# NOVEDADES GUIAS DE LA SOCIEDAD EUROPEA DE CARDIOLOGIA EN HIPERTENSION ARTERIAL 2019

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# Financial disclosures

In the last 5 years I have received research grants, honoraria and consultancy from manufacturers of antihypertensive, antidiabetic and anti lipid drugs and interventional devices:

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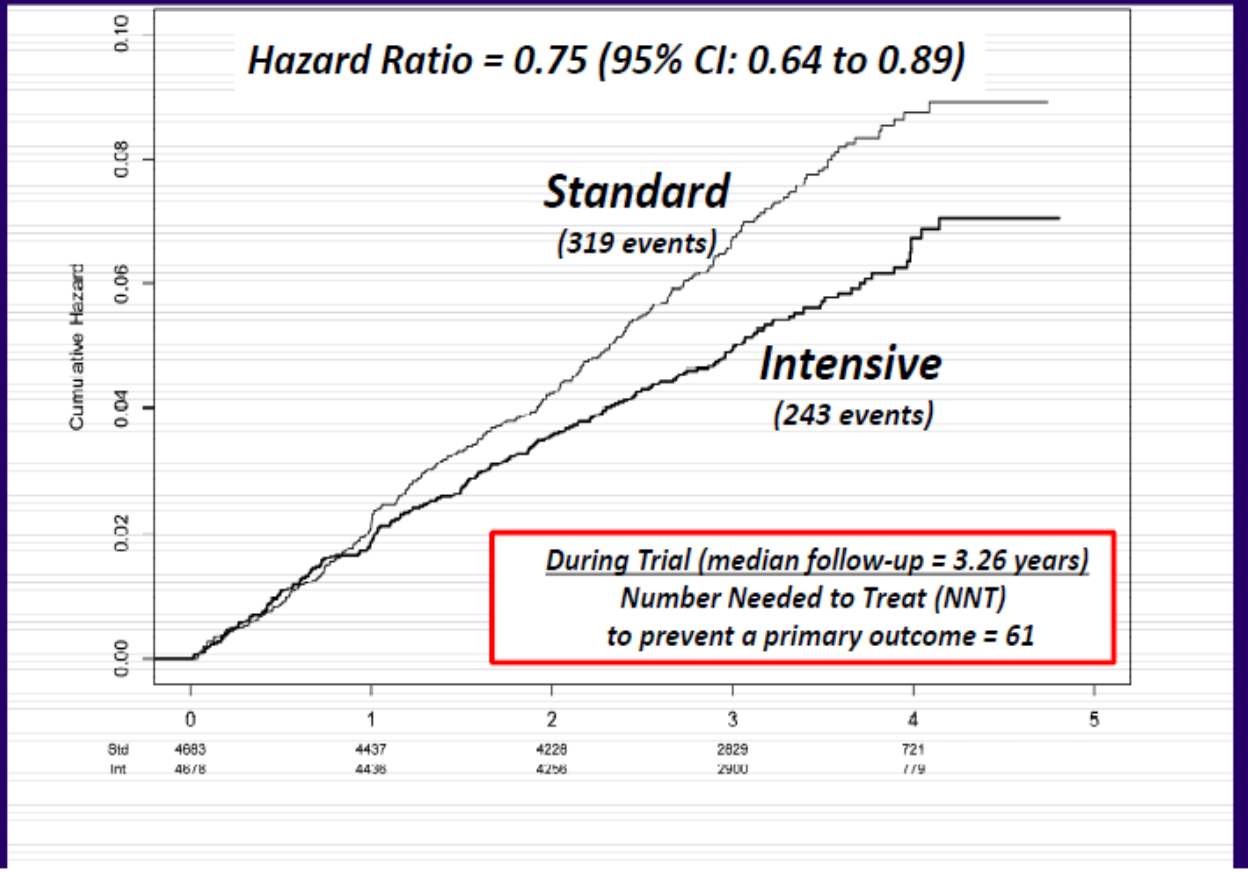
# ADEQUATE ESTIMATION OF BP LEVELS

- **OBP (office BP x2, x3 attended)- VALIDATED**
- **AOBP (automated office BP measurement-unattended)**
- **ABPM (ambulatory BP monitoring) Out OBP**
- **HBPM (home BP monitoring) Out OBP**
- **CBP (central blood pressure)**

- **OFFICE BP DOES NOT DETECT WHITE COAT NOR MASKED HYPERTENSION IN UNTREATED PATIENTS. NEITHER DETECTS IN TREATED HYPERTENSIVES THE PRESENCE OF WC EFFECT (WUCH) NOR OF MASKED UNCONTROLLED HYPERTENSION (MUCH) OR ELEVATED NIGHTTIME BP**

# SPRINT Primary Outcome
## Cumulative Hazard



# Global burden of blood-pressure-related disease, 2001

- Worlwide, 7.6 million premature deaths (about 13.5% of the global total) were attributed to high BP (> 115 mmHg). About 54% of stroke and 47% of IHD were attributable to BP.

- **About half of this burden was in people with prehypertension**

- Lawes CMM et al, Lancet 2008; 371:1513-1518

## Egan B & Stevens-Fabry S. Prehypertension-prevalence, health risks and management strategies. Nat Rev Cardiol 2015; 12:289-300

- 25-50 % of adults worlwide and increases the risk of incident hypertension
- The risk of incident hypertension decreases by 34-66% single antihypertensive therapy
- The RR of incident CVD is greater in “high-normal” BP and CV mortality is increased
- 10-year absolute risk for middle-aged adults without diabetes or CVD is around 10%. It rises to around 40% with either or both comorbidities
- Antihypertensive therapy reduces the RR od CVD and death by around 15% in secondary-prevention studies of prehypertension
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# BP Thresholds for and Goals of Pharmacological Therapy in Patients With Hypertension According to Clinical Conditions AHA-ACC 2017

| Clinical Condition(s) | BP Threshold, mm Hg | BP Goal, mm Hg |
|---|---|---|
| **General** | | |
| Clinical CVD or 10-year ASCVD risk ≥10% | ≥130/80 | <130/80 |
| No clinical CVD and 10-year ASCVD risk <10% | ≥140/90 | <130/80 |
| Older persons (≥65 years of age; noninstitutionalized, ambulatory, community-living adults) | ≥130 (SBP) | <130 (SBP) |
| **Specific comorbidities** | | |
| Diabetes mellitus | ≥130/80 | <130/80 |
| Chronic kidney disease | ≥130/80 | <130/80 |
| Chronic kidney disease after renal transplantation | ≥130/80 | <130/80 |
| Heart failure | ≥130/80 | <130/80 |
| Stable ischemic heart disease | ≥130/80 | <130/80 |
| Secondary stroke prevention | ≥140/90 | <130/80 |
| Secondary stroke prevention (lacunar) | ≥130/80 | <130/80 |
| Peripheral arterial disease | ≥130/80 | <130/80 |

ASCVD indicates atherosclerotic cardiovascular disease; BP, blood pressure; CVD, cardiovascular disease; and SBP, systolic blood pressure.



Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339

# Classification of Blood Pressure (Office BP*)

| Recommendations | Class | Level |
|---|---|---|
| It is recommended that BP be classified as optimal, normal, high-normal, or grades 1–3 hypertension, according to office blood pressure. | I | C |

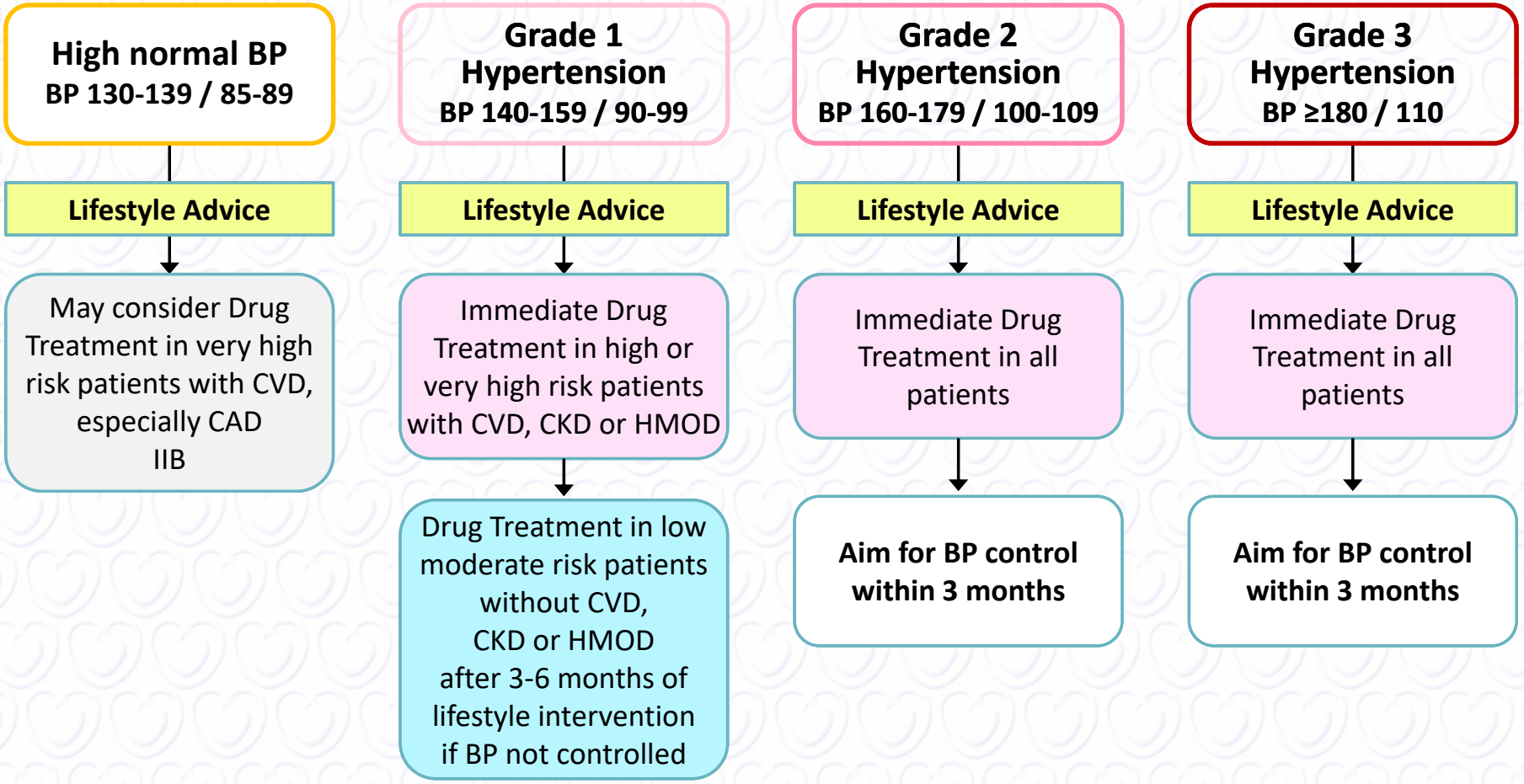
| Category | Systolic (mmHg) | | Diastolic (mmHg) |
|---|---|---|---|
| Optimal | < 120 | and | < 80 |
| Normal | 120–129 | and/or | 80-84 |
| High normal | 130–139 | and/or | 85-89 |
| Grade 1 hypertension | 140–159 | and/or | 90-99 |
| Grade 2 hypertension | 160–179 | and/or | 100-109 |
| Grade 3 hypertension | ≥ 180 | and/or | ≥ 110 |
| Isolated systolic hypertension | ≥ 140 | and | < 90 |

*Conventional office BP rather than unattended office BP



Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339

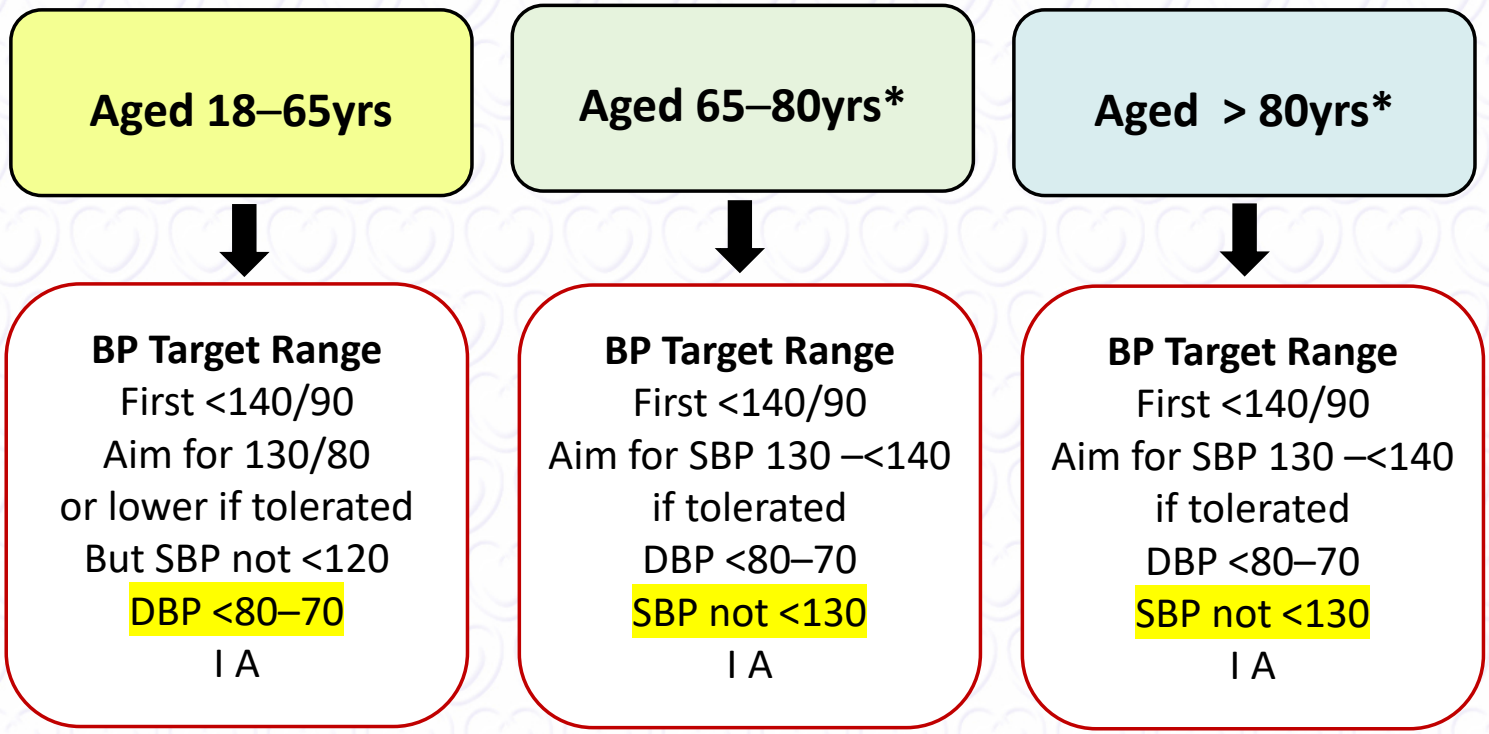
# Office Blood Pressure Thresholds for Treatment




www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339

# Office blood pressure target ranges (mmHg) for treated hypertension




*Consider frailty, independence and tolerability of treatment

SBP: systolic BP; DBP: diastolic BP



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# Office blood pressure treatment ranges

ESC European Society of Cardiology

ESH European Society of Hypertension

| Age group | Office SBP treatment target ranges (mmHg) | | | | | DBP treatment target range (mmHg) |
|---|---|---|---|---|---|---|
| | Hypertension | + Diabetes | + CKD | + CAD | + Stroke / TIA | |
| 18–65 years | Target to 130 *or lower if tolerated* Not <120 | Target to 130 *or lower if tolerated* Not <120 | Target to <140 to 130 *if tolerated* | Target to 130 *or lower if tolerated* Not <120 | Target to 130 *or lower if tolerated* Not <120 | <80 to 70 |
| Over 65 years | Target to <140 to 130 *if tolerated* | Target to <140 to 130 *if tolerated* | Target to <140 to 130 *if tolerated* | Target to <140 to 130 *if tolerated* | Target to <140 to 130 *if tolerated* | <80 to 70 |
| DBP treatment target range (mmHg) | < 80 to 70 | < 80 to 70 | < 80 to 70 | < 80 to 70 | < 80 to 70 | |



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# Cardiovascular Risk is influenced by Severity of Hypertension, other Risk Factors, Hypertension-Mediated Organ Damage and Disease

ESC European Society of Cardiology

ESH European Society of Hypertension

**CV Risk Influenced by:**

- Severity of Hypertension
- Other risk factors (SCORE)
- Hypertension-Mediated Organ Damage (HMOD)
- Co-existing disease (CVD, CKD, Diabetes)

Statins recommended for high and very high risk patients
Statins should be considered for low - moderate risk patients

| 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 – high risk | High-risk |
| | ≥ 3 risk factors | Low – moderate risk | Moderate – high risk | High-risk | High-risk |
| Stage 2 (asymptomatic disease) | HMOD, CKD grade 3, or diabetes mellitus without organ damage | Moderate – high risk | High-risk | High-risk | High – very high-risk |
| Stage 3 (Established disease) | Esyablished CVD, CKD grade ≥ 4, or diabetes mellitus with organ damage | Very high-risk | Very high-risk | Very high-risk | Very high-risk |

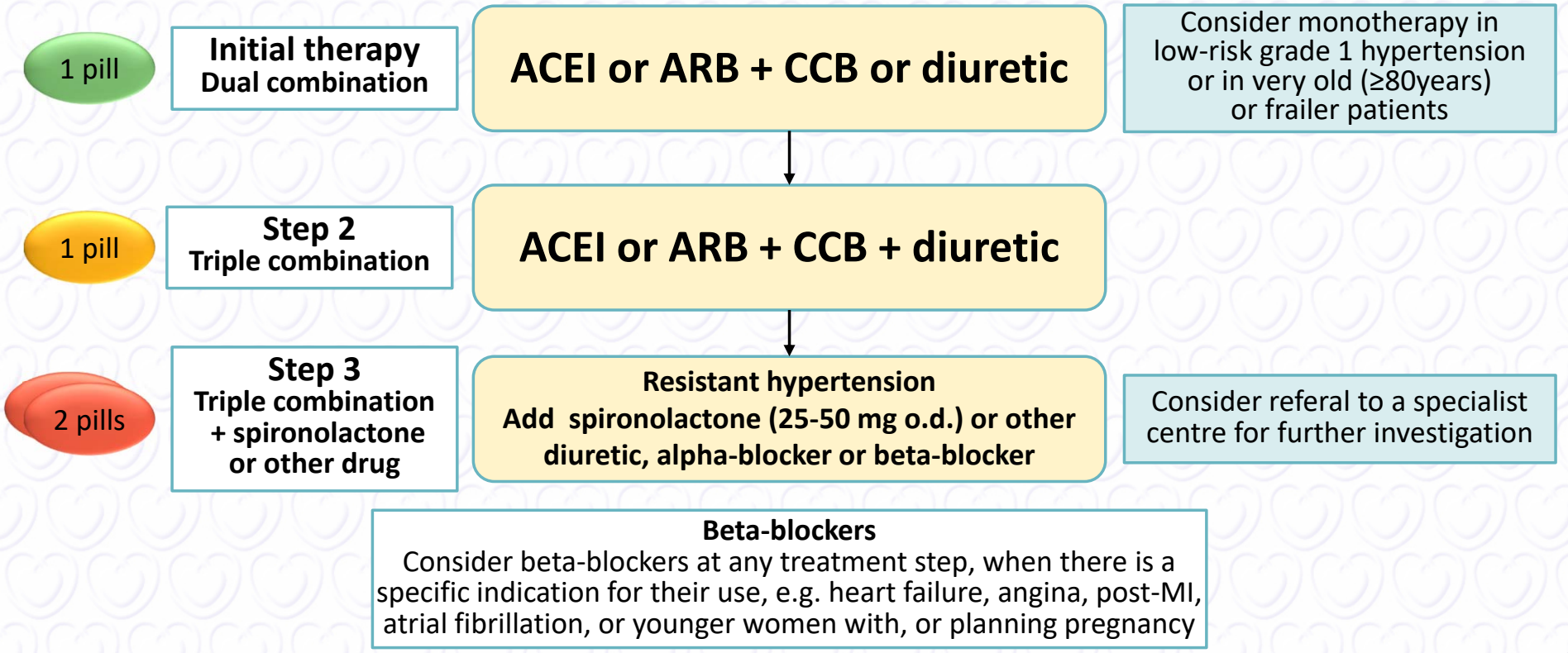
| Recommendations | Class | Level |
|---|---|---|
| CV risk assessment with the SCORE system is recommended for hypertensive patients who are not already at high or very high risk due to established CV or renal disease or diabetes or a markedly elevated single risk factor (e.g. cholesterol), or hypertensive LVH. | I | B |

www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339

# Core drug-treatment strategy

## for uncomplicated hypertension and most patients with HMOD, cerebrovascular disease, diabetes, or PAD



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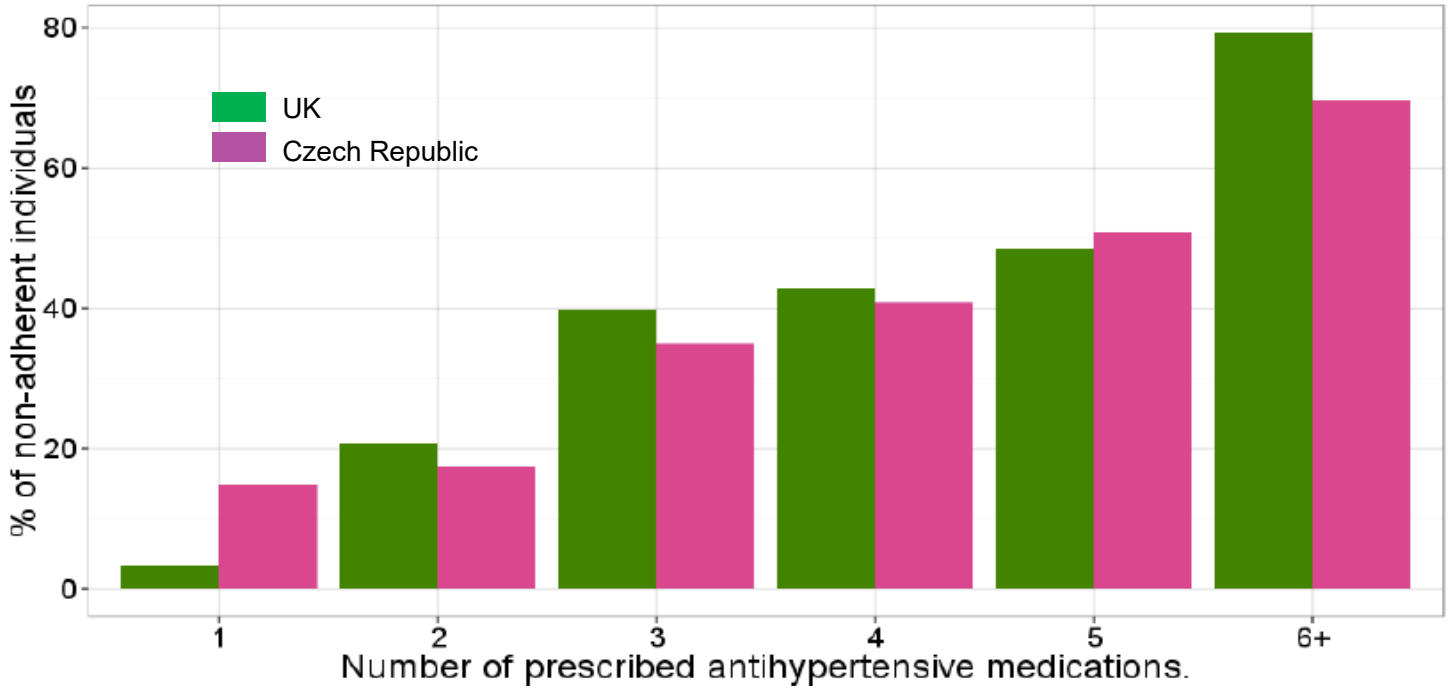
HMOD = hypertension-mediated organ damage; PAD = peripheral arterial disease

# Non-adherence to antihypertensive medicines in the real world – according to number of medicines

## Patients prefer to take 1 pill




Gupta P, Tomazewski M, Williams B, et al. Hypertension 2017

N=238 patients from UK and Czech Rep

# How do we improve BP Control?

2

## A single pill strategy to treat hypertension

- Poor adherence to BP-lowering medication is directly related to the number of pills and is a major factor contributing to poor BP control rates.
- Single pill combination therapy is now the preferred strategy for initial two-drug combination treatment of hypertension and for 3 drug combination therapy when required.



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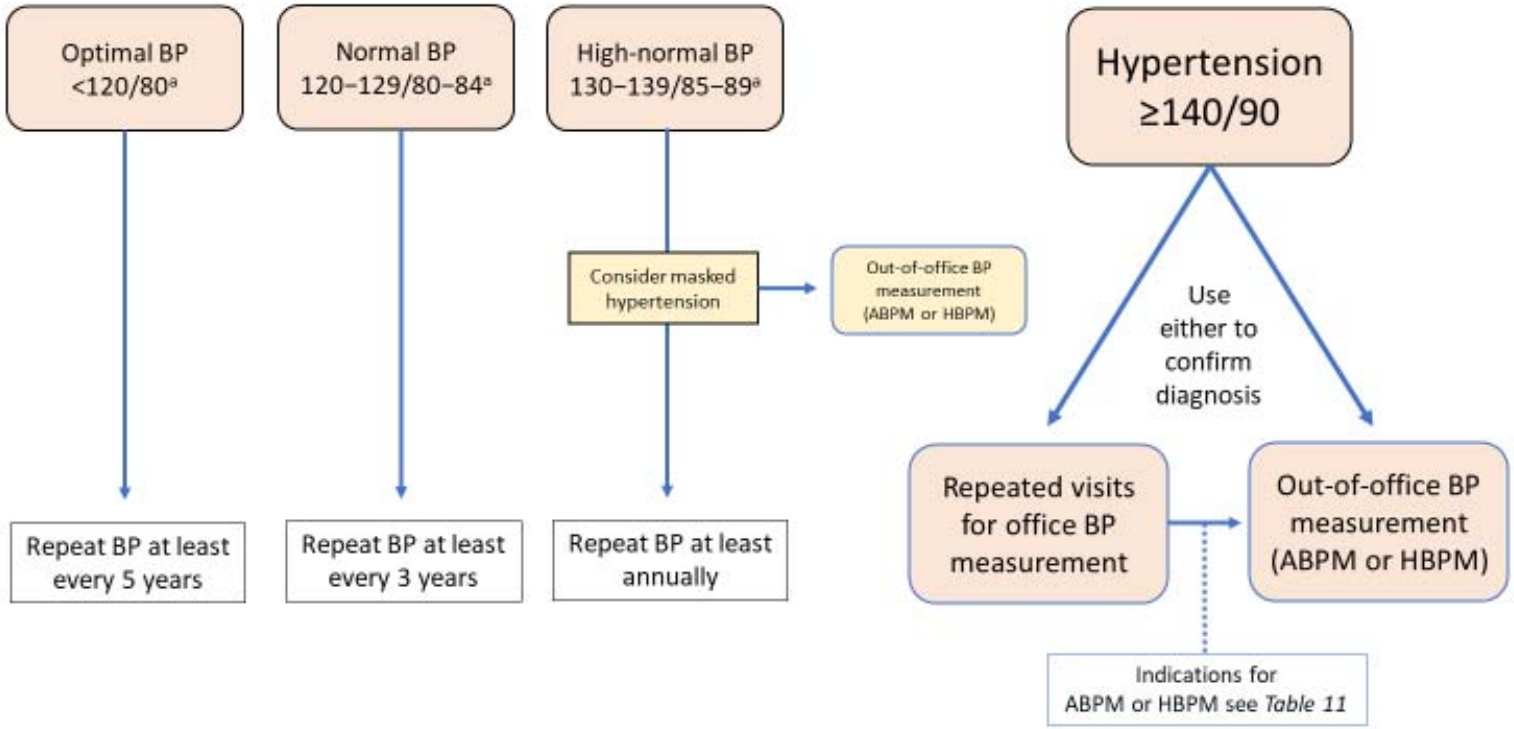
**SABPRE (Spanish Ambulatory BP Registry)**

Banegas JR, Ruilope LM, de la Sierra A et al. Clinic Versus Daytime Ambulatory Blood Pressure Difference in Hypertensive Patients: The Impact of Age and Clinic Blood Pressure. Hypertension 2017;69:211-219.

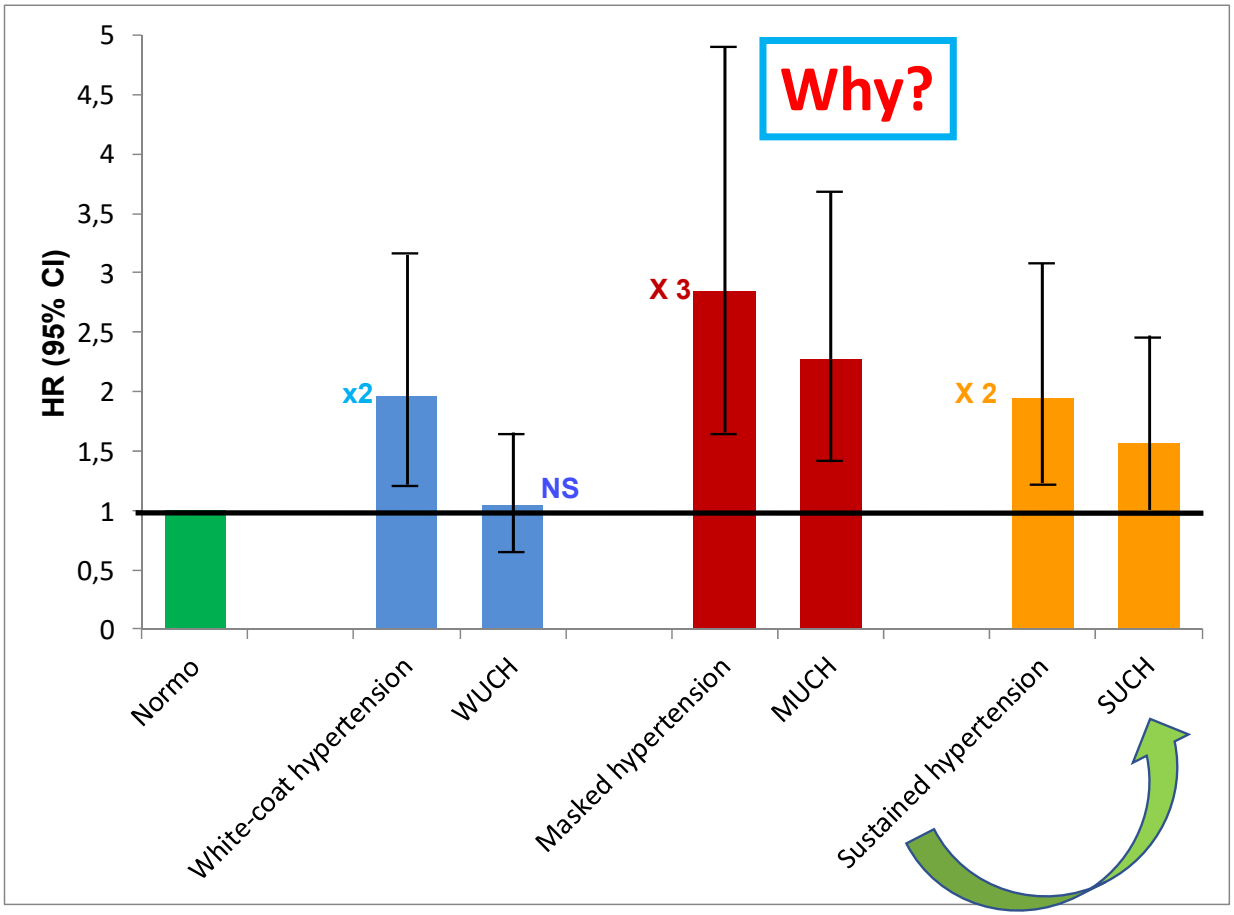
- In treated hypertensives daytime WUCH appears in 29% of the patients ND MUCH IN 32% (INADEQUATE EVALUATION IN 61% OF PATIENTS). In diabetic patients 33% and 24%.
- Office BP measured only twice
- **Automated office BP measurement contributes to diminish the prevalence of WCH and WUCH (3 measures with OMROM as in SPRINT or 5 times with BP-TRUE)**
- **HBPM can also help to detect all the phenotypes of BP**

***Banegas JR, Ruilope LM et al, Hypertension 2016***

# Screening and diagnosis of hypertension



## Association of hypertension phenotypes with CV mortality in fully-adjusted Cox Models de Regresión de Cox (model 2).




*Based on:*
*Banegas JR et al. N Engl J Med 2018;378:1509-1520.*

(n= 64000, mean Follow-up 5 yr)

# POST-HOC ANALYSIS OF DATA FROM THE SPANISH ABPM REGISTRY

N=9784 patients, controlled according to 2013 ESC/ESH Guideline

1- **34.4% office BP < 130/80 mmHg (46% > 65 yr)**

- **27.3% 24h BP < 130/80 mmHg; 7.1% MUCH**
- **mean office SBP 118 and 120 mmHg (safety boundary 120)**

2- **65.6% office SBP 130-139 (mostly < 65 years)**

**41% had 24H BP < 130/80 mmHg (no more treatment?); 24.6% MUCH**

3- **Hazard ratio for mortality higher in patients with MUCH and office BP < 130/80 mmHg (2.89 vs 2.42)**

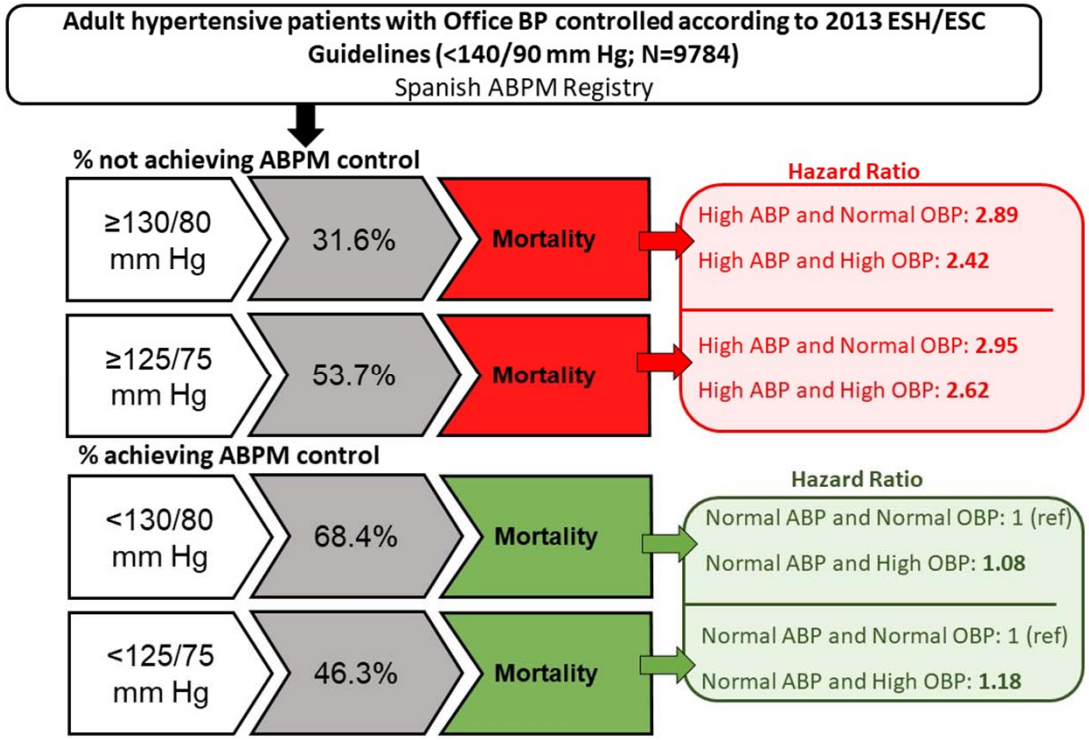
Ruilope et al, Hypertension 2019

# Clinic and Ambulatory BPs

| | Intensive-treatment Mean ± SD | Standard-treatment Mean ± SD | Standard – Intensive Difference (95% CI) |
|---|---|---|---|
| Baseline in-clinic systolic BP | 136.5 ± 15.4 | 138.1 ± 14.8 | 1.6 (-0.4, 3.7) |
| 27M in-clinic systolic BP | 119.6 ± 12.9 | 135.5 ± 13.8 | 15.8 (14.0, 17.7) |
| Nighttime systolic BP | 116.8 ± 14.5 | 126.6 ± 14.3 | 9.9 (8.0, 11.8) |
| Daytime systolic BP | 126.5 ± 12.3 | 138.5 ± 12.4 | 12.0 (10.3, 13.6) |
| 24 hour systolic BP | 122.8 ± 12.0 | 134.0 ± 11.6 | 11.2 (9.6, 12.8) |
| Night-day systolic BP ratio | 0.92 ± 0.09 | 0.92 ± 0.09 | -0.008 (-0.019, 0.004) |
| 24 hour SBP variability (SD) | 12.9 (10.9 to 15.0) | 14.0 (11.8 to 16.9) | 1.09 (1.05, 1.12) |
| 24 hour SBP variability (ARV) | 9.61 (8.5 to 11.0) | 10.20 (8.8 to 11.6) | 1.05 (1.03, 1.08) |

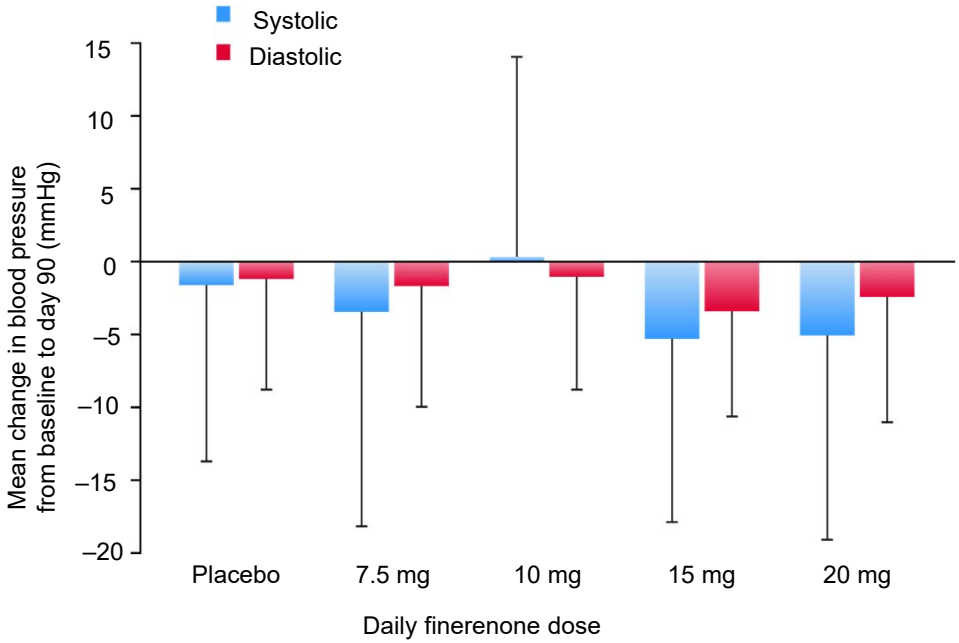
**Modeled on log-scale. Differences = Multiplicative effects, i.e. 1.09 = 9% increase**

Drawz PE et al. N=897 Hypertension 2017




Ruilope et al, Hypertension 2019

# Office Blood pressure



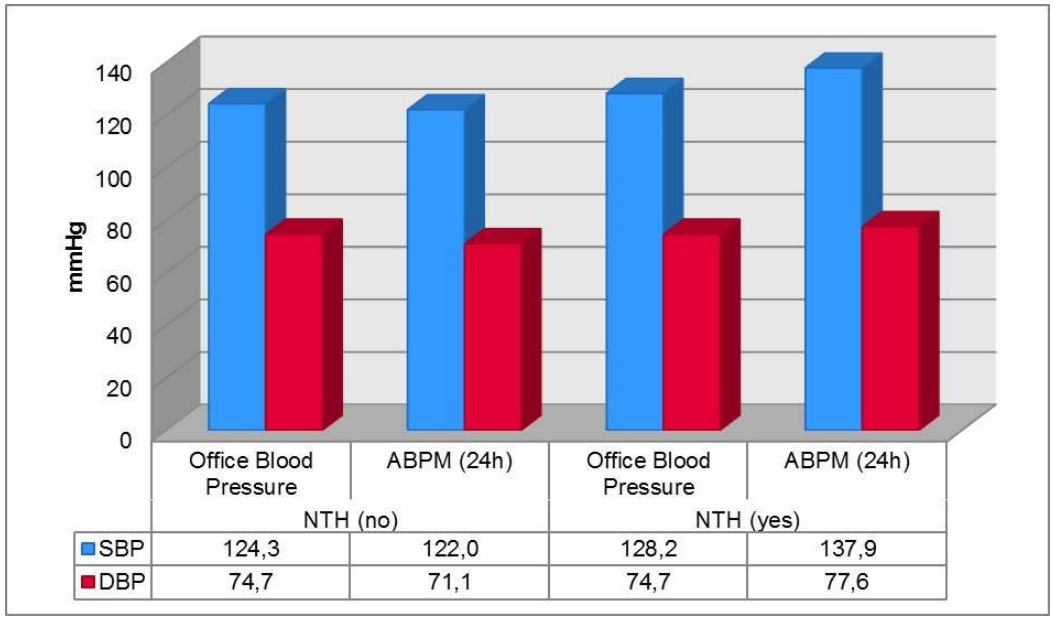

N= 645
Follow-up 1 year

Error bars represent standard deviation

Adapted from Bakris G et.al. JAMA. 2015;314(9):884-894

# Screening Blood Pressure – Office Blood Pressure vs. ABPM

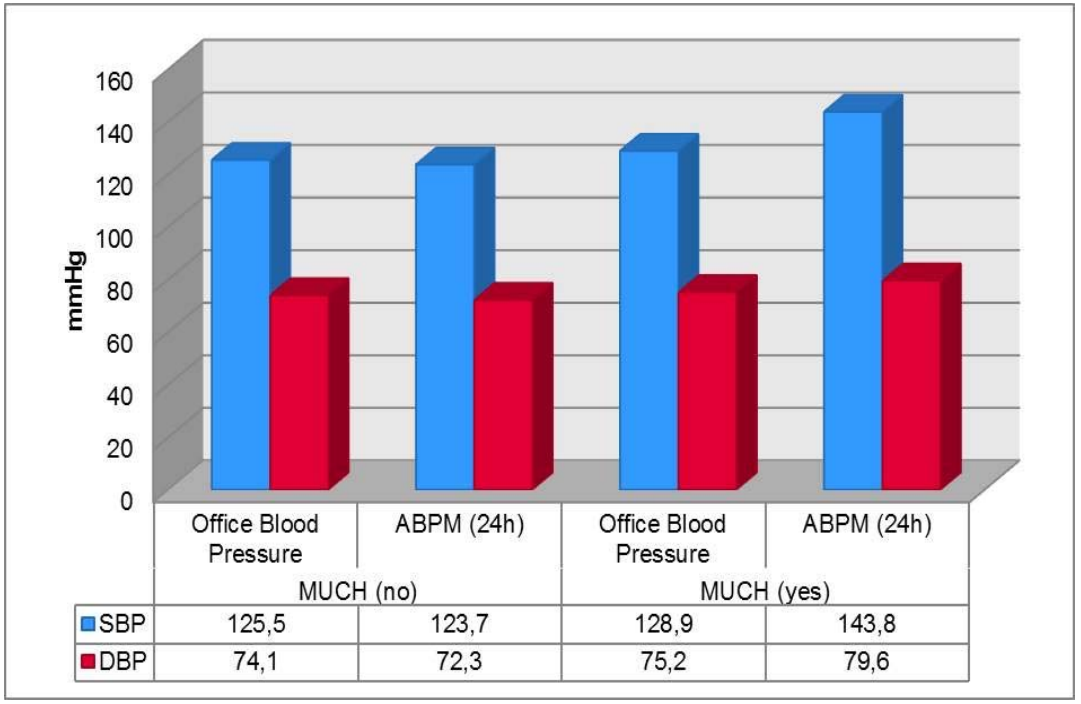
(never-treated hypertensives NTH)




| | Office Blood Pressure | ABPM (24h) | Office Blood Pressure | ABPM (24h) |
|---|---|---|---|---|
| | NTH (no) | | NTH (yes) | |
| SBP | 124,3 | 122,0 | 128,2 | 137,9 |
| DBP | 74,7 | 71,1 | 74,7 | 77,6 |

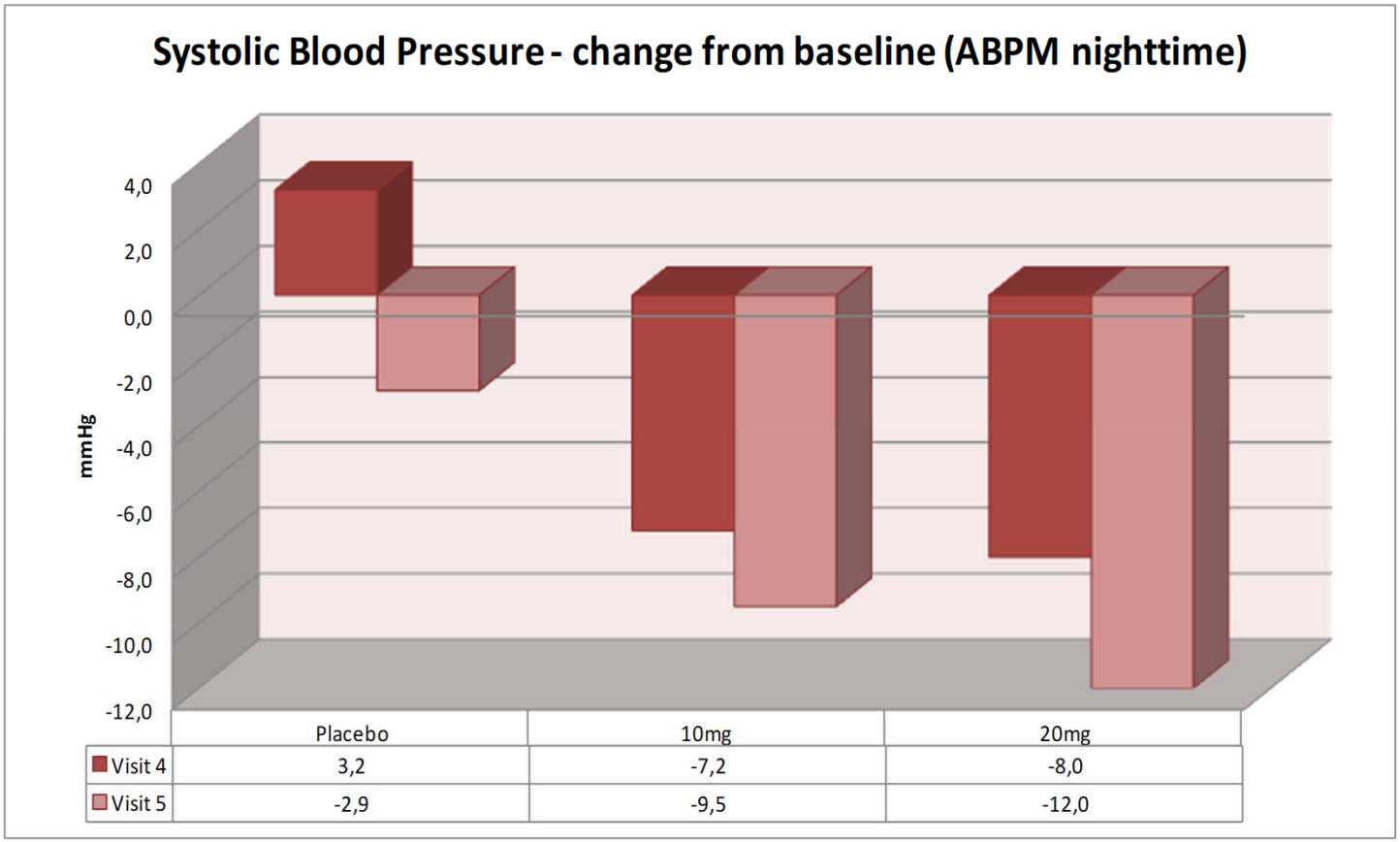
J Am Soc Hypertens. 2016 Jul;10 Suppl 1:e7.

# Screening Blood Pressure – Office Blood Pressure vs. ABPM (MUCH)




J Am Soc Hypertens. 2016 Jul;10 Suppl 1:e7.

# ABPM Nocturnal Hypertension (yes)– Change in Systolic Blood Pressure per visit



# TREATMENT OF RISK PHENOTYPES OBSERVED IN ABPM IN CKD

1- **WCH** START WITH MONOTHERAPY?
2- **MH** START WITH LOW DOSE COMBINATION

**3- WUCH** ADD A NEW DRUG
**4- MUCH** ADD A NEW DRUG

**AFTER INITIAL THERAPY FOLLOW GUIDELINES**