countries

16 national versions

Williams B et al. Eur Heart J. 2018;39:3021-3104./J Hypertens. 2018;36:1953-2041.

High BP Treatment Recommendations
2017 ACC/AHA and 2018 ESC/ESH BP Guidelines



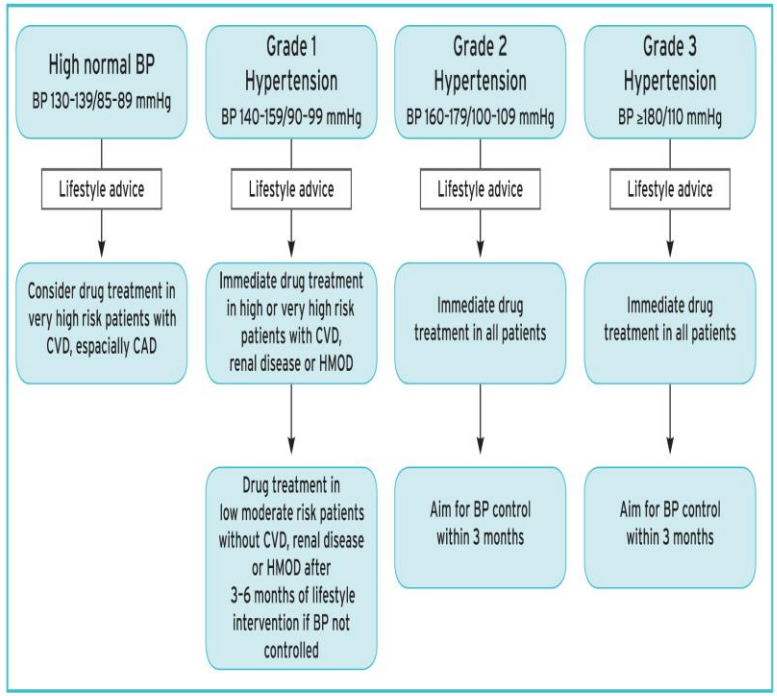


FIGURE 3 Initiation of blood pressure-lowering treatment (lifestyle changes and medication) at different initial office blood pressure levels. BP, blood pressure; CAD, coronary artery disease; CVD, cardiovascular disease; HMOD, hypertension-mediated organ damage.

Whelton PK et al.
Hypertension. 2018;71:1269-1324.
J Am Coll Cardiol. 2018;71:2199-2269.

Williams B et al.
Eur Heart J. 2018;39:3021-3104.
J Hypertens. 2018;36:1953-2041.

BP Clinical Practice Guidelines (CPGs)

- ***Differences are natural and should be expected***
  - ***Developed for populations with different:***
    - ***Hypertension awareness, treatment and control status***
    - ***Systems of health care***
    - ***Competing health needs***
    - ***Socio-economic status and culture***
  - ***Some recommendations are quite "transportable" (e.g. BP measurement issues) but others are very population-specific (e.g. BP risk instruments)***
  - ***Writing committees may:***
    - ***Interpret same data differently***
    - ***Employ different methods for decision-making***

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GUEST EDITORS' PAGE

The Blood Pressure Landscape

Schism Among Guidelines, Confusion Among Physicians, and Anxiety Among Patients

Franz H. Messerli, MD,[a] Sripal Bangalore, MD, MHA[b]

Case report: A 63-year-old mildly overweight woman presents to your office. On multiple readings her blood pressure (BP) averages 148/86 mm Hg. She is asymptomatic and on no medication.

You decide to look up the most recent guidelines as to her optimal on-treatment BP: The 2017 American College of Cardiology (ACC)/American Heart Association (AHA) guidelines—which aide approximately 25,000 cardiologists in the United States—indicate that her BP should be *<130/80 mm Hg* (1). The 2018 European Society of Hypertension (ESH)/European Society of Cardiology (ESC) guidelines—which aide approximately 75,000 physicians—indicate that her BP should be *<140/90 mm Hg* (2). The 2017 American College of Physicians (ACP)/American Association of Family Physicians (AAFP) guidelines—which aide approximately 250,000 family practitioners and internists in the United States—indicate that her BP should be <150/90 mm Hg (3) (**Figure 1**).

You decide to look up the most recent guidelines as to her initial antihypertensive therapy: The 2017 ACC/AHA guidelines recommend to initiate treatment with *1 drug* (1). The 2018 ESH/ESC guidelines recommend to initiate treatment with *2 drugs* (2). The 2017 ACP/AAFP guidelines recommend not to initiate treatment (i.e., *no drug*) (**Figure 1**) (3).

The next question to be addressed is whether it truly matters. To find out, we can project the on-treatment BP targets of the 3 guideline sets on the Lewington et al. (4) meta-analysis, which explored the relationship between usual blood pressure and mortality from stroke, coronary artery disease, and other vascular disease by evaluating individual data of 1 million adults in 61 prospective studies. In doing so, we note that her absolute risk of stroke mortality is around 5% for the suggested on-treatment target BP of the ACC/AHA guidelines, 8% for the target BP of the ESH/ESC guidelines, and 14% for the target BP of the ACP/AAFP guidelines (**Figure 2**). Hence, the absolute stroke mortality risk is more than 2-fold higher for the on-treatment BP target in the ACP/AAFP guidelines than in the ACC/AHA guidelines. This holds true not only for mortality from cerebrovascular disease, but also, as the Lewington et al. (4) study allows us to estimate, for mortality from coronary artery disease and from other vascular disease as well.

Of note, the schism of these recommendations among the guidelines is based on the same body of evidence; no major randomized trial has been put forward since SPRINT (Systolic Blood Pressure Intervention Trial), and the data in aggregate were identical for all 3 guideline sets (5). A thoroughly confused physician may now ask the appropriate question: how did 3 panels of experts arrive at a definition of hypertension and what are supposedly optimal on-treatment BP levels that differ by as much as 20 mm Hg in systolic BP? The inevitable implication of introducing BP limits for definition and treatment

From the [a]University Hospital, Cardiology, Inselspital, Freiburgstrasse, Bern, Switzerland; and the [b]New York University Langone Health, New York, New York.

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FIGURE 1 Upper Limit of On-Treatment Target BP as per Various Guidelines and Recommended Initial Therapy

63 year old,
BP 148/86

American Heart Association.
130/80
Rx: 1 drug

ESH
EUROPEAN SOCIETY OF CARDIOLOGY
140/90
Rx: 2 drugs

AAFP
150/90
Rx: no drug

The 2017 American College of Cardiology/American Heart Association blood pressure (BP) guidelines recommend to initiate treatment with 1 drug (1). The 2018 European Society of Hypertension (ESH)/European Society of Cardiology BP guidelines recommend to initiate treatment with 2 drugs (2). The 2017 American College of Physicians/American Association of Family Physicians (AAFP) BP guidelines recommend not to initiate treatment (i.e., no drug).

is that, if a patient scores just above or below them, our advice and action should be different and be based on "the assumption that those subjects with hypertension differ qualitatively from the rest of mankind," as Pickering stated (6).

Perhaps most concerning are the repercussions of this guideline schism for our patients. A recent editorial by the Guideline Committee of the ACP warned in no uncertain terms, "We believe that initiation of pharmacologic therapy at or above a BP of 130/80 mmHg and treatment to targets <130/80 mm Hg in a broad population of older adults are not supported by evidence and may result in low-value care" (7). How the insinuation of providing "low-value care" will unfold in the ever-increasing patient flow from primary physicians to cardiologist and vice versa remains to be determined. There is little doubt, however, that differences in opinion among physicians of what consists of hypertension and whether to treat or not to treat are prone to cause anxiety and dismay among patients. A patient may refuse to increase the daily pill burden for what his/her primary care physician considers as low-value care; no cardiologist would like to be accused of providing low-value care.

Practicing physicians commonly trust guidelines to be the epitome of evidence-based medicine. However, of a total of 2,711 recommendations in the ACC/AHA clinical practice guidelines in 2009, only a median of 11% were classified as Level of Evidence A, whereas a median of 48% were Level of Evidence C (8). This would indicate that guidelines still are predominantly based on lower levels of evidence or expert opinion. Clearly, guideline recommendations are not only an evaluation and interpretation of evidence in question, but also a judgment weighted by personal, regulatory, and organizational preferences that can vary from physician to physician within a country and across geographical regions. The above hypertension guideline fiasco eloquently illustrates the potential shortcomings of dogmatic clinical directives and, if anything, is prone to increase the rift between those who preach, those who teach, and those who treat (9). However, evaluating and integrating research findings into daily clinical practice remains a lifelong commitment for all physicians and

VIEWPOINT

The 2018 European Society of Cardiology/European Society of Hypertension and 2017 American College of Cardiology/American Heart Association Blood Pressure Guidelines
More Similar Than Different

Paul K. Whelton, MB, MD, MSc
Department of Epidemiology, Tulane University School of Public Health and Tropical Medicine, New Orleans, Louisiana; and Department of Medicine, Tulane University School of Medicine, New Orleans, Louisiana.

Bryan Williams, MD
UCL Institute of Cardiovascular Sciences, University College London, London, United Kingdom; and National Institute for Health Research, UCL Hospitals Biomedical Research Centre, London, United Kingdom.

Editorial page 1757

Author Audio Interview

Supplemental content

Corresponding Author: Paul K. Whelton, MB, MD, MSc, 1440 Canal St, Room 2015, New Orleans, LA 70112 (pkwhelton@gmail.com).

Clinical practice guidelines are an important established resource in medicine and public health. Clinical practice guidelines are particularly well suited to conditions such as high blood pressure (BP) that are common, result in a substantial disease burden and utilization of health care resources, incur individual and societal cost, demonstrate large variation in practice patterns, and have enough high-quality evidence to guide decision-making. Although many BP-related clinical practice guidelines have been developed by individual countries and professional societies, few would dispute that 2 such reports released during the past 12 months—the 2017 American College of Cardiology (ACC)/American Heart Association (AHA)[1] and 2018 European Society of Cardiology (ESC)/European Society of Hypertension (ESH)[2] guidelines—have substantial influence beyond their immediate regions of origin.

Presentation and publication of these 2 comprehensive guidelines have resulted in comparisons and vigorous debate, with an emphasis on differences[3] rather than how their core recommendations can be implemented to improve the health of the public. This may lead to an impression that experts cannot agree or that the evidence is flawed or insufficient, providing support for those who are content with the status quo of lamentable hypertension control globally.[4] Against this backdrop, it is important to recognize that the convergence of the 2017 ACC/AHA (US) and 2018 ESC/ESH (European) guidelines is greater now than ever before.

The 2 guidelines have much in common (eTable in the Supplement), including recommendations to (1) base diagnosis and management of hypertension on accurate BP measurements; (2) perform out-of-office BP readings to confirm high office readings and to recognize "white coat" and "masked" hypertension; (3) use cardiovascular disease (CVD) risk estimation, in addition to BP levels, for therapeutic decision-making; (4) utilize a similar array of drug treatment and nonpharmacological lifestyle interventions as the core strategy for BP lowering; (5) add antihypertensive drug treatment to nonpharmacological therapy at lower BP thresholds than previously recommended; (6) use combination drug therapy, preferably in the form of a single combination pill, to improve treatment adherence; (7) utilize combinations of the same classes of antihypertensive drugs for treatment of most adults with hypertension (thiazide/thiazide-like diuretics, calcium channel blockers, angiotensin-converting enzyme inhibitors, and angiotensin receptor blockers), reserving combinations with β-blockers for specific clinical conditions; (8) use lower BP treatment targets than those previously recommended, including lower BP targets in older adults, adults with diabetes, and adults with a variety of comorbid conditions; (9) emphasize functionality rather than chronological age in managing high BP in older adults; and (10) use strategies known to improve the control of hypertension. In addition, both guidelines identify evidence gaps for which additional research is needed to resolve areas of current uncertainty.

The guidelines vary in the details of their commonality but generally encourage greater use of out-of-office BP measurements, lower BP thresholds for initiating antihypertensive drug therapy, and lower BP treatment targets, which collectively should lead to a lower BP and fewer BP-related complications.[5] Other recent comprehensive BP clinical practice guidelines from Canada[6] and Australia[7] have also recommended lower BP treatment targets than in previous guidelines.

A key change in both guidelines is the approach to treatment of BP in older adults, which is closer than ever to that proposed for younger adults. Emerging evidence that lowering BP seems to protect against cognitive decline[8] may help reinforce the importance of improving BP treatment and hypertension control rates, with no age-related end date and cessation of therapy only when it is poorly tolerated or the patient experiences functional decline to the point at which treatment is futile.

Despite their similarities, the guidelines take a different position in several areas. The most apparent is in classification of BP. The definition of hypertension in the European guideline is unchanged, reflecting the level of BP (≥140/90 mm Hg) at which drug treatment is recommended for all patients. In the US guideline, hypertension is defined by an average systolic BP of at least 130 mm Hg or diastolic BP of 80 mm Hg or higher, based on an interpretation of risk and treatment effect. This results in a different approach to treatment of adults with a systolic BP of 130 through 139 mm Hg or diastolic BP of 80 through 89 mm Hg, who are classified as having stage 1 hypertension in the US guideline and high-normal BP in the European guideline. The US guideline recommends nonpharmacological therapy for all adults with

Similarities: 2017 ACC/AHA and 2018 ESC/ESH BP Guidelines

Process

Both guidelines independent, comprehensive process, subject to intensive peer review (ACC/AHA committee included primary care clinicians, nursing, pharmacy, and lay members. No commercial relationships allowed. Independent Evidence Review Committee)

Diagnosis of Hypertension

Emphasis on accuracy of BP measurements

Out of office BPs recommended

Similar equivalence of office and out of office BPs

Estimation of CVD Risk

Emphasized as essential element for treatment decisions in both guidelines

Whelton PK and Williams B. JAMA. 2018;320:1749-1750.

Similarities: 2017 ACC/AHA and 2018 ESC/ESH BP Guidelines

Lifestyle Interventions

Identified as core management for prevention and treatment of hypertension

- Similar nonpharmacological strategies

Antihypertensive Drug Treatment

Both guidelines recommend for adults with SBP ≥140 mm Hg or DBP ≥90 mm Hg

- *ACC/AHA: adults with high CVD risk and SBP ≥130 mm Hg or DBP ≥80 mm Hg*
- *ESC/ESH: consider in adults with very high CVD risk and SBP ≥130 mm Hg or DBP ≥85 mm Hg*

Core drug treatment based on same 4 drug classes (diuretics, CCBs, ACEIs, ARBs)

(β-blockers confined to patients with compelling indication)

2-drug therapy for most adults with hypertension

- As single pill combination therapy (if feasible)

- RAS combinations not recommended

Recommended BP target similar

ACC/AHA: <130/80 mm Hg (<130 mm Hg in older adults)

ESC/ESH: first <140/90 mm Hg; if tolerated ≤130/80 mm Hg

(120-129 mm Hg if <65y and 130-139 mm Hg if older)

Whelton PK and Williams B. JAMA. 2018;320:1749-1750.

Similarities: 2017 ACC/AHA and 2018 ESC/ESH BP Guidelines

Treatment in Special Groups

Older adults

Both guidelines emphasize function rather than chronologic age

Both guidelines recommend lower BP targets compared to previous guidelines

- If tolerated, similar goals to those recommended for younger adults)

Diabetics

Both guidelines recommend similar BP targets

- ACC/AHA SBP <130 mm Hg and DBP < 80 mm Hg
- ESC/ESH <130 mm Hg for adults <65 y and SBP 130-139 mm Hg for ≥65 y; DBP <80 but not <70 mm Hg

CKD

Both guidelines recommend similar but not identical SBP goals

- ACC/AHA SBP <130 mm Hg (and DBP < 80 mm Hg)
- ESC/ESH 130-139 mm Hg mm Hg

Control

Both guidelines emphasize strategies for control of hypertension

- **ACC/AHA:** adherence; lifestyle; team-based care; EHR and telehealth; QI initiatives; financial incentives
- **ESC/ESH:** strong emphasis on medication adherence strategies

Whelton PK and Williams B. JAMA. 2018;320:1749-1750.

Summary

- *Clinical practice guidelines particularly useful in high BP*
  - *Condition common and expensive*
  - *Large variation in practice patterns and control rates*
  - *Substantial body of evidence for BP-related risk and treatment*

- *Many BP clinical practice guidelines*
  - *Several major independent comprehensive guidelines*
    - *Includes 2017 ACC/AHA and 2018 ESC/ESH reports*
  - *Tendency to highlight guideline differences*
    - *Understandable but confusing for clinicians and public*
    - *May lead to belief that "even the experts cannot agree"*
    - *May result in therapeutic inertia*

- *ACC/AHA and ESC/ESH guideline similarities much greater than differences*
  - *Important to highlight core commonalities*

- *Insufficient treatment and control is biggest challenge (enormous problem)*

Thank You