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WHAT'S NEW IN THE 2013 ESC GUIDELINES ON HYPERTENSION

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2013 ESH/ESC guidelines for the management of arterial hypertension

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WHAT'S NEW? (1)

1.2 New aspects

Because of new evidence on several diagnostic and therapeutic aspects of hypertension, the present guidelines differ in many respects from the previous ones.² Some of the most important differences are listed below:

- (1) Epidemiological data on hypertension and BP control in Europe.
- (2) Strengthening of the prognostic value of home blood pressure monitoring (HBPM) and of its role for diagnosis and management of hypertension, next to ambulatory blood pressure monitoring (ABPM).
- (3) Update of the prognostic significance of night-time BP, white-coat hypertension and masked hypertension.
- (4) Re-emphasis on integration of BP, cardiovascular (CV) risk factors, asymptomatic organ damage (OD) and clinical complications for total CV risk assessment.
- (5) Update of the prognostic significance of asymptomatic OD, including heart, blood vessels, kidney, eye and brain.
- (6) Reconsideration of the risk of overweight and target body mass index (BMI) in hypertension.
- (7) Hypertension in young people.
- (8) Initiation of antihypertensive treatment. More evidence-based criteria and no drug treatment of high normal BP.

WHAT'S NEW? (2)

- (9) Target BP for treatment. More evidence-based criteria and unified target systolic blood pressure (SBP) (<140 mmHg) in both higher and lower CV risk patients.
- (10) Liberal approach to initial monotherapy, without any all-ranking purpose.
- (11) Revised schema for prioritized two-drug combinations.
- (12) New therapeutic algorithms for achieving target BP.
- (13) Extended section on therapeutic strategies in special conditions.
- (14) Revised recommendations on treatment of hypertension in the elderly.
- (15) Drug treatment of octogenarians.
- (16) Special attention to resistant hypertension and new treatment
- (17) Increased attention to OD-guided therapy.
- (18) New approaches to chronic management of hypertensive disease.

WHAT'S NEW?

- 1) **Prognostic value and diagnostic and management role of Home Blood Pressure Monitoring (HBPM)**
- 2) **Night time, white coat, masked Hypertension**
- 3) **Integration of BP, CV risk factors, asymptomatic organ damage (OD) clinical complication for total CV risk assessment**
- 4) **Initiation of treatment – No drug for high normal BP**
- 5) **Target BP for treatment (< 140 SBP for high and low risk)**
- 6) **Hypertension in young people**
- 7) **Treatment in elderly and octogenarians**
- 8) **Resistant hypertension and new treatment**

2013 ESH/ESC Guidelines for the management of arterial hypertension

Diagnostic evaluation

Out-of-office BP measurement: ambulatory and home blood pressure

Diagnostic evaluation

Out-of-office BP measurement



- **Advantages:**
 - Large number of measurements
 - Away from medical environment
 - More reliable assessment than office BP
- **Ambulatory Arterial Pressure Monitoring (ABPM) / home self-measurement (HBPM):**
 - Complementary rather than competitive or alternative
 - Correspondance ABPM / HBPM fair-moderate
- **Office BP generally higher than ABPM and HBPM**
- **Cut-off values different for office and out of office measurement**

Definitions of hypertension by office and out-of-office blood pressure levels (mmHg)

Category	Systolic		Diastolic
Office BP	≥140	and/or	≥90
Ambulatory BP			
- Daytime (or awake)	≥135	and/or	≥85
- Nighttime (or asleep)	≥120	and/or	≥70
- 24-hour	≥130	and/or	≥80
Home BP	≥135	and/or	≥85

Diagnostic evaluation

ABPM: Derived variables

- Night-to-day BP ratio between average night-time BP and average day-time BP.
- Night-time dipping pattern:

Category	Night/day ratio
Absence of dipping	> 1.0
Mild dipping	> 0.9 and ≤ 1.0
Dipping	> 0.8 and ≤ 0.9
Extreme dipping	≤ 0.8

- Additional diagnostic indices such as BP variability, morning BP surge, BP load and ambulatory arterial stiffness index should be regarded as experimental with no routine clinical use, and are discussed in detail in ESH position papers and guidelines.

ABPM Organ Damage and prognostic significance



- **LV hypertrophy, media-intima thickness and other organ damage markers correlate better with ABPM than office BP measurements**
- **ABPM more sensitive predictor of CV outcome (fatal and non fatal coronary events and stroke)**
- **Superiority of ABPM demonstrated in different patients categories (young vs. old, men vs.women, treated vs. untreated, high risk, renal disease)**
- **Night-time BP stronger predictor for morbidity and mortality than day-time BP**
- **Incidence of events lesser in dipper than non-dippers patient**

Diagnostic evaluation

HBPM: Methodological aspects

- The technique usually involves self-measurement of BP, but in some patients the support of a trained health provider or family member may be needed.
- BP should be measured daily on at least 3 to 4 days and preferably on 7 consecutive days.
- BP is measured twice in the morning and twice in the evening, after 5 min rest in the sitting position, and 1-2 min between measurements.
- Home BP is the average of these readings, with exclusion of the first monitoring day.

HBPM Organ Damage and prognostic significance



- **LV hypertrophy and other organ damage markers correlate better with HBPM than office BP measurements**
- **From metanalysis of GPs clinic studies HBPM correlates better than office BP measurements with morbidity and mortality**
- **HBPM correlates as well as ABPM for organ damages and similar prognostic significance**

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Diagnostic evaluation White-coat and masked hypertension

Definitions according to out-of-office BP (daytime am

BP and or home BP)



		mmHg)	
		SBP and DBP	SBP \geq 140 or DBP \geq 90
Daytime ABP or home BP (mmHg)	SBP < 135 and DBP < 85	True normotension (NT)	White-coat hypertension (WCHT)
	SBP \geq 135 or DBP \geq 85	Masked hypertension (MHT)	Sustained hypertension (SHT)



Diagnostic evaluation

WCHT: Prevalence and determinants

- Based on population-based studies, the overall prevalence of WCHT averages about 13% (range: 9-16%) in the population and about 32% (range: 25-46%) among hypertensive patients in these surveys.
- Factors related to the prevalence of WCHT:
 - **higher prevalence:** older age, female gender, non-smoking, no organ damage, grade 1 hypertension,
 - **lower prevalence:** repeated office BP measurements, measurements by a nurse or another healthcare provider, grade 3 hypertension.
- It is recommended that the diagnosis of WCHT be confirmed within 3 to 6 months.



WCHT Organ Damage and prognostic significance



- **Incidence of CV events and other organ damage lower than sustained hypertension**
- **Prognosis not significantly different from normotension**
- **Compared with normotension HBPM is higher, organ damage, metabolic risk factors, diabetes, and progression to sustained hypertension more frequent**

Masked HT Organ Damage and prognostic significance



- Prevalence form 10 to 17%
- Younger patients, male, smoke, alcohol consumption, exercise induced HT, stress induced, obesity, diabetes, CKD, family history of HT, HIGH normal BP
- Incidence of CV events X 2 vs. normotension and = to sustained HT

White-coat and masked hypertension treatment

Recommendations	Class	Level
<u>In white-coat hypertensives without additional risk factors, therapeutic intervention should be considered to be limited to lifestyle changes only, but this decision should be accompanied by a close follow-up.</u>	IIa	C
<u>In white-coat hypertension with a higher CV risk because of metabolic derangements or asymptomatic organ damage, drug treatment may be considered in addition to lifestyle changes.</u>	IIb	C
<u>In masked hypertension, both lifestyle measures and antihypertensive drug treatment should be considered, because this type of hypertension has been consistently found to have a CV risk very close to that of sustained hypertension.</u>	IIa	C

Clinical indications for out-of-office BP measurements



- **Office BP = Gold Standard**
- **Out-of-office BP important additive aspects**
- **ABPM vs. HBPM: specific indications, availability, costs, ease, preference**
- **Confirm HBPM borderline measurements with ABPM**
- **Suspicion of White-Coat HT**
- **Suspicion of Masked HT**

Clinical indications for out-of-office BP measurement for diagnostic purposes (1)

Clinical indications for HBPM or ABPM

- Suspicion of white-coat hypertension:
 - grade I hypertension in the office,
 - high office BP in individuals without asymptomatic organ damage and at low total CV risk.
- Suspicion of masked hypertension:
 - high normal BP in the office,
 - normal office BP in individuals with asymptomatic organ damage or at high total CV risk.
- Identification of white-coat effect in hypertensive patients.
- Considerable variability of office BP over the same or different visits.
- Autonomic, postural, post-prandial, siesta- and drug-induced hypotension.
- Elevated office BP or suspected pre-eclampsia in pregnant women.
- Identification of true and false resistant hypertension.

Clinical indications for out-of-office BP measurement for diagnostic purposes (2)

Specific indications for ABPM

- Marked discordance between office BP and home BP.
- Assessment of dipping status.
- Suspicion of nocturnal hypertension or absence of dipping, such as in patients with sleep apnoea, chronic kidney disease, or diabetes.
- Assessment of BP variability.

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Assessment of cardiovascular risk

Recommendations on cardiovascular risk assessment

Recommendations	Class	Level
<u>In asymptomatic subjects with hypertension but free of CV disease, chronic kidney disease, and diabetes, total CV risk stratification using the SCORE model is recommended as a minimal requirement.</u>	I	B
As there is evidence that asymptomatic organ damage predicts CV death independently of SCORE, <u>a search for organ damage</u> should be considered, particularly in individuals at moderate risk.	IIa	B
It is recommended that decisions on <u>treatment strategies depend on the initial level of total CV risk.</u>	I	B

Total cardiovascular risk stratification

Other risk factors (RF), asymptomatic organ damage (OD) or disease	Blood Pressure (mmHg)			
	High normal SBP 130-139 or DBP 85-89	Grade 1 HT SBP 140-159 or DBP 90-99	Grade 2 HT SBP 160-179 or DBP 100-109	Grade 3 HT SBP ≥ 180 or DBP ≥ 110
No other RF		Low risk	Moderate risk	High risk
1-2 RF	Low risk	Moderate risk	Moderate to High risk	High risk
≥ 3 RF	Low to moderate risk	Moderate to high risk	High risk	High risk
OD, CKD stage 3 or diabetes	Moderate to high risk	High risk	High risk	High to very high risk
Symptomatic CVD, CKD stage ≥ 4 or diabetes with OD/RFs	Very high risk	Very high risk	Very high risk	Very high risk

Blood pressure (mmHg)

Other risk factors, OD or Disease	Normal SBP 120–129 or DBP 80–84	High normal SBP 130–139 or DBP 85–89	Grade 1 HT SBP 140–159 or DBP 90–99	Grade 2 HT SBP 160–179 or DBP 100–109	Grade 3 HT SBP ≥180 or DBP ≥110
No other risk factors	Average risk	Average risk	Low added risk	Moderate added risk	High added risk
1–2 risk factors	Low added risk	Low added risk	Moderate added risk	Moderate added risk	Very high added risk
3 or more risk factors, MS, OD or Diabetes	Moderate added risk	High added risk	High added risk	High added risk	Very high added risk
Established CV or renal disease	Very high added risk	Very high added risk	Very high added risk	Very high added risk	Very high added risk

Total cardiovascular risk stratification

Blood pressure

- Total CV risk stratification is traditionally based on office BP.
- However, the 2013 update also provides for the consideration of out-of-office BP in the risk stratification model:
 - patients with high office BP may have normal out-of-office BP (white-coat hypertension) and their risk is lower than the risk in sustained hypertension, and
 - individuals with high normal office BP may have elevated out-of-office BP (masked hypertension) and their risk is in the hypertension range.

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Treatment strategies Blood pressure goals

General recommendations on initiation of antihypertensive drug treatment*

Recommendations	Class	Level
Prompt initiation of drug treatment is recommended in individuals with grade 2 and 3 hypertension with any level of CV risk, a few weeks after or simultaneously with initiation of lifestyle changes.	I	A
Lowering BP with drugs is also recommended when total CV risk is high because of organ damage, diabetes, CVD or CKD, even when hypertension is in the grade 1 range.	I	B
Initiation of antihypertensive drug treatment should also be considered in grade 1 hypertensive patients at low to moderate risk, when BP is within this range at several repeated visits or elevated by ambulatory BP criteria, and remains within this range despite a reasonable period of time with lifestyle measures.	IIa	B
Unless the necessary evidence is obtained it is not recommended to initiate antihypertensive drug therapy at high normal BP.	III	A

*See dedicated section for recommendations in special conditions and populations.

Blood pressure goals in hypertensive patients*

Recommendations	Class	Level
A systolic BP goal of <u><140 mmHg</u> :		
a) is recommended in patients at low-moderate CV risk,	I	B
b) <u>is recommended in patients with diabetes,</u>	I	A
c) should be considered in patients with previous stroke or TIA,	IIa	B
d) should be considered in patients with coronary heart disease,	IIa	B
e) should be considered in patients with diabetic or non-diabetic chronic kidney disease.	IIa	B
A diastolic BP target of <u><90 mmHg</u> <u>is always recommended, except in patients with diabetes, in whom values <85 mmHg are recommended.</u> It should nevertheless be considered that DBP values between <u>80 and 85 mmHg are safe and well tolerated.</u>	I	A

*See dedicated section for recommendations in special conditions and populations

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Treatment strategies

- Choice of drugs
- Monotherapy vs combination therapy

Recommendations on treatment strategies and choice of drugs (1)

Recommendations	Class	Level
Diuretics (thiazides, chlorthalidone and indapamide [*]), beta-blockers, calcium antagonists, ACE inhibitors, and angiotensin receptor blockers are all suitable and recommended for the initiation and maintenance of antihypertensive treatment, either as <u>monotherapy</u> or in <u>some combination</u> with each other.	I	A
Some agents should be considered as the preferential choice in specific conditions because used in trials in those conditions or because of greater effectiveness in specific types of organ damage.	Ila	C

***(NO Furosemide or Torasemide)**

Recommendations on treatment strategies and choice of drugs (2)

Recommendations	Class	Level
Initiation of antihypertensive therapy with a two-drug combination may be <u>considered</u> in patients with markedly high baseline BP or at high CV risk.	IIb	C
The combination of two antagonists of the renin-angiotensin system is not recommended and should be discouraged.	III	A
Other drug combinations should be considered and probably are beneficial in proportion to the extent of BP reduction. However, combinations that have been successfully used in trials may be preferable.	IIa	C
Combinations of two antihypertensive drugs at fixed doses in a single tablet may be recommended and favoured, because reducing the number of daily pills improves adherence, which is low in patients with hypertension.	IIb	B

Young adults

Recommendations	Class	Level
Despite absence of evidence from randomized controlled trials, antihypertensive drug treatment may be considered prudent in young hypertensives and, especially when other risk factors are present.	-	-
Young individuals with white-coat hypertension can be followed with lifestyle measures only.	-	-
Lack of evidence does also <u>not allow recommending to initiate antihypertensive drug therapy in young individuals with isolated elevation of brachial SBP</u> , but these individuals should be followed closely with lifestyle recommendations.	III	A

Elderly

Recommendations	Class	Level
In elderly hypertensives with SBP ≥ 160 mmHg there is solid evidence to recommend reducing SBP to between 150 and 140 mmHg.	I	A
In fit elderly patients <80 years old antihypertensive treatment may be considered at SBP values ≥ 140 mmHg with a target SBP <140 mmHg if treatment is well tolerated.	IIb	C
In individuals older than 80 years with an initial SBP ≥ 160 mmHg it is recommended to reduce SBP to between 150 and 140 mmHg, provided they are in good physical and mental conditions.	I	B
In frail elderly patients, it is recommended to leave decisions on anti-hypertensive therapy to the treating physician, and based on monitoring of the clinical effects of treatment.	I	C
Continuation of well-tolerated antihypertensive treatment should be considered when a treated individual becomes octogenarian.	IIa	C
All hypertensive agents are recommended and can be used in the elderly, although diuretics and calcium antagonists may be preferred in isolated systolic hypertension.	I	A

Resistant hypertension

= BP > 140/90 with life-style measures + diuretic + 2 drugs of different classes

- “spurious” = not adherence to therapy
- “apparent” = alert reactions, small cuffs, pseudo-hypertension
- “true” associated with obesity, alcohol consumption, sodium intake, sodium retaining substances, OSA, secondary hypertension, advanced OD

≥110 mmHg DBP and with BP elevation confirmed by ambulatory BP monitoring.

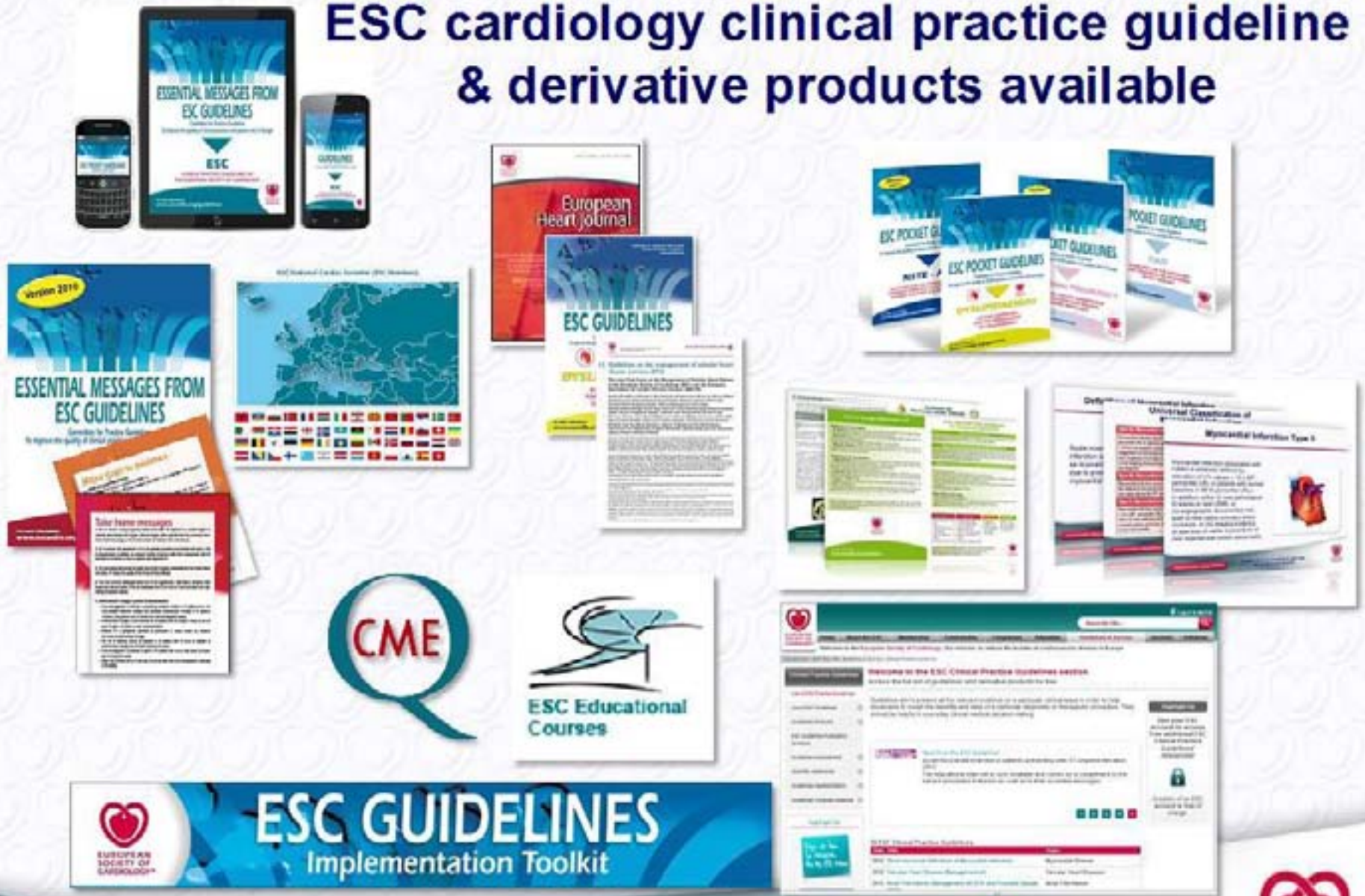
Renovascular hypertension

- Renovascular artery stenosis secondary to atherosclerosis is relatively frequent, especially in the elderly population.
- It is still debated whether these patients benefit from intervention, mostly percutaneous renal artery stenting.
- Intervention is not recommended if renal function has remained stable over the past 6-12 months and if hypertension is controlled by an acceptable medical regimen (Class III, LoE B).
- Fibromuscular dysplasia is more common in younger mostly female patients with uncontrolled hypertension, in whom there is convincing though uncontrolled information favouring the intervention (Class IIa, LoE B).

Obstructive sleep apnoea

- The association between obstructive sleep apnoea (OSA) and hypertension is well documented, particularly when nocturnal hypertension is concerned.
- Because of the relationship between obesity and OSA, weight loss and exercise are commonly recommended.
- Continuous positive airway pressure therapy is a successful procedure for reducing OSA, but the effect on BP appears to be very small.

ESC cardiology clinical practice guideline & derivative products available



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Eur Heart J, 2013; 34: 2159-2219
J Hypertens, 2013; 31: 1281-1357
Blood Pressure, 2013: 193-278



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**Gramps... time is
over!!!
... lets go to play!**

Thank you for your kind attention!

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Epidemiological aspects on hypertension in Europe



Epidemiological aspects

- Based on 21 reports from the last decade the prevalence of hypertension appears to be around 30-45% of the general population, with a steep increase with ageing.
- There also appear to be noticeable differences in the average BP levels across countries with no systematic trends towards BP changes in the last decade.
- However, it is difficult to obtain comparable results on BP among countries and over time, and therefore the use of a surrogate of hypertension status, such as stroke mortality, has been suggested.
- Based on WHO statistics, western European countries exhibit a downward trend in stroke mortality, whereas eastern European countries show a clear-cut increase.

Diagnostic evaluation

ABPM: Methodological aspects

- ABPM is performed with the patient wearing a portable BP measuring device, usually on the non-dominant arm for a 24-25 h period.
- In clinical practice, measurements are often made at 15 min intervals during the day and every 30 min overnight, but it may be recommended that measurements be made at the same frequency throughout, for example every 20 min.
- At least 70% of BPs during daytime and night-time periods should be satisfactory, or else the monitoring should be repeated.
- If there are sufficient measurements, editing is not considered necessary and only grossly incorrect readings should be deleted.

Diagnostic evaluation

ABPM: Analyses

- In addition to the visual plot, average daytime, night-time and 24-h BP are the most commonly used variables in clinical practice.
- Definitions of daytime and night-time are based on:
 - the times of getting up and going to bed from the diary, or
 - short fixed time periods in which rising and retiring periods - which differ from patient to patient - are eliminated, for example:
 - **day**: from 10 am to 8 pm; **night**: from 0 am to 6 am, or
 - **day**: from 9 am to 9 pm; **night**: from 1 am to 6 am.

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The stratification of total cardiovascular risk in different categories in hypertension is based on:

- blood pressure category,
- other cardiovascular risk factors,
- asymptomatic organ damage,
- presence of diabetes mellitus,
- symptomatic cardiovascular disease or chronic kidney disease.

2013 ESH/ESC Guidelines for the management of arterial hypertension

Total cardiovascular risk stratification

- **Factors other than blood pressure influencing prognosis:**
 - other cardiovascular risk factors,
 - asymptomatic organ damage,
 - presence of diabetes mellitus,
 - symptomatic cardiovascular disease or chronic kidney disease.

Drugs to be preferred in specific conditions (a)

Asymptomatic organ damage

Left ventricular hypertrophy	ACE inhibitor, calcium antagonist, ARB
Asymptomatic atherosclerosis	Calcium antagonist, ACE inhibitor
Microalbuminuria	ACE inhibitor, ARB
Renal dysfunction	ACE inhibitor, ARB

Clinical event

Previous stroke	Any agent effectively lowering BP
Previous myocardial infarction	BB, ACE inhibitor, ARB
Angina pectoris	BB, calcium antagonist
Heart failure	Diuretic, BB, ACE inhibitor, ARB, mineralocorticoid receptor antagonist
Aortic aneurysm	BB
Atrial fibrillation, prevention	Consider ARB, ACE inhibitor, BB
Atrial fibrillation, rate control	BB, non-dihydropyridine calcium antagonist
ESRD/proteinuria	ACE inhibitor, ARB
Peripheral artery disease	ACE inhibitor, calcium antagonist

Drugs to be preferred in specific conditions (b)

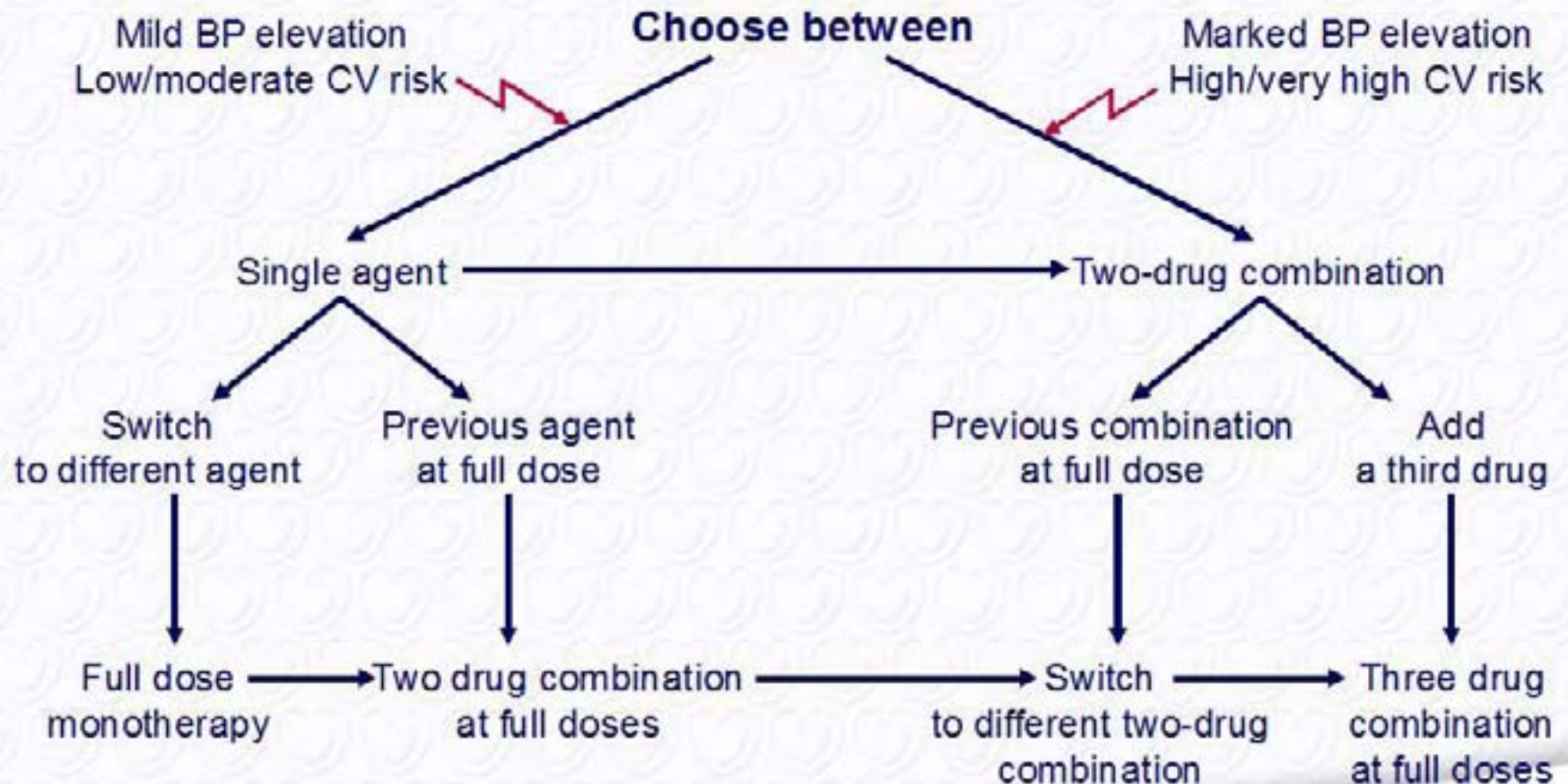
Condition	
Isolated systolic hypertension (elderly)	Diuretic, calcium antagonist
Metabolic syndrome	ACE inhibitor, ARB, calcium antagonist
Diabetes mellitus	ACE inhibitor, ARB
Pregnancy	Methyldopa, BB, calcium antagonist
Blacks	Diuretic, calcium antagonist

Compelling and possible contra-indications to the use of antihypertensive drugs

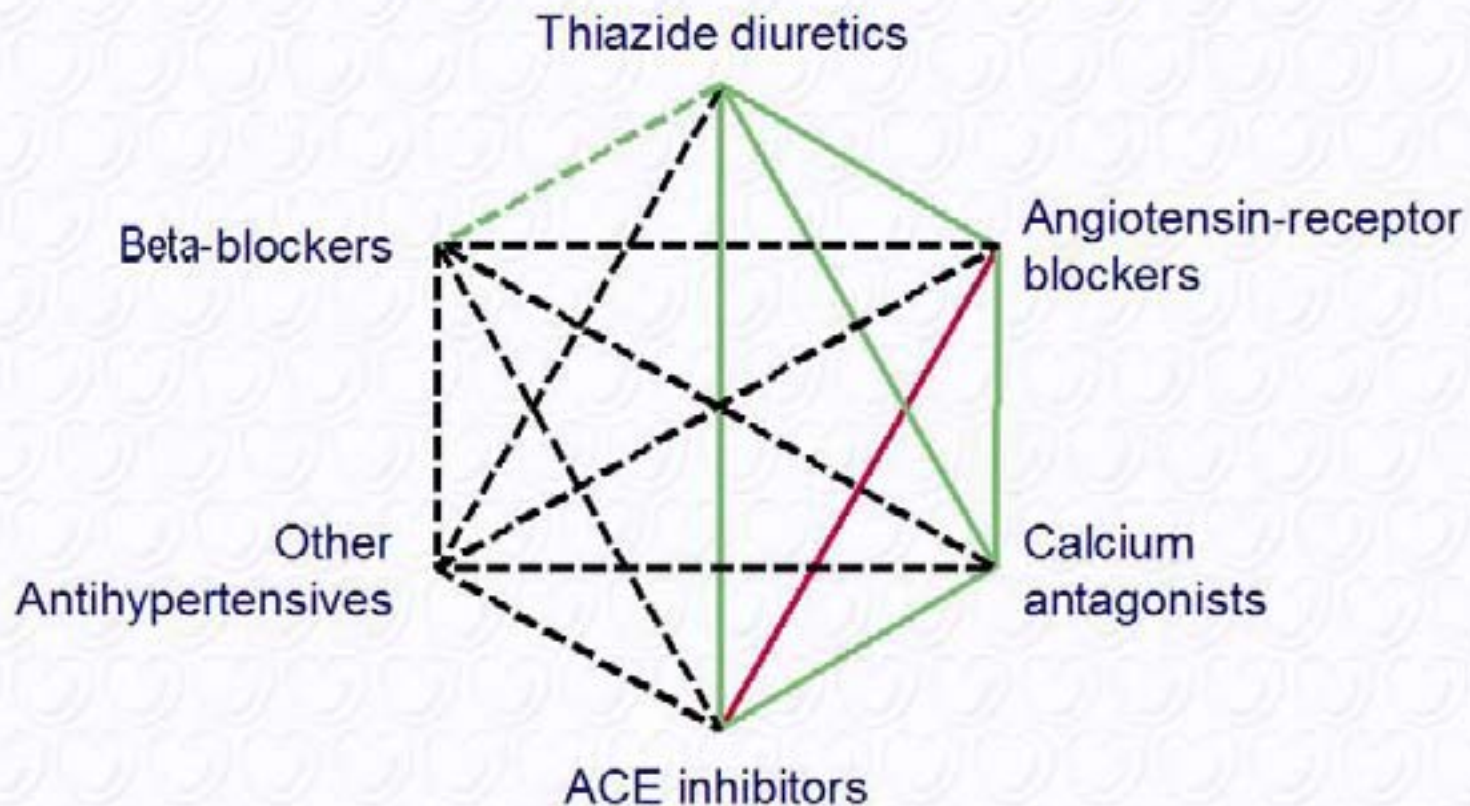
Drug	Compelling	Possible
Thiazide diuretics	Gout	Metabolic syndrome, Glucose intolerance, Pregnancy, Hypercalcaemia, Hypokalaemia
Beta-blockers	Asthma A-V block (grade 2 or 3)	Metabolic syndrome, Glucose intolerance, Athletes and physically active patients, Chronic obstructive pulmonary disease (except for vasodilator beta-blockers)
Calcium antagonists (dihydropiridines)		Tachyarrhythmias, Heart failure
Calcium antagonists (verapamil, diltiazem)	A-V block (grade 2 or 3) Severe LV dysfunction Heart failure	
ACE inhibitors	Pregnancy Angioneurotic oedema Hyperkalaemia Bilateral renal artery stenosis	Women with childbearing potential
Angiotensin receptor blockers	Pregnancy, Hyperkalaemia Bilateral renal artery stenosis	Women with child bearing potential
Mineralocorticoid receptor antagonists	Acute or severe renal failure (eGFR <30 mL/min) Hyperkalaemia	

Monotherapy vs drug combination therapy

Moving from a less intense to a more intense therapeutic strategy to achieve target blood pressure



Possible combinations of classes of antihypertensive drugs



- Green continuous lines:** preferred. **Green dashed lines:** useful combinations with some limitations
Black dashed line: possible combinations (only DHP calcium antagonists should normally be combined with beta-blockers)
Red continuous line: not recommended combination

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Treatment strategies in special conditions/populations

Treatment strategies in special conditions

- White-coat and masked hypertension
- Young adults
- Elderly
- Women
- Metabolic syndrome
- Diabetes mellitus
- Heart disease
- Cerebrovascular disease
- Atherosclerosis, arteriosclerosis and peripheral artery disease
- Nephropathy
- Resistant hypertension
- Renovascular hypertension
- Obstructive sleep apnoea
- Malignant hypertension

Women

Recommendations	Class	Level
Drug treatment of severe hypertension in pregnancy (SBP >160 mmHg or DBP >110 mmHg) is recommended.	I	C
Drug treatment may also be considered in pregnant women with persistent elevation of BP \geq 150/95 mmHg, and in those with BP \geq 140/90 mmHg in the presence of gestational hypertension, subclinical organ damage or symptoms.	IIb	C
In women at high risk of pre-eclampsia, provided they are at low risk of gastrointestinal haemorrhage, treatment with low dose aspirin from 12 weeks until delivery may be considered.	IIb	B
Hormone therapy and selective oestrogen receptor modulators are not recommended and should not be used for primary or secondary prevention of CVD. If treatment of younger perimenopausal women is considered for severe menopausal symptoms, the benefits should be weighed against potential risks.	III	A
In women with child-bearing potential renin-angiotensin system blockers are not recommended and should be avoided.	III	C
Methyldopa, labetalol and nifedipine should be considered preferential antihypertensive drugs in pregnancy. Intravenous labetalol or infusion of nitroprusside should be considered in case of emergency (pre-eclampsia).	IIa	B

Metabolic syndrome

Recommendations	Class	Level
Lifestyle changes, particularly weight loss and physical exercise, are to be recommended to all individuals with the metabolic syndrome. These interventions improve not only BP, but also the metabolic components of the syndrome, and delay diabetes onset.	I	B
As the metabolic syndrome can be considered a 'pre-diabetic' state, antihypertensive agents potentially improving or at least not worsening insulin sensitivity, such as blockers of the renin-angiotensin system and calcium antagonists, should be considered as the preferred drugs. Beta-blockers (with the exception of vasodilating beta-blockers) and diuretics should be considered only as additional drugs, preferably in association with a potassium-sparing agent.	Ila	C
It is recommended to prescribe antihypertensive drugs with particular care in hypertensive patients with metabolic disturbances when BP is $\geq 140/90$ mmHg after a suitable period of lifestyle changes, and to maintain BP $< 140/90$ mmHg.	I	B
BP lowering drugs are not recommended in individuals with metabolic syndrome and high normal BP.	III	A

Diabetes mellitus

Recommendations	Class	Level
While initiation of antihypertensive drug treatment in diabetic patients whose SBP is ≥ 160 mmHg is mandatory, it is strongly recommended to start drug treatment also when SBP is ≥ 140 mmHg.	I	A
A SBP goal < 140 mmHg is recommended in patients with diabetes.	I	A
The DBP target in patients with diabetes is recommended to be < 85 mmHg.	I	A
All classes of antihypertensive agents are recommended and can be used in patients with diabetes; blockers of the renin-angiotensin system may be preferred, especially in the presence of proteinuria or microalbuminuria.	I	A
It is recommended that individual drug choice takes comorbidities into account.	I	C
Simultaneous administration of two blockers of the renin-angiotensin system is not recommended and should be avoided in patients with diabetes.	III	B

Heart disease

Recommendations	Class	Level
In hypertensive patients with CHD, a SBP goal <140 mmHg should be considered.	IIa	B
In hypertensive patients with a recent myocardial infarction beta-blockers are recommended. In case of other CHD all antihypertensive agents can be used, but beta-blockers and calcium antagonists are to be preferred, for symptomatic reasons (angina).	I	A
Diuretics, beta-blockers, ACE inhibitors, angiotensin receptor blockers, and/or mineralocorticoid receptor antagonists are recommended in patients with heart failure or severe LV dysfunction to reduce mortality and hospitalization.	I	A
In patients with heart failure and preserved EF, there is no evidence that antihypertensive therapy per se or any particular drug, is beneficial. However, in these patients, as well as in patients with hypertension and systolic dysfunction, lowering SBP to around 140 mmHg should be considered. Treatment guided by relief of symptoms (congestion with diuretics, high heart rate with beta-blockers, etc.) should also be considered.	IIa	C
ACE inhibitors and angiotensin receptor blockers (and beta-blockers and mineralocorticoid receptor antagonists if heart failure coexists) should be considered as antihypertensive agents in patients at risk of new or recurrent atrial fibrillation.	IIa	C
It is recommended that all patients with LVH receive antihypertensive agents.	I	B
In patients with LVH, initiation of treatment with one of the agents that have shown a greater ability to regress LVH should be considered, i.e. ACE inhibitors, angiotensin receptor blockers and calcium antagonists.	IIa	B

Cerebrovascular disease

Recommendations	Class	Level
It is not recommended to intervene with BP-lowering therapy during the first week after acute stroke irrespective of BP level, although clinical judgement should be used in the face of very high SBP values.	III	B
Antihypertensive treatment is recommended in hypertensive patients with a history of stroke or TIA, even when initial SBP is in the 140-159 mmHg range.	I	B
In hypertensive patients with a history of stroke or TIA, a SBP goal of <140 mmHg should be considered.	IIa	B
In elderly hypertensives with stroke or TIA, SBP values for intervention and goal may be considered to be somewhat higher.	IIb	B
All drug regimens are recommended for stroke prevention, provided that BP is effectively reduced.	I	A

Atherosclerosis, arteriosclerosis and peripheral artery disease

Recommendations	Class	Level
In the presence of carotid atherosclerosis, prescription of calcium antagonists and ACE inhibitors should be considered as these agents have shown a greater efficacy in delaying atherosclerosis progression than diuretics and beta-blockers.	IIa	B
In hypertensive patients with a pulse wave velocity above 10 m/s all antihypertensive drugs should be considered provided that a BP reduction to <140/90 mmHg is consistently achieved.	IIa	B
Antihypertensive therapy is recommended in hypertensive patients with peripheral artery disease to achieve a goal of <140/90 mmHg, because of their high risk of myocardial infarction, stroke, heart failure, and CV death.	I	A
Though a careful follow-up is necessary, beta-blockers may be considered for the treatment of arterial hypertension in patients with peripheral artery disease, since their use does not appear to be associated with exacerbation of symptoms.	IIb	A

Nephropathy

Recommendations	Class	Level
Lowering SBP to <140 mmHg should be considered.	IIa	B
When overt proteinuria is present, SBP values <130 mmHg may be considered, provided that changes in eGFR are monitored.	IIb	B
Blockers of the renin-angiotensin system are more effective in reducing albuminuria than other antihypertensive agents, and are indicated in hypertensive patients in the presence of microalbuminuria or overt proteinuria.	I	A
Reaching BP goals usually requires combination therapy, and it is recommended to combine blockers of the renin-angiotensin system with other antihypertensive agents.	I	A
Combination of two blockers of the renin-angiotensin system, though potentially more effective in reducing proteinuria, is not recommended.	III	A
Aldosterone antagonists cannot be recommended in CKD, especially in combination with a blocker of the renin-angiotensin system, because of the risk of excessive reduction in renal function and of hyperkalaemia.	III	C

Malignant hypertension

- Malignant hypertension is a hypertensive emergency, clinically defined as the presence of very high BP associated with ischaemic organ damage (retina, kidney, heart or brain).
- Treatment is founded on agents that can be administered by intravenous infusion and titrated.

2013 ESH/ESC Guidelines for the management of arterial hypertension

Treatment strategies Treatment of risk factors associated with hypertension

Recommendations of treatment of risk factors associated with hypertension

Recommendations	Class	Level
It is recommended to use statin therapy in hypertensive patients at moderate to high CV risk, targeting a low-density lipoprotein cholesterol value <3.0 mmol/L (115 mg/dL).	I	A
When overt coronary heart disease is present, it is recommended to administer statin therapy to achieve low-density lipoprotein cholesterol levels <1.8 mmol/L (70 mg/dL).	I	A
Antiplatelet therapy, in particular low-dose aspirin, is recommended in hypertensive patients with previous CV events.	I	A
Aspirin should also be considered in hypertensive patients with reduced renal function or a high CV risk, provided that BP is well controlled.	IIa	B
Aspirin is not recommended for CV prevention in low-moderate risk hypertensive patients, in whom absolute benefit and harm are equivalent.	III	A
In hypertensive patients with diabetes, a HbA _{1c} target of <7.0% is recommended with antidiabetic treatment.	I	B
In more fragile elderly patients with a longer diabetes duration, more comorbidities and at high risk, treatment to a HbA _{1c} target of <7.5-8.0% should be considered.	IIa	C

2013 ESH/ESC Guidelines for the management of arterial hypertension

Follow-up and improvement of blood pressure control

Follow-up and improvement of blood pressure control

- Individuals with high normal BP or white-coat hypertension, even if untreated, should be scheduled for regular follow-up, at least annually, to measure office and out-of-office BP, to check the CV risk profile and to reinforce recommendations on lifestyle changes.
- After initiation of antihypertensive drug therapy in patients with hypertension, the patient should be seen at 2- to 4-week intervals to evaluate the effects on BP and to assess possible side-effects.
- Once the target BP is reached, a visit interval of a few months is reasonable.
- Depending on the local organization of health resources, many of the later visits may be performed by non-physician health care workers, such as nurses.

Follow-up and improvement of blood pressure control

- For stable patients, home BP monitoring and electronic communication with the physician may also provide an acceptable alternative.
- It is advisable to assess risk factors and asymptomatic organ damage at least every 2 years.
- The finding of an uncontrolled BP should always lead to a search for the cause(s), such as poor adherence, persistent white-coat effect or use of BP-raising substances. Appropriate actions should be taken for better BP control, avoiding physician inertia.

2013 ESH/ESC Guidelines for the management of arterial hypertension

Gaps in evidence and need for future trials

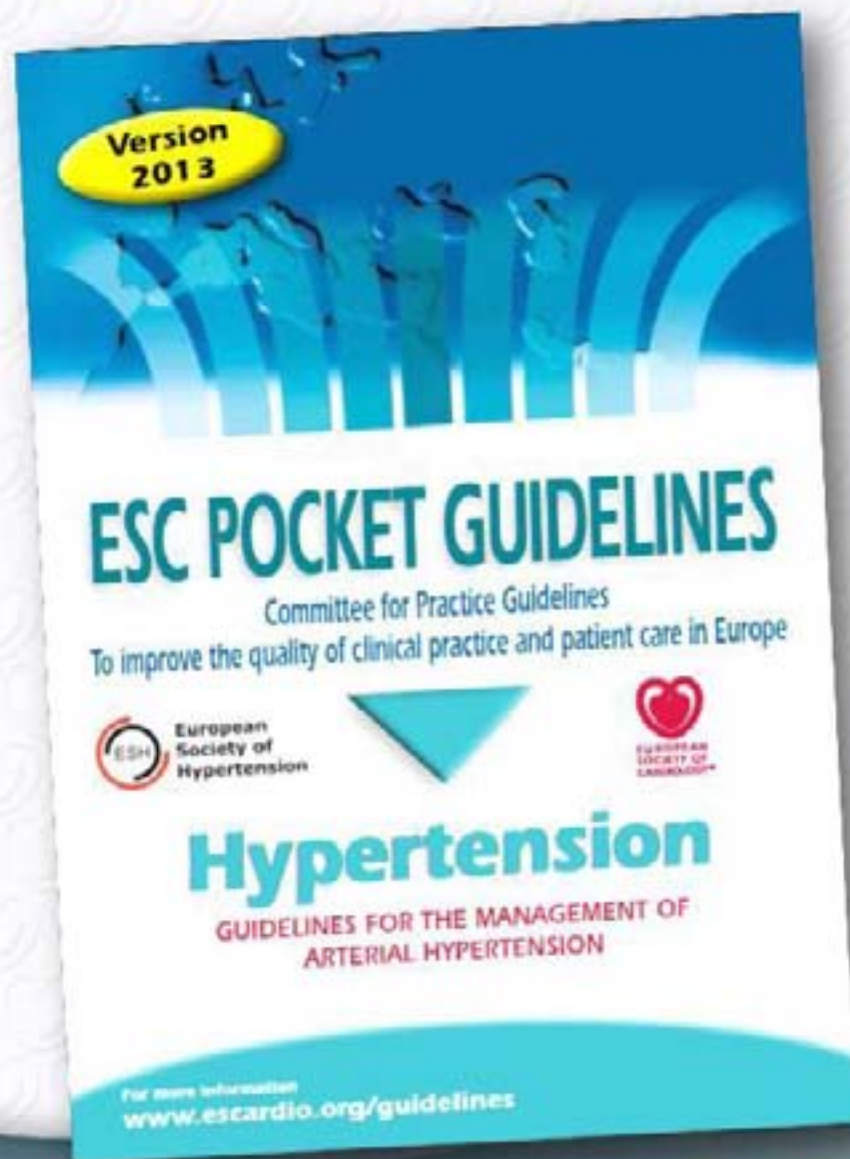
Gaps in evidence and need for future trials (1)

- Should antihypertensive drug treatment be given to all patients with grade 1 hypertension when their CV risk is low-to-moderate?
- Should elderly patients with a SBP between 140 and 160 mmHg be given antihypertensive drug treatments?
- Should drug treatment be given to subjects with white-coat hypertension? Can this condition be differentiated into patients needing or not needing treatment?
- Should antihypertensive drug treatment be started in the high normal BP range and, if so, in which patients?
- What are the optimal office BP values (i.e. the most protective and safe) for patients to achieve by treatment in different demographic and clinical conditions?
- Do treatment strategies based on control of out-of-office BP provide an advantage (reduced clinical morbidity and mortality, fewer drugs, fewer side-effects) over strategies based on conventional (office) BP control?

Gaps in evidence and need for future trials (2)

- What are the optimal out-of-office (home and ambulatory) BP values to be reached with treatment and should targets be lower or higher in high risk hypertensives?
- Does central BP add to CV event prediction in untreated and treated hypertensive patients?
- Do invasive procedures for treatment of resistant hypertension compare favourably with the best drug treatment and provide long-term BP control and reduction of morbid and fatal events?
- Do treatment-induced changes in asymptomatic OD predict outcome? Which measures - or combinations of measures - are most valuable?
- Are lifestyle measures known to reduce BP capable of reducing morbidity and mortality in hypertensive patients?
- Does a treatment-induced reduction of 24h BP variability add to CV protection by antihypertensive treatment?
- Does BP reduction substantially lower CV risk in resistant hypertension?

Pocket Guidelines



ESC Pocket Guidelines

2013 ESH/ESC Guidelines for the management of arterial hypertension*

The Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC)

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Eur Heart J, 2013; 34: 2159-2219
J Hypertens, 2013; 31: 1281-1357
Blood Pressure, 2013: 193-278



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Guidelines Sharing & Social Networks

The collage features several key elements:

- YouTube:** A video player showing a diagram of a heart with arrows indicating a cycle: "Lifestyle", "Health", "Search engine", and "Lifestyle".
- Facebook:** The ESC's Facebook page, showing the profile picture and navigation tabs.
- Twitter:** A tweet from @escardio: "ESC supports traffic light #food #labeling vote #MEP #vote <http://tinyurl.com/26og7ef>".
- Smartphone:** An iPhone displaying the "ESC POCKET GUIDELINES" app cover for "AFib".
- Red Bar:** A vertical red bar with a white heart icon and a speech bubble containing text.



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European Society of Hypertension



EUROPEAN SOCIETY OF CARDIOLOGY®

Linee Guida ESH-ESC - 2007

PRESSIONE ARTERIOSA (mmHg)

Altri fattori di rischio, danno d'organo o presenza di patologia concomitante	Normale PAS 120 - 129 o PAD 80 - 84	Normale-alta PAS 130 - 139 o PAD 85 - 89	GRADO 1 PAS 140 - 159 o PAD 90 - 99	GRADO 2 PAS 160 - 179 o PAD 100 - 109	GRADO 3 PAS \geq 180 o PAD \geq 110
Nessun fattore di rischio aggiunto	Rischio nella media	Rischio nella media	Rischio aggiuntivo basso	Rischio aggiuntivo moderato	Rischio aggiuntivo elevato
1 - 2 fattori di rischio aggiuntivi	Rischio aggiuntivo basso	Rischio aggiuntivo basso	Rischio aggiuntivo moderato	Rischio aggiuntivo moderato	Rischio aggiuntivo molto elevato
\geq 3 fattori di rischio, Sindrome Metabol, danno d'organo o diabete	Rischio aggiuntivo moderato	Rischio aggiuntivo elevato	Rischio aggiuntivo elevato	Rischio aggiuntivo elevato	Rischio aggiuntivo molto elevato
Malattia CV o renale	Rischio aggiuntivo molto elevato	Rischio aggiuntivo molto elevato	Rischio aggiuntivo molto elevato	Rischio aggiuntivo molto elevato	Rischio aggiuntivo molto elevato