

Hypertension

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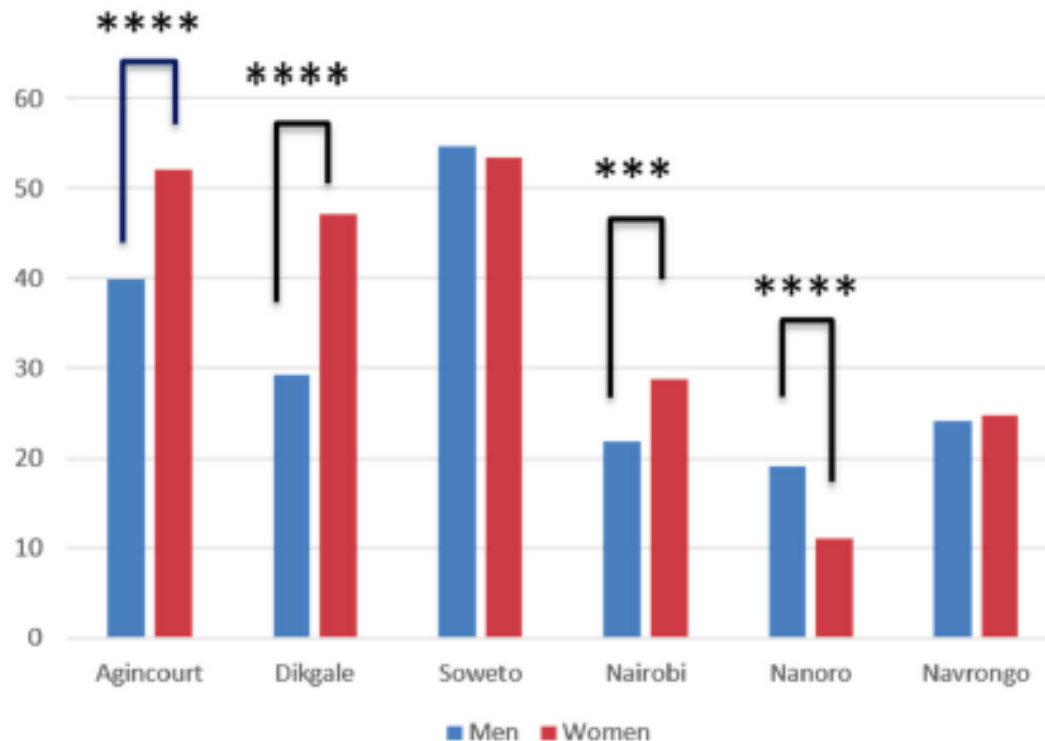
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FCP(SA)/FRCP(Lon)

Prevalence

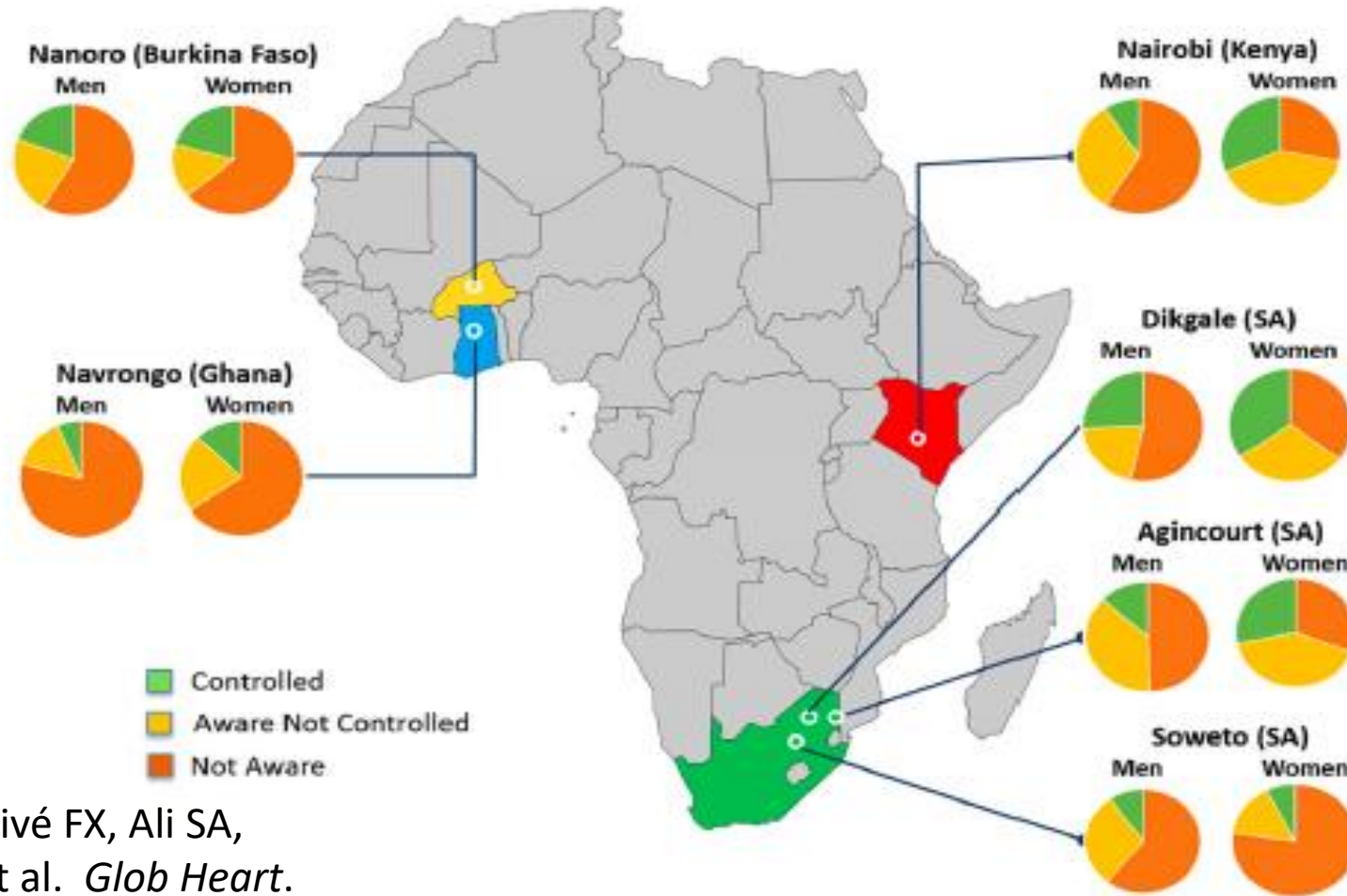
HIGHLIGHTS

- Stark differences in hypertension prevalence, awareness and control across Africa.
- Hypertension prevalence ranges between 15.1% to 54.1% in sub-Saharan Africans.
- Only 47.7% of hypertensives knew their blood pressure status.
- Levels of blood pressure control ranged from 30.0% to 61.1%.
- Urgent need for localized monitoring and treatment of blood pressure.



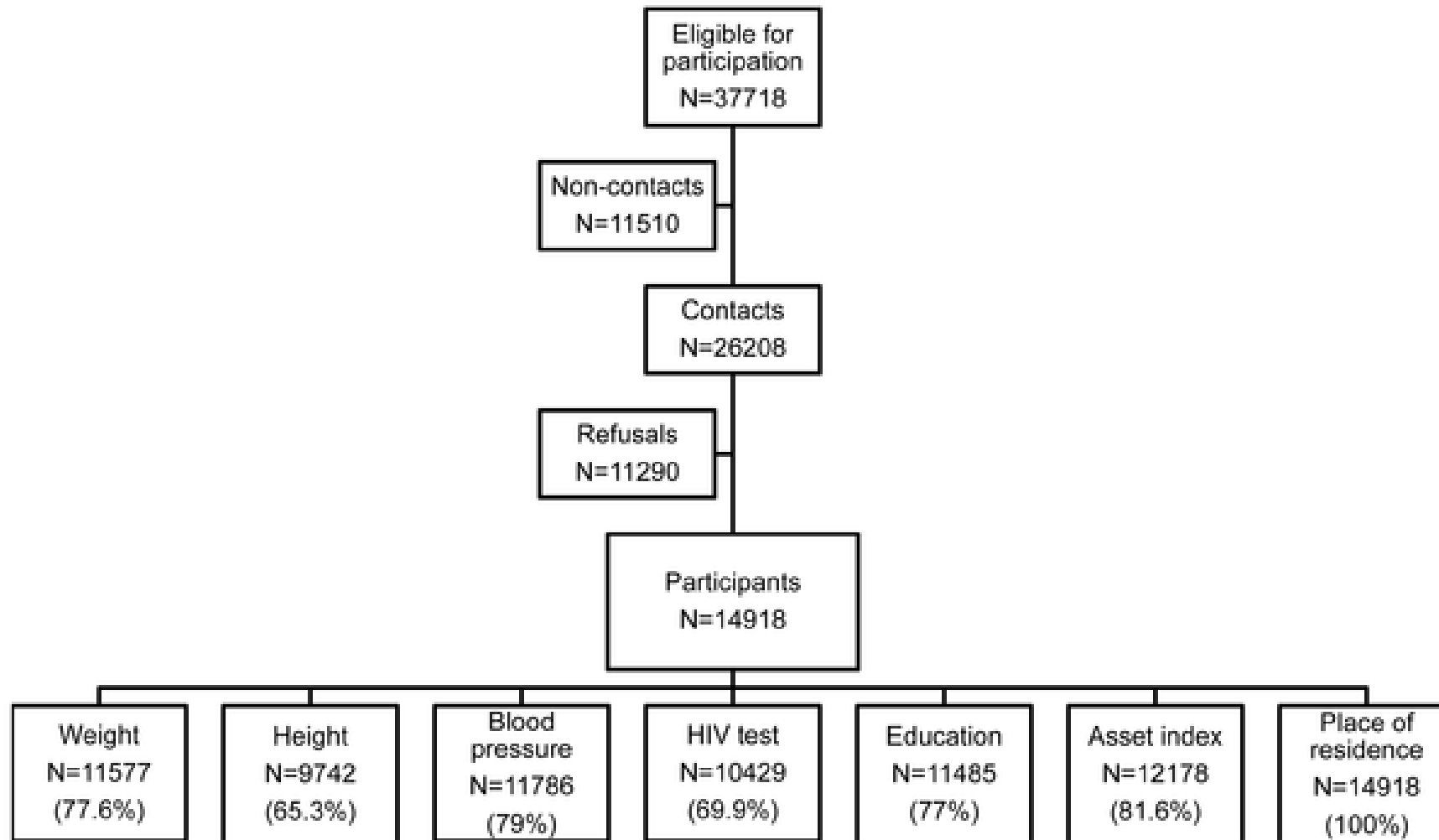
Regional and sex differences in the prevalence and awareness of hypertension across six sites in sub-Saharan Africa: an H3Africa AWI-Gen study

Gómez-Olivé FX, Ali SA, Made F, et al. *Glob Heart*. 2017;12(2):81-90.



Gómez-Olivé FX, Ali SA,
Made F, et al. *Glob Heart*.
2017;12(2):81-90.

Figure 1. Flow diagram of individuals participating in the various aspects of the health and demographic surveillance.



Malaza A, Mossong J, Bärnighausen T, Newell ML (2012) Hypertension and Obesity in Adults Living in a High HIV Prevalence Rural Area in South Africa. PLOS ONE 7(10): e47761. <https://doi.org/10.1371/journal.pone.0047761>
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0047761>

Table 1. Anthropometric measurements, body-mass index (BMI), blood pressure, and hypertension staging by HIV infection status and sex.

| | Total | | HIV uninfected | | HIV infected | |
|---------------------------------------|------------------|-------------------|-------------------|------------------|------------------|-------------------|
| | Women | Men | Women | Men | Women | Men |
| Weight (kg) ¹ | 67.3 (57.1–80.8) | 61.3 (54.7–68.7) | 65.8 (56.6–77.0) | 61.9 (55.8–68.5) | 67.5 (57.1–82.2) | 60.5 (54.0–68.0) |
| Height (m) ¹ | 1.60 (1.55–1.64) | 1.70 (1.65–1.74) | 1.59 (1.55–1.63) | 1.70 (1.65–1.74) | 1.60 (1.56–1.65) | 1.71 (1.66–1.76) |
| BMI (kg/m ²) ¹ | 26.5 (22.5–31.6) | 21.2 (19.2–23.6) | 26.7 (22.6–32.2) | 21.0 (19.0–23.5) | 25.4 (22.1–29.8) | 21.1 (19.5–23.6) |
| sBP (mm Hg) ^{1,2} | 117 (107–134.5) | 119.5 (111.5–131) | 119.5 (108–138.5) | 120 (111.5–132) | 113 (104.5–125) | 119.5 (111–128.5) |
| dBp (mm Hg) ^{1,2} | 80 (72.0–89.5) | 76.5 (69–85) | 80.5 (72–90.5) | 76 (68.5–84.5) | 78 (71–86.5) | 78 (70–85) |
| Underweight (BMI<18.5) | 311 (4.7%) | 495 (16.9%) | 191 (4.8%) | 370 (18.6%) | 86 (5.5%) | 53 (14.4%) |
| Normal (18.5≤BMI<25) | 2451 (36.7%) | 1964 (67.2%) | 1391 (34.8%) | 1312 (65.9%) | 653 (41.4%) | 259 (70.2%) |
| Overweight (25≤BMI<30) | 1833 (27.4%) | 323 (11.0%) | 1058 (26.4%) | 207 (10.4%) | 462 (29.3%) | 42 (11.4%) |
| Obese (BMI≥30) | 2093 (31.3%) | 142 (4.9%) | 1365 (34.1%) | 102 (5.1%) | 375 (23.8%) | 15 (4.1%) |
| Stage-I hypertension ³ | 1244 (15%) | 439 (12.5%) | 763 (15.9%) | 268 (11.8%) | 210 (11.7%) | 52 (11.7%) |
| Stage-II hypertension ⁴ | 1118 (13.5%) | 289 (8.3%) | 744 (15.5%) | 201 (8.9%) | 151 (8.4%) | 24 (5.4%) |

¹Median (interquartile range)

²sBP (systolic blood pressure), dBp (diastolic blood pressure)

³Stage-I hypertension refers to systolic sBP between 140–160 mmHg and/or dBp between 90–100 mmHg.

⁴Stage-II hypertension refers to sBP greater 160 mmHg and/or dBp greater than 100 mmHg.

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What is hypertension BP

- Different guidelines
- SA:: BP>140/90
- JNCVII/JNCVIII—similar
- But new ACA/AHA—defines hypt >130/80
- ESC/SA guideline used

- Define—stage I/II/III—
 - Uncontrolled—I/II –review for control within a month III within a week
 - Urgency—Better control within 72 hours
 - Emergency—within 24 hours
- Primary/Secondary
- Target organ: rate of reduction
- CVS risk—lower thresholds for treatment—Is HIV a major risk?
- Comorbidities: compelling indication or contraindication to meds

Examine: look for possible secondary causes

Evaluate Target organ

- All pulses
 - MHOD
 - Cause
- Cardiac
 - LVH/S4/S₃
- Renal masses/bruit
- Funduscopic grade III/IV
- Neurology focal signs/cognition--

- Urine dipstix
- ECG
- Creat
- Investigate if 2nd dry cause likely (renal/endocrine etc)

Take BP correctly

Office blood pressure measurement

Patients should be seated comfortably in a quiet environment for 5 min before beginning BP measurements.

Three BP measurements should be recorded, 1–2 min apart, and additional measurements only if the first two readings differ by >10 mmHg. BP is recorded as the average of the last two BP readings.

Additional measurements may have to be performed in patients with unstable BP values due to arrhythmias, such as in patients with AF, in whom manual auscultatory methods should be used as most automated devices have not been validated for BP measurement in patients with AF.^a

Use a standard bladder cuff (12–13 cm wide and 35 cm long) for most patients, but have larger and smaller cuffs available for larger (arm circumference >32 cm) and thinner arms, respectively.

The cuff should be positioned at the level of the heart, with the back and arm supported to avoid muscle contraction and isometric exercise-dependant increases in BP.

When using auscultatory methods, use phase I and V (sudden reduction/disappearance) Korotkoff sounds to identify SBP and DBP, respectively.

Measure BP in both arms at the first visit to detect possible between-arm differences. Use the arm with the higher value as the reference.

Measure BP 1 min and 3 min after standing from a seated position in all patients at the first measurement to exclude orthostatic hypotension. Lying and standing BP measurements should also be considered in subsequent visits in older people, people with diabetes, and people with other conditions in which orthostatic hypotension may frequently occur.

Record heart rate and use pulse palpation to exclude arrhythmia.

Classification of office blood pressure^a and definitions of hypertension grade^D

| 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 ^b | ≥140 | and | <90 |

| Changes in recommendations | |
|---|--|
| 2013 | 2018 |
| Diagnosis | Diagnosis |
| Office BP is recommended for screening and diagnosis of hypertension. | It is recommended to base the diagnosis of hypertension on: <ul style="list-style-type: none"> • Repeated office BP measurements; or • Out-of-office BP measurement with ABPM and/or HBPM if logistically and economically feasible. |
| Treatment thresholds High-normal BP (130–139/85–89 mmHg): Unless the necessary evidence is obtained, it is not recommended to initiate antihypertensive drug therapy at high-normal BP. | Treatment thresholds High-normal BP (130–139/85–89 mmHg): Drug treatment may be considered when CV risk is very high due to established CVD, especially CAD. |
| Treatment thresholds Treatment of low-risk grade 1 hypertension: Initiation of antihypertensive drug treatment should also be considered in grade 1 hypertensive patients at low-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. | Treatment thresholds Treatment of low-risk grade 1 hypertension: In patients with grade 1 hypertension at low-moderate-risk and without evidence of HMOD, BP-lowering drug treatment is recommended if the patient remains hypertensive after a period of lifestyle intervention. |
| Treatment thresholds Older patients Antihypertensive drug treatment may be considered in the elderly (at least when younger than 80 years) when SBP is in the 140–159 mmHg range, provided that antihypertensive treatment is well tolerated. | Treatment thresholds Older patients BP-lowering drug treatment and lifestyle intervention is recommended in fit older patients (>65 years but not >80 years) when SBP is in the grade 1 range (140–159 mmHg), provided that treatment is well tolerated. |
| BP treatment targets | BP treatment targets |
| An SBP goal of <140 mmHg is recommended. | <ul style="list-style-type: none"> • It is recommended that the first objective of treatment should be to lower BP to <140/90 mmHg in all patients and, provided that the treatment is well tolerated, treated BP values should be targeted to 130/80 mmHg or lower in most patients. • In patients <65 years it is recommended that SBP should be lowered to a BP range of 120–129 mmHg in most patients. |

| | | | | | | | |
|---|---------|---|-----------|--|-----------|--|-----------|
| BP treatment targets in older patients (65–80 years) | | BP treatment targets in older patients (65–80 years) | | | | | |
| An SBP target of between 140–150 mmHg is recommended for older patients (65–80 years). | | In older patients (≥ 65 years), it is recommended that SBP should be targeted to a BP range of 130–139 mmHg. | | | | | |
| BP treatment targets in patients aged over 80 years | | BP treatment targets in patients aged over 80 years | | | | | |
| An SBP target between 140–150 mmHg should be considered in people older than 80 years, with an initial SBP ≥ 160 mmHg, provided that they are in good physical and mental condition. | | An SBP target range of 130–139 mmHg is recommended for people older than 80 years, if tolerated. | | | | | |
| DBP targets | | DBP targets | | | | | |
| A DBP target of <90 mmHg is always recommended, except in patients with diabetes, in whom values <85 mmHg are recommended. | | A DBP target of <80 mmHg should be considered for all hypertensive patients, independent of the level of risk and comorbidities. | | | | | |
| Initiation of drug treatment | | Initiation of drug treatment | | | | | |
| Initiation of antihypertensive therapy with a two-drug combination may be considered in patients with markedly high baseline BP or at high CV risk. | | It is recommended to initiate an antihypertensive treatment with a two-drug combination, preferably in a SPC. The exceptions are frail older patients and those at low risk and with grade 1 hypertension (particularly if SBP is <150 mmHg). | | | | | |
| Resistant hypertension | | Resistant hypertension | | | | | |
| Mineralocorticoid receptor antagonists, amiloride, and the α -1 blocker doxazosin should be considered if no contraindication exists. | | Recommended treatment of resistant hypertension is the addition of low-dose spironolactone to existing treatment, or the addition of further diuretic therapy if intolerant to spironolactone, with either eplerenone, amiloride, higher-dose thiazide/thiazide-like diuretic or a loop diuretic, or the addition of bisoprolol or doxazosin. | | | | | |
| Device-based therapy for hypertension | | Device-based therapy for hypertension | | | | | |
| In case of ineffectiveness of drug treatment, invasive procedures such as renal denervation and baroreceptor stimulation may be considered. | | Use of device-based therapies is not recommended for the routine treatment of hypertension, unless in the context of clinical studies and RCTs, until further evidence regarding their safety and efficacy becomes available. | | | | | |
| Recommendation Grading | | | | | | | |
| | Grade I | | Grade IIa | | Grade IIb | | Grade III |

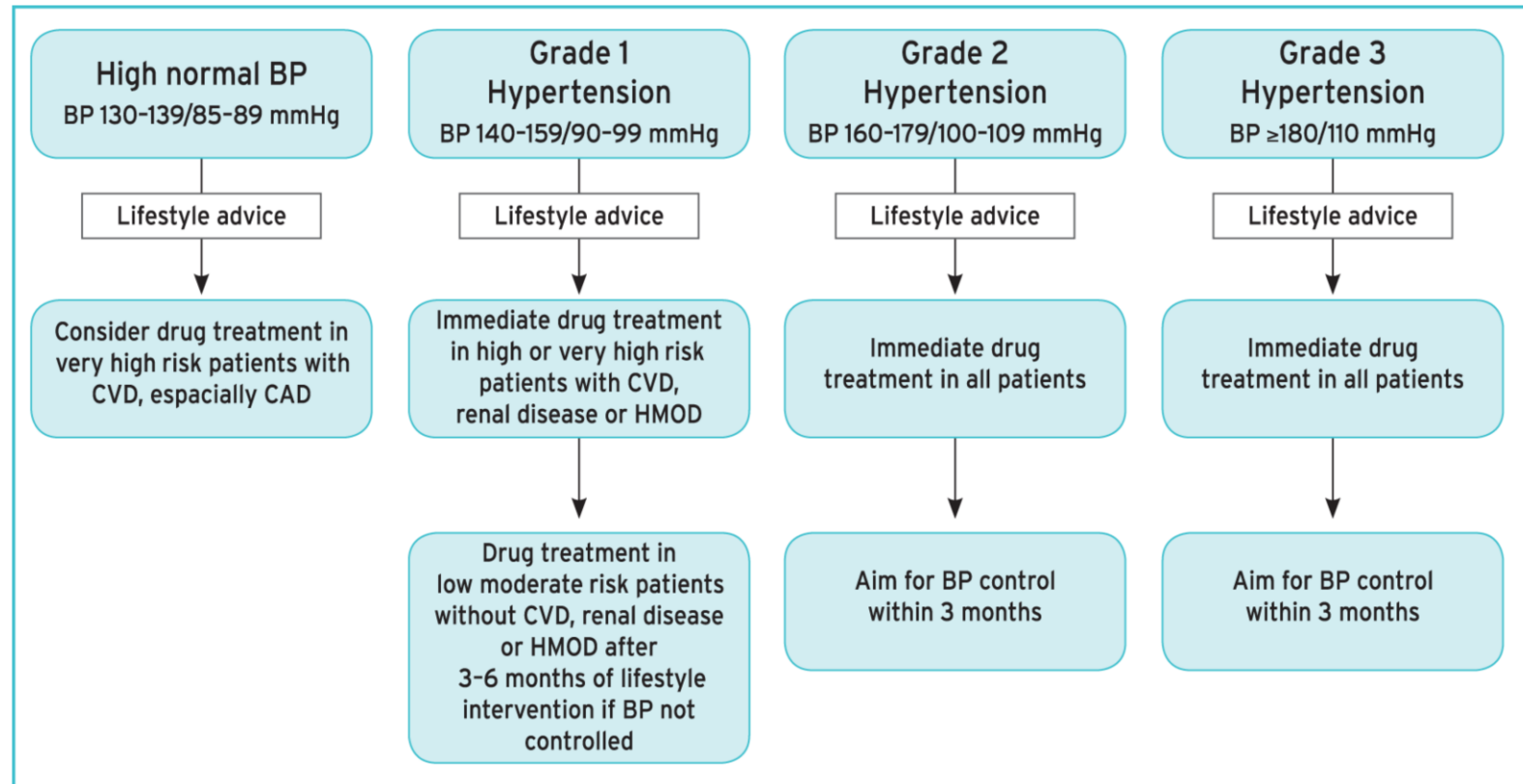
| Hypertension disease staging | Other risk factors, HMOD, or disease | BP (mmHg) grading | | | |
|-----------------------------------|---|---|-------------------------------------|---------------------------------------|--|
| | | High normal SBP 130-139 DBP 85-89 | Grade 1 SBP 140-159 DBP 90-99 | Grade 2 SBP 160-179 DBP 100-109 | Grade 3 SBP \geq 180 or DBP \geq 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 |
| | \geq 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 \geq 4, or diabetes mellitus with organ damage | Very high risk | Very high risk | Very high risk | Very high risk |

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From: 2018 ESC/ESH Guidelines for the management of arterial hypertension

Eur Heart J. 2018;39(33):3021-3104. doi:10.1093/eurheartj/ehy339

Eur Heart J | This article has been co-published in the European Heart Journal (doi: 10.1093/eurheartj/ehy339) and Journal of Hypertension (doi:10.1097/HJH. 10.1097/HJH.0000000000001940), and in a shortened version in Blood Pressure. All rights reserved. ©European Society of Cardiology and European Society of Hypertension 2018. The articles in European Heart Journal and Journal of Hypertension are identical except for minor stylistic and spelling differences in keeping with each journal's style. Any citation can be used when citing this article. This article is published and distributed under the terms of the Oxford University



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| Comorbidity | Drug indicated |
|-------------------------------|---------------------|
| Diabetes with/out nephropathy | ACE/ARB |
| Cardiomyopathy | ACE/ARB, BB blocker |
| Stroke | ACE |
| Pregnancy | Methy dopa |
| Prostate | Alpha blocker |

| Drug | Contraindications | |
|---|--|--|
| | Compelling | Possible |
| Diuretics (thiazides/thiazide-like, e.g. chlorthalidone and indapamide) | <ul style="list-style-type: none"> • Gout | <ul style="list-style-type: none"> • Metabolic syndrome • Glucose intolerance • Pregnancy • Hypercalcaemia • Hypokalaemia |
| Beta-blockers | <ul style="list-style-type: none"> • Asthma • Any high-grade sinoatrial or atrioventricular block • Bradycardia (heart rate <60 beats per min) | <ul style="list-style-type: none"> • Metabolic syndrome • Glucose intolerance • Athletes and physically active patients |

| Drug | Contraindications | |
|--|--|---|
| | Compelling | Possible |
| Calcium antagonists (dihydropyridines) | | <ul style="list-style-type: none"> • Tachyarrhythmia • Heart failure (HFrEF, class III or IV) • Pre-existing severe leg oedema |
| Calcium antagonists (verapamil, diltiazem) | <ul style="list-style-type: none"> • Any high-grade sinoatrial or atrioventricular block • Severe LV dysfunction (LV ejection fraction <40%) • Bradycardia (heart rate <60 beats per min) | <ul style="list-style-type: none"> • Constipation |

| Drug | Contraindications | |
|----------------|---|---|
| | Compelling | Possible |
| ACE inhibitors | <ul style="list-style-type: none"> • Pregnancy • Previous angioneurotic oedema • Hyperkalaemia (potassium >5.5 mmol/L) • Bilateral renal artery stenosis | <ul style="list-style-type: none"> • Women of child-bearing potential without reliable contraception |
| ARBs | <ul style="list-style-type: none"> • Pregnancy • Hyperkalaemia (potassium >5.5 mmol/L) • Bilateral renal artery stenosis | <ul style="list-style-type: none"> • Women of child-bearing potential without reliable contraception |

risks

- ACE and dehydration
- Hyperlipidemia—simvastatin vs atorvastatin
- Afib—problem with PI/amiodarone

Other issues

- HIVICK
- Chronic Kidney
- Obesity OSA
- Other vasculitidies
- CVA ---consider LP
- Pulmonary oedema—systolic/diastolic dys fxn
- Pulmonary Hypertension

Thank You