

Le priorità nella terapia dell'ipertensione arteriosa

FRANCESCA COLOMBO



Salò, 3 marzo 2018

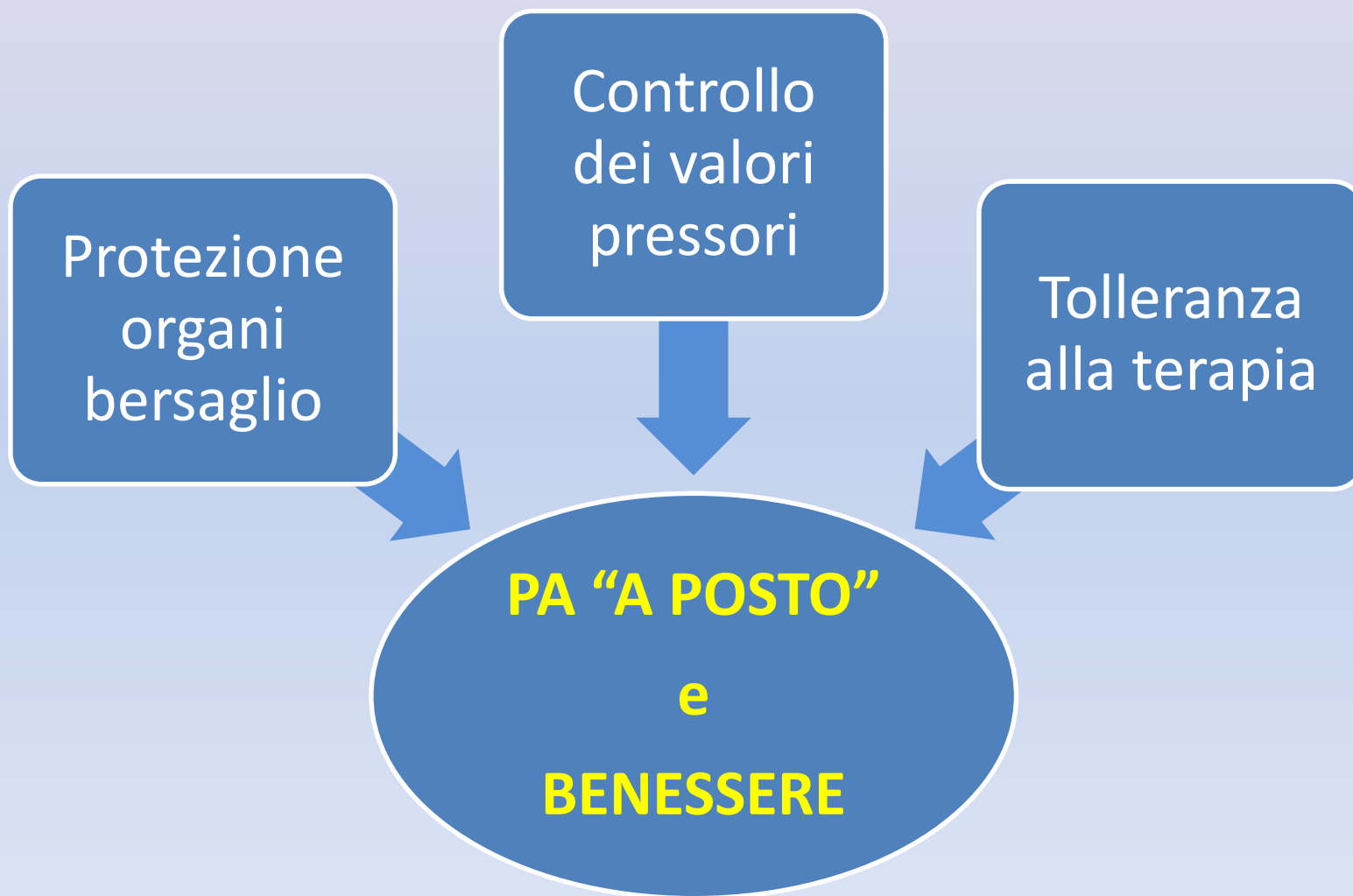
Priorità?



Priorità del paziente iperteso



Priorità **del medico** del paziente iperteso



PRIORITA' (1)

**Controllo
dei valori
pressori**

Protezione
organi
bersaglio

Tolleranza
alla terapia



Target pressori personalizzati

sec. LG ESH/ESC 2013

- **< 140/85 mmHg nei diabetici**
- **< 130/85 mmHg nei nefropatici con franca proteinuria**
- **PAS < 150 mmHg negli anziani di età \geq 80 anni**
- **< 140/90 mmHg in tutti gli altri**

2017 High Blood Pressure Clinical Practice Guideline: Executive Summary

Table 8. Checklist for Accurate Measurement of BP



Key Steps for Proper BP Measurements	Specific Instructions
<p>Step 1: Properly prepare the patient</p> <p>Step 2: Use proper technique for BP measurements</p>	<ol style="list-style-type: none"> 1. Have the patient relax, sitting in a chair (feet on floor, back supported) for >5 min. 2. The patient should avoid caffeine, exercise, and smoking for at least 30 min before measurement. 3. Ensure patient has emptied his/her bladder. 4. Neither the patient nor the observer should talk during the rest period or during the measurement. 5. Remove all clothing covering the location of cuff placement. 6. Measurements made while the patient is sitting or lying on an examining table do not fulfill these criteria.
<p>Step 3: Take the proper measurements needed for diagnosis and treatment of elevated BP/hypertension</p>	<p>Use an average of ≥ 2 readings obtained on ≥ 2 occasions to estimate the individual's level of BP.</p> <p>Provide patients the SBP/DBP readings both verbally and in writing.</p>
<p>Step 4: Properly document accurate BP readings</p>	

Use of Home BP Devices

Since virtually all BP outcome trials have used office BP determinations and home readings are subject to more bias and error, in SPRINT titration of medications to goal should be based on **office readings** rather than home BP determinations.

5.3.1 Seated Blood Pressure and Pulse

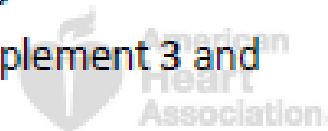
Seated blood pressure and pulse are measured at each clinic visit after a rest period using an automated device or manual devices if necessary. The preferred method is the **automated device** as it offers reduced potential for observer biases and decreased demand on staff in terms of training and effort in data collection



Linee guida USA (2017)

Recommendation for Out-of-Office and Self-Monitoring of BP

References that support the recommendation are summarized in Online Data Supplement 3 and Systematic Review Report.



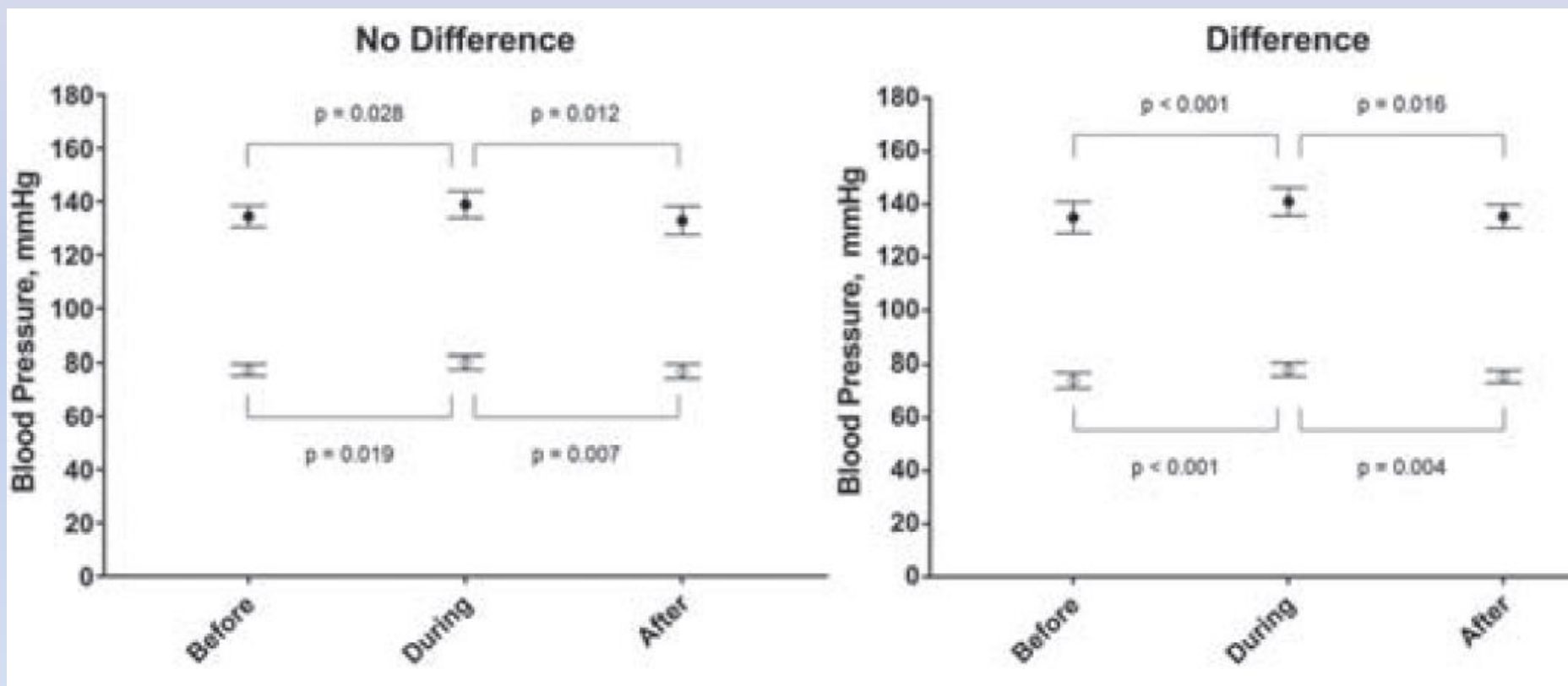
COR	LOE	Recommendation
I	A ^{SR}	1. Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension (Table 11) and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions (1-4).

	Office	Unattended	24h	Daytime	Central
SBP	147 _± 19*	131 _± 16	131 _± 12	136 _± 13*	129 _± 15
Dif#	+16_±11	referimento	-1_±7	+5_±7	-2_±10
DBP	88 _± 11*	83 _± 10	78 _± 10*	82 _± 11	85 _± 10*
Dif#	+ 5 _± 6	-	+ 5 _± 7	- 1 _± 7	+ 2 _± 7
HR	77+14*	75+14	74+10*	77+11	74+13*
Dif#	+ 2 _± 5	-	- 2 _± 9	+ 1 _± 8	- 2 _± 7

THE ANSIA STUDY

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Relationship Between Automated Office and Awake Ambulatory Blood Pressure

Reference	No. participants	Type of BP measurement (mm Hg)	
		Automated office BP	Awake ambulatory BP
Beckett and Godwin ³	481	140/80	142/80
Myers et al. ⁴	200	133/72	135/76
	200	132/76	134/77
Myers et al. ⁵	309	132/75	134/77
Myers et al. ⁶	62	140/77	141/77
Myers ⁷	254	133/80	135/81
Godwin et al. ⁸	654	139/80	141/80
Myers et al. ⁹	139	141/82	142/81
Myers et al. ¹⁰	303	135/77	133/74
Andreadis et al. ¹¹	90	140/88	136/87
Myers and Valdivieso ¹²	100	137/79	139/80
Padwal et al. ¹³	100	136/79	136/80
Mean		136.5/78.7	136.5/79.1

Outcome	Automated office BP (mean ± SD)	Daytime ambulatory BP (mean ± SD)
All patients (n = 96)		
Systolic	130.8 ± 15.5	142.8 ± 14.9
Diastolic	82.3 ± 10.7	83.9 ± 11.2
Baseline diagnosis of hypertension (n = 76)		
Systolic	133.3 ± 15.8	146.4 ± 14.3
Diastolic	83.7 ± 10.8	85.7 ± 11.5
No baseline diagnosis of hypertension (n = 20)		
Systolic	121.5 ± 9.8	129.0 ± 7.3
Diastolic	77.0 ± 8.3	76.9 ± 6.5
Daytime ambulatory BP ≥ 135 mmHg (n = 47)		
Systolic	133.4 ± 15.5	150.2 ± 13.2
Diastolic	83.9 ± 10.7	82.9 ± 7.9
Daytime ambulatory BP < 135 mmHg (n = 49)		
Systolic	128.0 ± 15.0	135.6 ± 12.9
Diastolic	76.0 ± 7.5	75.3 ± 5.7

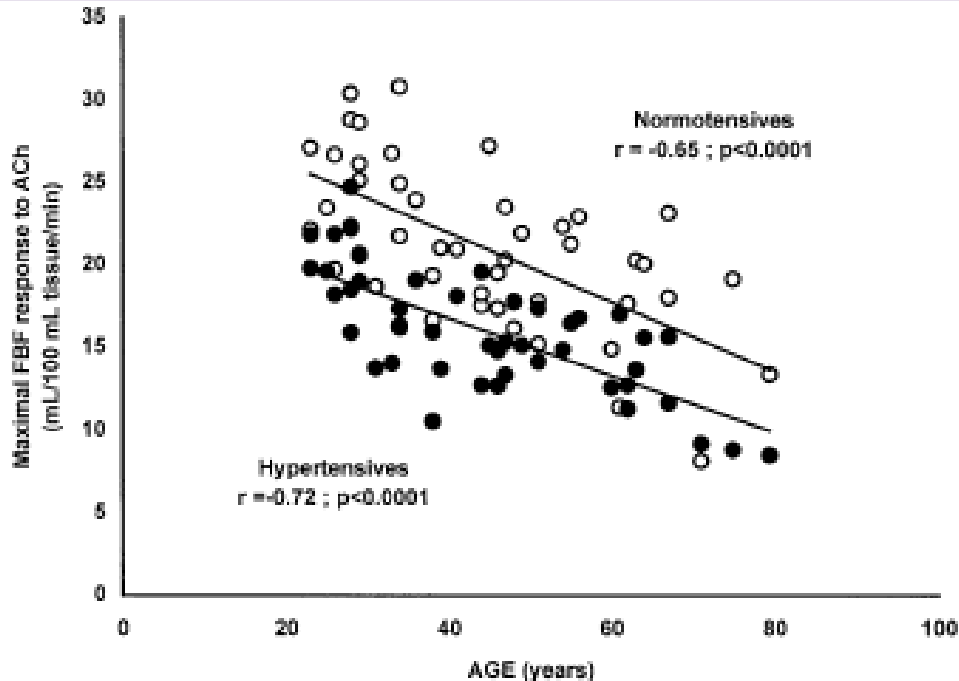
PRIORITA' (2)

Protezione
organi
bersaglio

Controllo
dei valori
pressori

Tolleranza
alla terapia



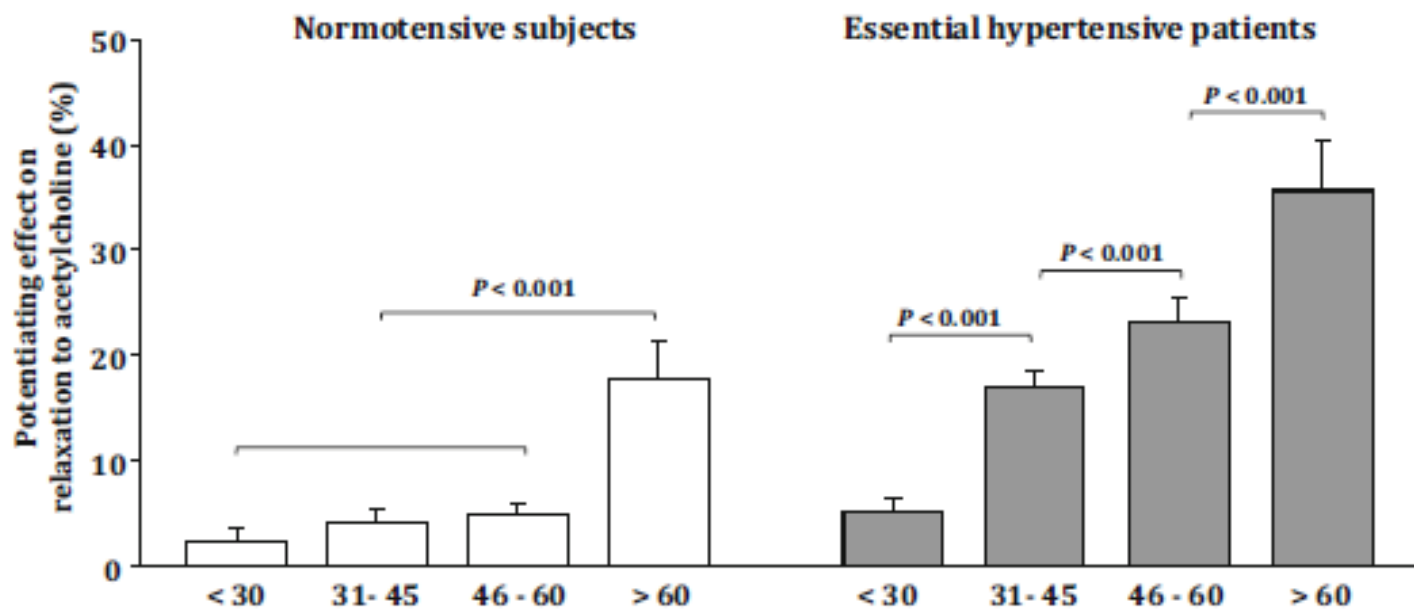


High Blood Press Cardiovasc Prev
<https://doi.org/10.1007/s40292-017-0245-9>

REVIEW ARTICLE

Essential Hypertension and Functional Microvascular Ageing

Rosa Maria Bruno¹ · Stefano Masi¹ · Marco Taddei² · Stefano Taddei¹ · Agostino Virdis¹





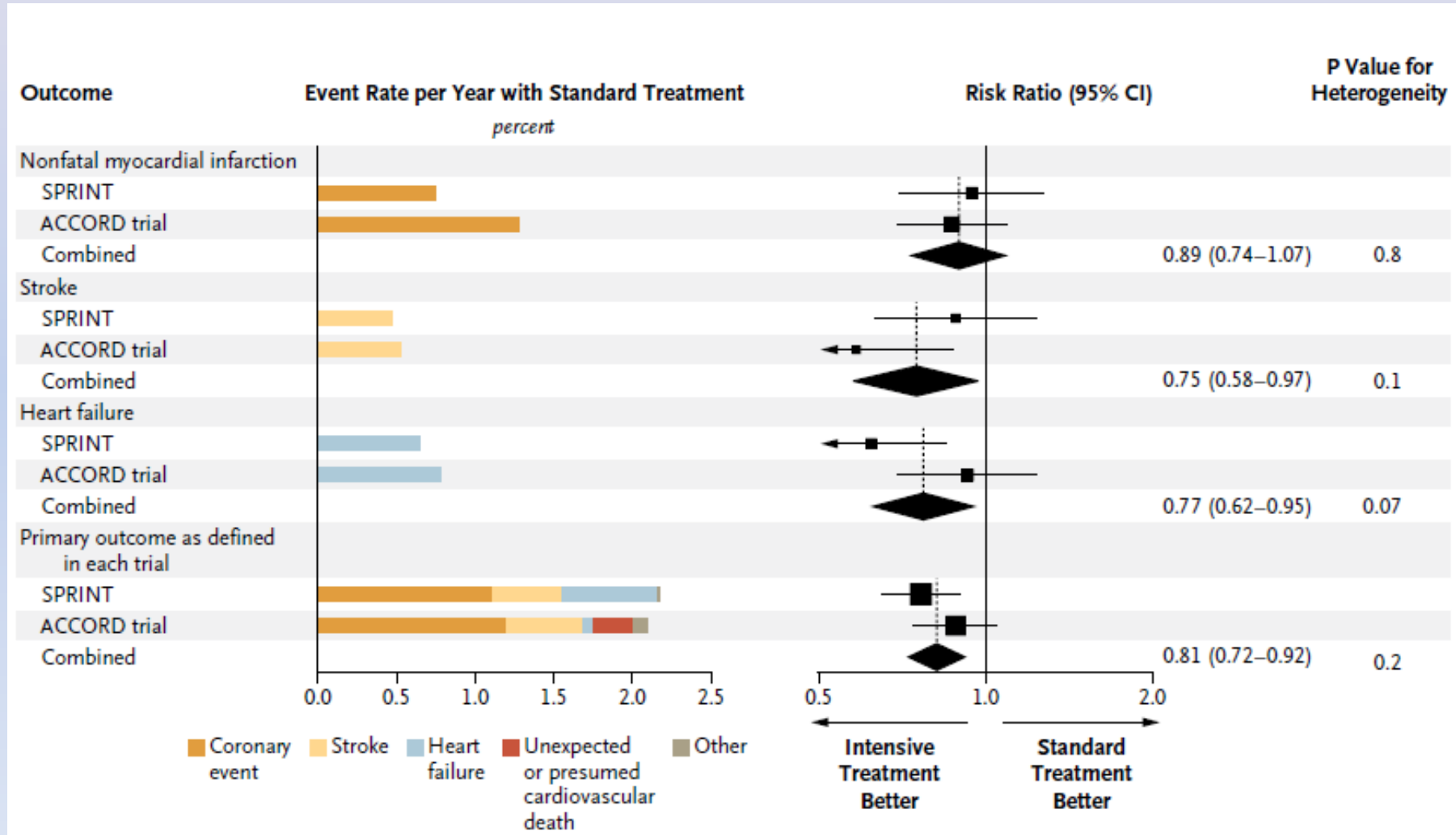
Quali target pressori ottimali a protezione del paziente

STUDI	Numerosità	PA all'arruolamento	Follow-up	Età media all'arruolamento
HOPE-3, 2016 Rischio intermedio	12705 pz	138/81	5,6 yrs	65 yrs
ACCORD, 2010 Diabete	4733 pz	139/76	4.7 yrs	62 yrs
SPRINT, 2015 rischio elevato	9361 pz	138/78	3.2 yrs	67 yrs

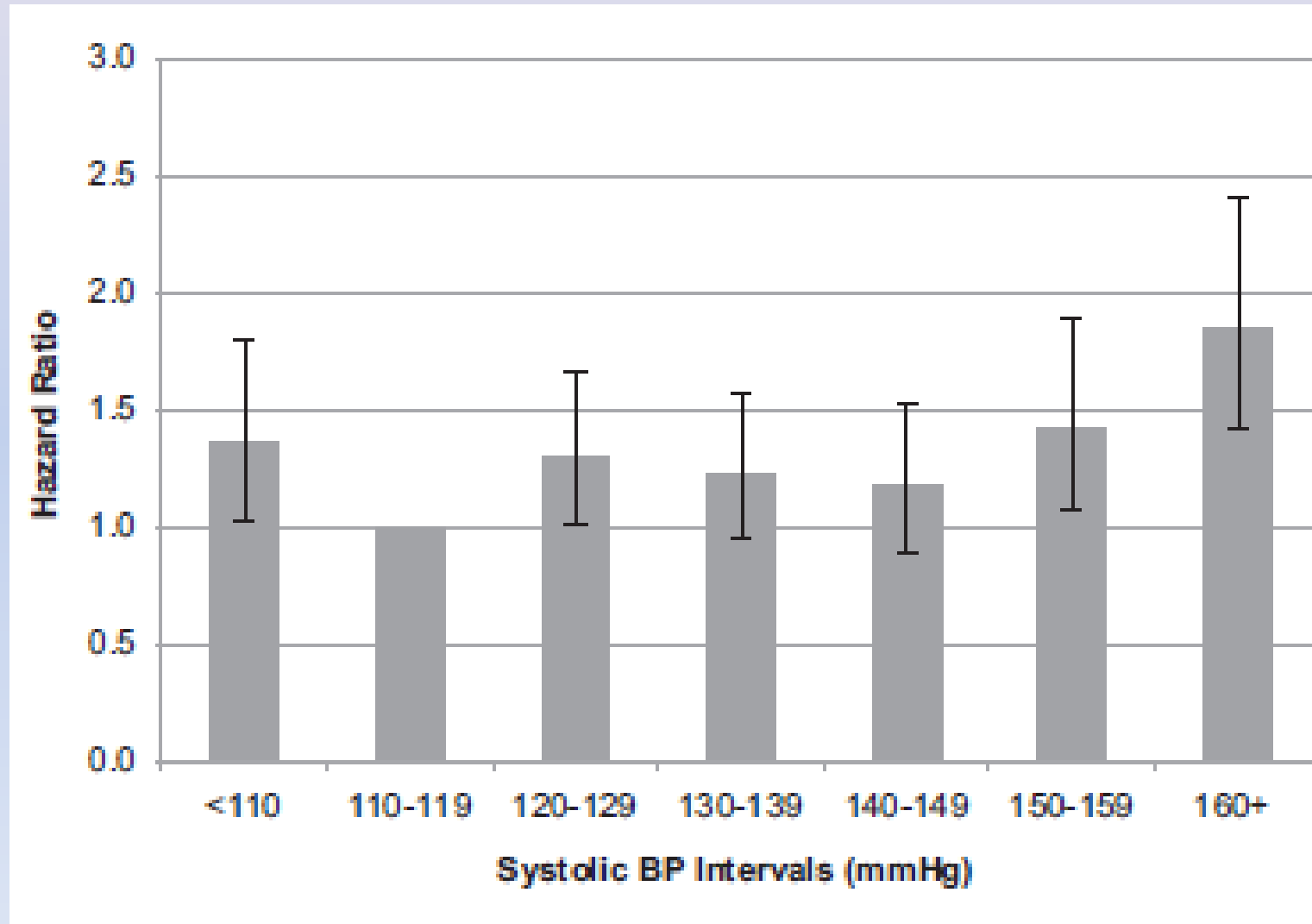
Arruolamento SPRINT

1. At least **50 years old**
2. **Systolic blood pressure: ≥ 130 mmhg**
 - SBP: 130 – 180 mm Hg on 0 or 1 medication
 - SBP: 130 – 170 mm Hg on up to 2 medications
 - SBP: 130 – 160 mm Hg on up to 3 medications
 - SBP: 130 – 150 mm Hg on up to 4 medications
3. There are **no diastolic blood pressure (DBP) inclusion criteria**, since risk is more related to SBP than DBP in the age and risk population anticipated for SPRINT
4. **Risk** (one or more of the following):
 - a) cardiovascular disease other than stroke
 - b) CKD, defined as eGFR 20 – 59 ml/min/1.73m² (MDRD)
 - c) Framingham Risk Score for 10-year CVD risk $\geq 15\%$
 - d) Age ≥ 75 years.
5. **Clinical CVD** (other than stroke): MI, PCI, CABG, TEA, PAD (50%), SCA, AAA
6. **Subclinical CVD** (within the last two yrs)
 - a) Coronary artery calcium score ≥ 400 Agatston
 - b) Ankle brachial index (ABI) ≤ 0.90
 - c) Left ventricular hypertrophy (LVH) by ECG (computer reading) or echo, etc

Outcomes Data from SPRINT and the ACCORD Trial (Combined Data from Both Trials)



PA sistolica e CVD in “anziani”



Linee guida USA (2017): nuova classificazione

		SBP (mm Hg) →				
		<120	120–129	130–139	140–159	160+
← DBP (mm Hg)	<80	Normal	Elevated	Stage 1	Stage 2	Stage 2
	80–89	Stage 1	Stage 1	Stage 1	Stage 2	Stage 2
	90–99	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2
	100+	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2

BP Thresholds for and Goals of Pharmacological Therapy in Patients With Hypertension According to Clinical Conditions



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

Sensitivity analysis of anti-hypertensive treatment on major cardiovascular events



Items	Mean SBP range	Trials	RR (95% CI)	<i>P</i> value	<i>I</i> ² (%)
The first co-primary outcomes	120–130	3	0.90 (0.65–1.26)	0.55	66
	130–139	5	0.88 (0.79–0.99)	0.03*	73*
	Pooling	8	0.90 (0.81–1.00)	0.05	70*
Stroke	120–130	3	0.97 (0.58–1.61)	0.91	0
	130–139	5	0.81 (0.67–0.99)	0.04*	19
	Pooling	8	0.84 (0.71–0.98)	0.03*	0
Heart failure	120–130	2	1.08 (0.68–1.69)	0.0007*	0
	130–139	4	0.76 (0.65–0.89)	0.002*	17
	Pooling	6	0.79 (0.68–0.91)	0.72	11
MI	120–130	3	0.87 (0.58–1.31)	0.51	0
	130–139	5	0.84 (0.75–0.95)	0.004*	0
	Pooling	8	0.84 (0.76–0.93)	0.0004*	0
All-cause mortality	120–130	3	0.92 (0.59–1.44)	0.72	0
	130–139	5	0.91 (0.82–0.99)	0.04*	41
	Pooling	8	0.9 (0.83–0.97)	0.009*	16
CV mortality	120–130	3	0.97 (0.68–1.39)	0.86	0
	130–139	5	0.85 (0.77–0.95)	0.003*	18
	Pooling	8	0.85 (0.78–0.93)	0.0004*	0

Sempre dalle linee guida USA (2017)

Recommendations for Follow-Up After Initial BP Elevation		
References that support recommendations are summarized in Online Data Supplement 24.		
COR	LOE	Recommendations
I	B-R	1. HT 1 (<139/89) BASSO RISCHIO: TERAPIA NON FARMACOLOGICA, rivalutazione a 3-6 mesi
I	B-R	2. HT 1 ALTO RISCHIO: TERAPIA NON FARMACOLOGICA E FARMACI, rivalutazione a 1 mese
I	B-R	3. HT 2 (>140/90) : TERAPIA NON FARMACOLOGICA E 2 FARMACI (≠CLASSI), rivalutazione a 1 mese
I	B-R	4.
IIa	C-EO	5. For adults with a normal BP, repeat evaluation every year is reasonable.

TERAPIA

COR	LOE	Recommendation
I	A ^{SR}	1 INIZIARE ON QUALSIASI FARMACO: HCLTZ, ACEI, ARB, CCB (BETABLOCCANTI "NON PERVENUTI")
I	C-EO	2
Ila	C-EO	2 DUBBIA LA PRESCRIZIONE FARMACOLOGICA SU DI UN TARGET INFERIORE A 130/80 IN PAZIENTE "SENZA" RISCHIO

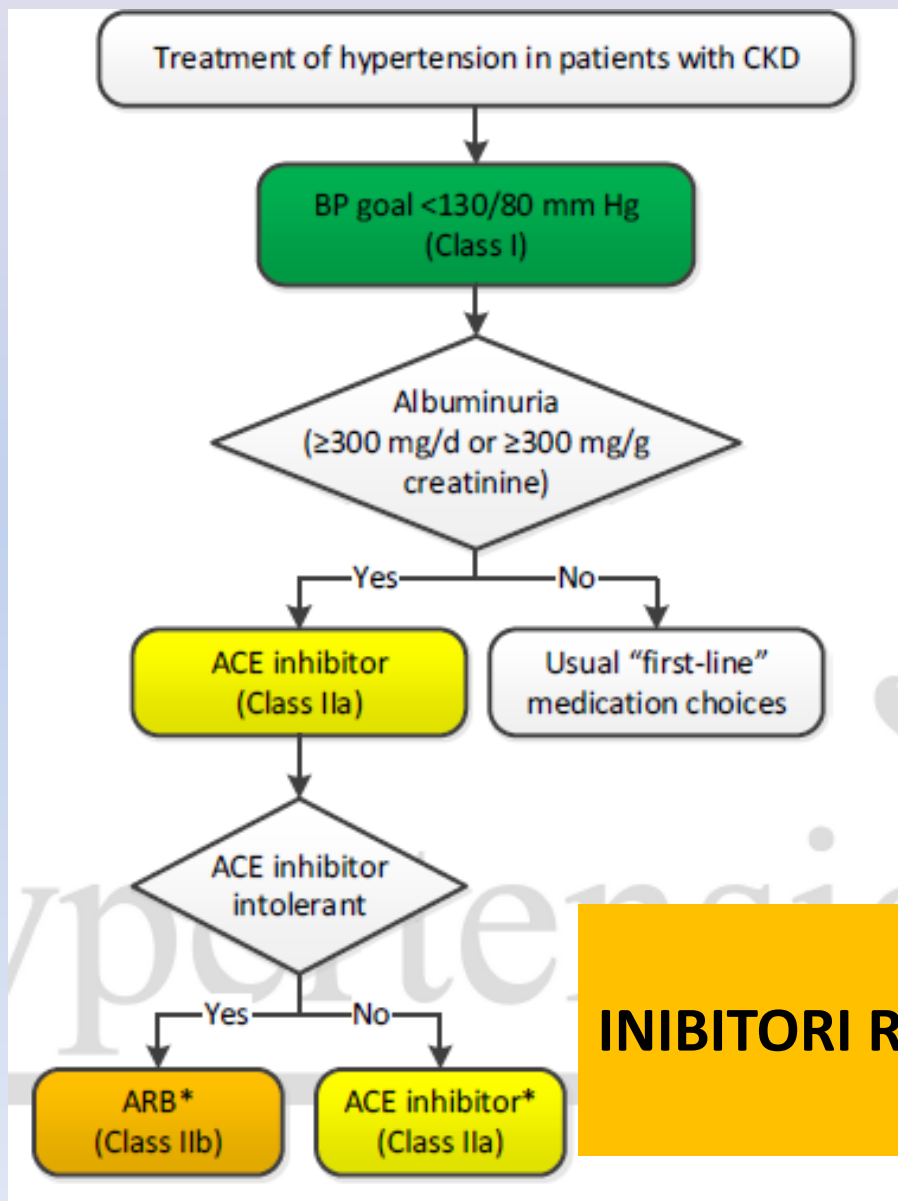


Valori pressori e scompenso

Recommendation		EF RIDOTTA	th HFrEF
References that support		Recommendation	
COR	LOE	Recommendation	
I	C-EO	1. Adults with HFrEF and hypertension should be prescribed GDMT (2) titrated	
III: No Benefit	B-R	2. NON USARE CCB NON-DIIDROPIRIDINICI	

Recommendation		EF PRESERVATA	th HFpEF
References that support rec		Recommendations	
COR	LOE	Recommendations	
I	C-EO	1. USARE DIURETICO se sintomi di sovraccarico	
I	C-LD	2. USARE ACEI ARB E BB per PA sistolica inferiore a 130/80	

Paziente nefropatico



Paziente con cardiopatia ischemica stabile

Recommendations for Treatment of Hypertension in Patients With Stable Ischemic Heart Disease (SIHD)

References that support recommendations are summarized in Online Data Supplements 30-32.

COR	LOE	Recommendations
I	SBP: B-R	1. In adults with SIHD and hypertension, a BP target of less than 130/80 mm Hg is recommended. Target <130/80
	DBP: C-EO	
I	SBP: B-R	2. Adults with SIHD and hypertension (BP \geq130/80 mm Hg) should be treated with medications (e.g., GDMT (6) beta blockers, ACE inhibitors, or ARBs) for compelling indications (e.g., previous MI, stable angina) as first-line therapy, with the addition of other drugs (e.g., dihydropyridine CCBs, thiazide diuretics, and/or mineralocorticoid receptor antagonists) as needed to further control hypertension (7-10).
	DBP: C-EO	
I	B-NR	3. In adults with SIHD with angina and persistent uncontrolled hypertension, the addition of dihydropyridine CCBs to GDMT (6) beta blockers is recommended (8, 11, 12).
IIa	B-NR	4. In adults who have had a MI or acute coronary syndrome, it is reasonable to continue GDMT (6) beta blockers beyond 3 years as long-term therapy for hypertension (13, 14).
IIb	C-EO	5. Beta blockers and/or CCBs might be considered to control hypertension in patients with CAD (without HFrEF) who had an MI more than 3 years ago and have angina.

Paziente con malattia vascolare periferica (PAD)

Recommendation for Treatment of Hypertension in Patients With PAD

References that support the recommendation are summarized in Online Data Supplement 45.

COR	LOE	
I	B-NR	NESSUNA DIFFERENZA FRA IPERTESI CON E SENZA ARTERIOPATIA PERIFERICA

Paziente con diabete

Recommendations for Treatment of Hypertension in Patients With DM

References that support recommendations are summarized in Online Data Supplements 46 and 47 and Systematic Review Report.

COR	LOE	Recommendations
I	SBP: B-R ^{SR}	1. In adults with DM and hypertension, antihypertensive drug treatment should be initiated at a BP of 130/80 mm Hg or higher with a treatment goal of less than 130/80 mm Hg (1-8).
	DBP: C-EO	
I	A ^{SR}	2. In adults with DM and hypertension, all first-line classes of antihypertensive effective (1, 9, 10). TUTTI I FARMACI VANNO BENE INCLUSO IL DIURETICO
IIb	B-NR	3. In adults with DM and hypertension, ACE inhibitors or ARBs may be considered in the presence of albuminuria (11, 12).

Paziente (a rischio) di fibrillazione atriale

Recommendation for Treatment of Hypertension in Patients With AF

References that support the recommendation are summarized in Online Data Supplement 48.

COR	LOE	Recommendation
Ila	B-R	1. Treatment of hypertension with an ARB can be useful for prevention of recurrence of AF (1, 2).

UTILIZZO ARB??

Razza negra

Recommendations for Race and Ethnicity

References that support recommendations are summarized in Online Data Supplement 51.

COR	LOE	Recommendations
I	B-R	1. In black adults with hypertension but without HF or CKD, including those with a history of stroke, treatment with a thiazide-type diuretic is preferred to achieve a target blood pressure.
I	C-LD	2. POLITERAPIA is preferred to achieve a target blood pressure, especially in black adults with hypertension (5-7).

Secondary Stroke Prevention

Recommendations for Treatment of Hypertension for Secondary Stroke Prevention		
References that support recommendations are summarized in Online Data Supplements 43 and 44.		
COR	LOE	Recommendations
I	A	1. Adults with previously treated hypertension who experience a stroke or TIA should be prescribed antihypertensive treatment a few days after the index event to reduce the risk of recurrent stroke and other vascular events (1-3). INIZIARE LA TERAPIA DOPO “QUALCHE GIORNO” PER RIDURRE IL RISCHIO DI RECIDIVE
I	A	2. For adults with a lacunar stroke, a target SBP goal of less than 130 mm Hg may be reasonable (4). HCLTZ E ACEI
I	B-R	3. Adults not previously treated for hypertension who experience a stroke or TIA and have an established BP of 140/90 mm Hg or higher should be prescribed antihypertensive treatment a few days after the index event to reduce the risk of recurrent stroke and other vascular events (1-3).
I	B-NR	4. For adults who experience a stroke or TIA, selection of specific drugs should be individualized on the basis of patient comorbidities and agent pharmacological class (6).
IIb	B-R	5. For adults who experience a stroke or TIA, a BP goal of less than 130/80 mm Hg may be reasonable (6, 7).
IIb	B-R	6. For adults with a lacunar stroke, a target SBP goal of less than 130 mm Hg may be reasonable (8).
IIb	C-LD	7. In adults previously untreated for hypertension who experience an ischemic stroke or TIA and have a SBP less than 140 mm Hg and a DBP less than 90 mm Hg, the usefulness of initiating antihypertensive treatment is not well established (9).

PRIORITA' (3)

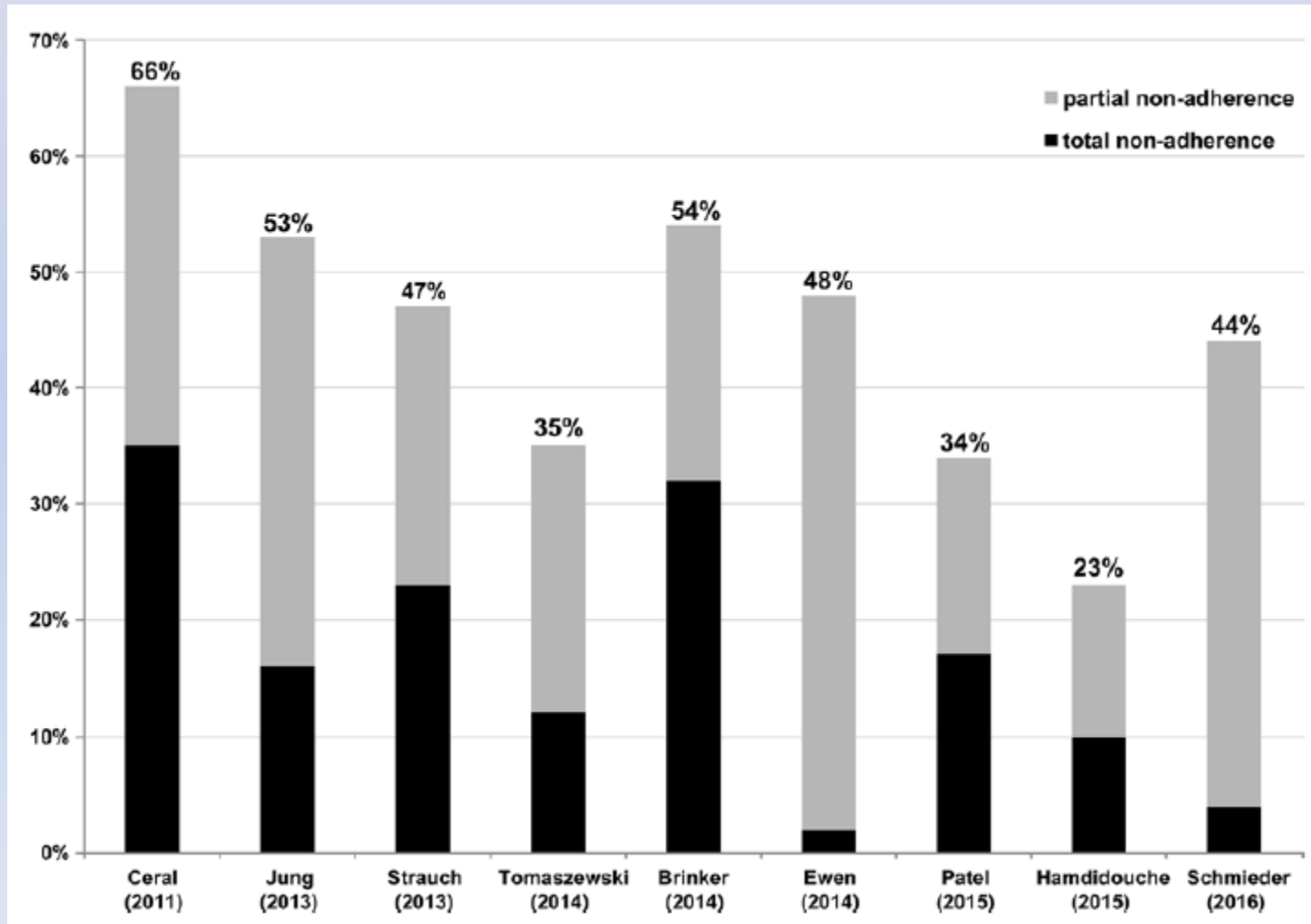
Protezione
organi
bersaglio

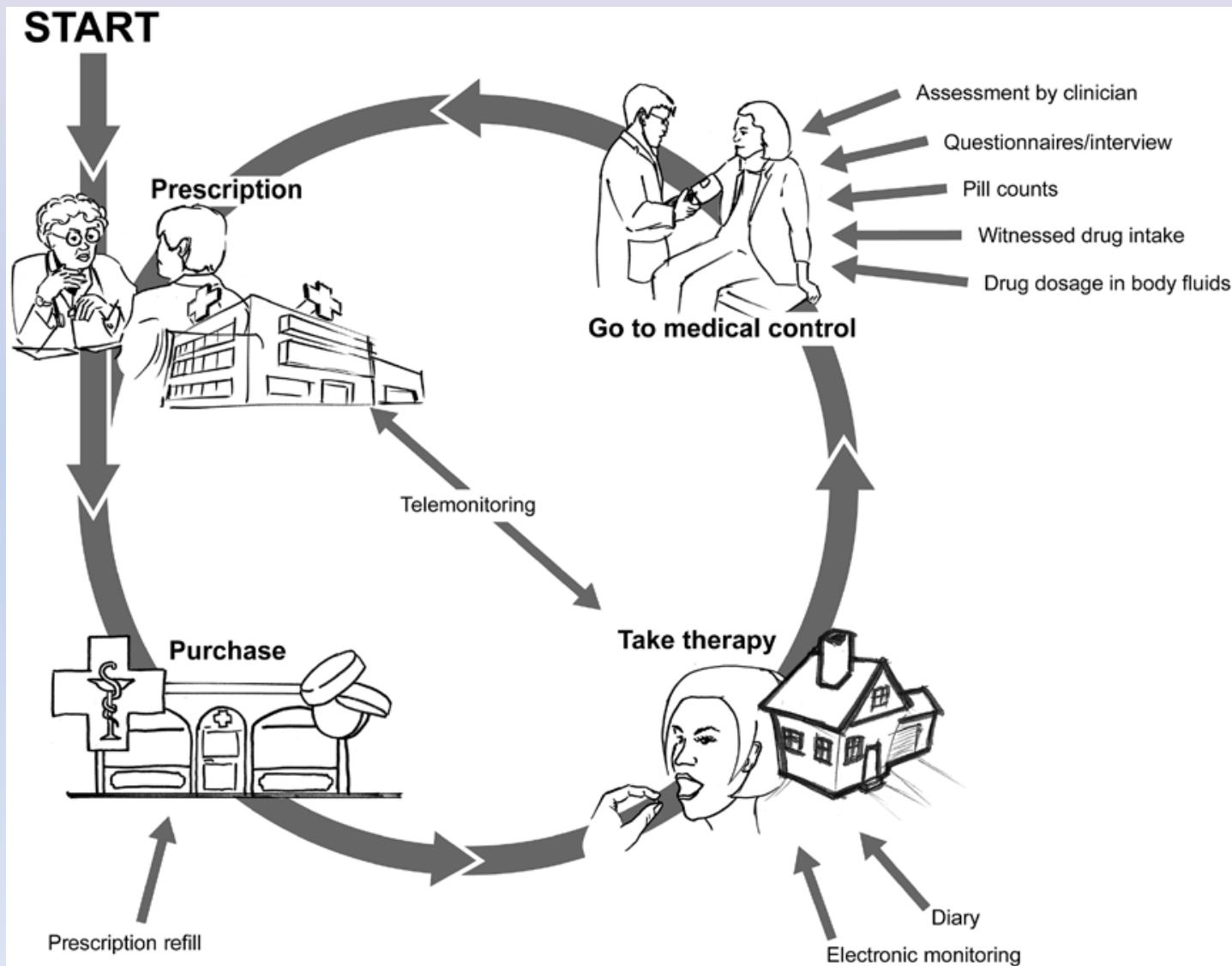
Controllo
dei valori
pressori

**Tolleranza
alla terapia**



Aderenza





Misure di aderenza

Indirect Methods

- Assessment by Clinician
- Questionnaires
- Pill Count
- Prescription, Refill

Direct Methods

- Witnessed Drug Intake
- Electronic Monitoring
- Tele-Monitoring
- Drugs Dosage in Body Fluids

Telehealth strategies

- Automated BP data capture and transmission of the patient's self-measured BP
- Self-management support including education, reminders, and feedback that is automated or delivered by a healthcare professional
- Medication titration and follow-up monitoring protocols/algorithm
- Prescription refill reminders
- Medication adherence assessments
- Self-monitoring of lifestyle behaviors
- Integration of behavior change techniques, including in person or e-counseling
- Case/care/population health management

Commonly used telehealth technologies

- Wired “land line” telephone
- Wireless smart phone applications
- Internet-based website via computers and handheld devices
- Text messaging
- E-mail messaging
- Social networking and social media websites/applications
- Wireless BP measurement devices
- Electronic pill dispensers/counters

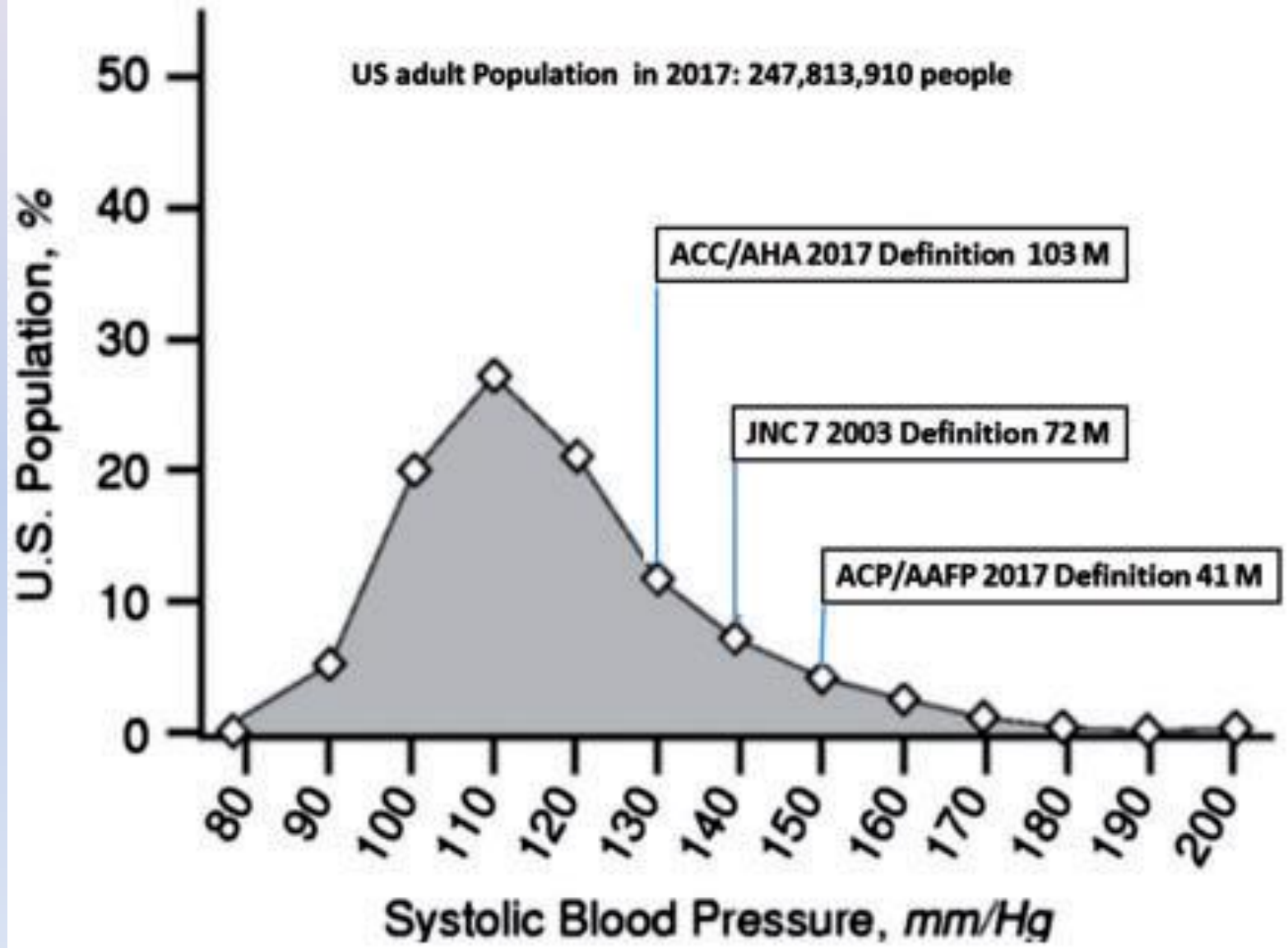


VALUTAZIONI



Osservazioni interessanti.....(di Messerli)

- Labelling a healthy person with a disease comes at a cost
- It gives these numbers significance that they do not reserve
- BP is an exceedingly labile hemodynamic parameter
- Patients are genetically, physiologically, metabolically, pathologically, psychologically and culturally different



optimal BP levels should be about 100 plus half of the patient's age (swiss rule)



High Blood Pressure Guidelines

Welcomed Advice, but Let's Not Lose the Patient Amid the Numbers

Valentin Fuster, MD, PhD

...it seems that blood pressure management presents the first real opportunity for **personalized medicine** within the cardiovascular field....

Individual Hypertension Team Members



Primary Care Physician, Physician Assistant, Advanced Practice Nurse

Cardiologist

Nephrologist, Endocrinologist, Hypertension Specialist

Nurse (including in-office, home care, internal and external population health personnel)

Clinical Pharmacist

Dietician

Social Worker

Community Health Providers





definire il contratto

Cosa vuole da me ?



stipulare il contratto

Concordiamo gli obiettivi

(reciproci...ma il paziente è più importante)



consegnare il contratto

**Definiamo la responsabilità
del medico e del paziente**

Conclusioni

Protezione
organi
bersaglio

Controllo dei valori
pressori

Tolleranza alla
terapia



.....ma soprattutto



Kaplan

‘The measurement of blood pressure is likely the clinical procedure of greatest importance that is performed in the sloppiest manner’



grazie dell'attenzione