

Congresso Regionale
SID-AMD LAZIO 2020

IL DIABETE MELLITO DOPO IL COVID-19:
A CHE PUNTO ERAVAMO RIMASTI
E COME POSSIAMO SPINGERCI OLTRE?

9-10 OTTOBRE 2020

ROMA | NH Villa Carpegna

Controllo pressorio ottimale per ogni età?

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FATEBENEFRAELLI



Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease study 2013

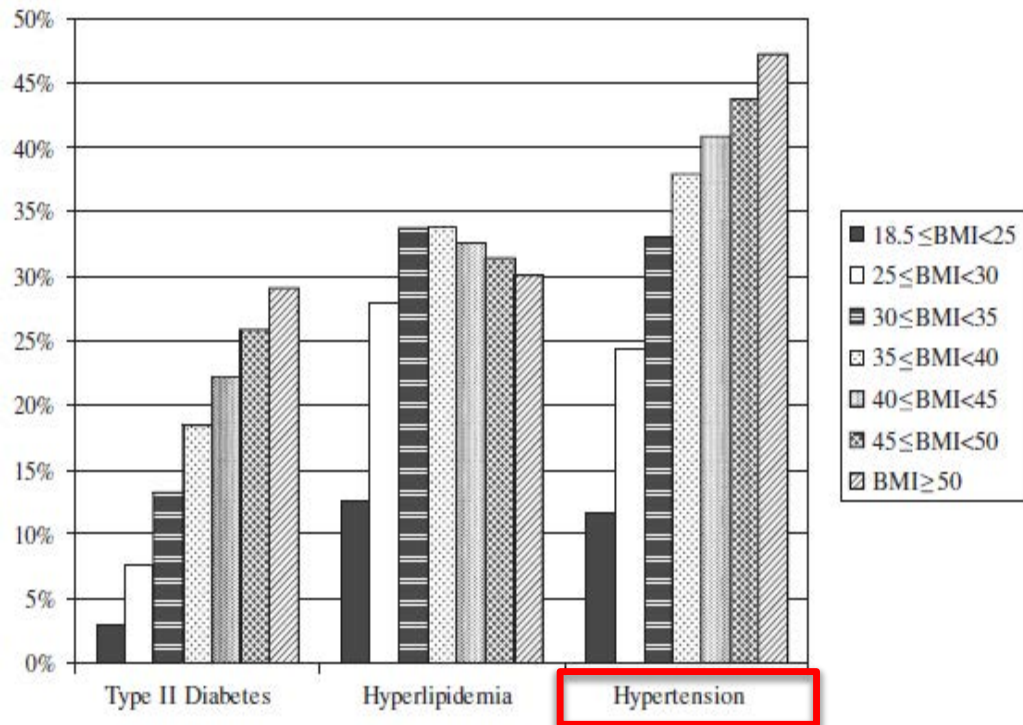
Ten leading risk factors in terms of attributable DALYs in 2013 for both sexes combined

	1	2	3	4	5	6	7	8	9	10
Global	Blood pressure	Smoking	BMI	Childhood under-nutrition	Fasting glucose	Alcohol use	Household air pollution	Unsafe water	Unsafe sex	Fruit
Developed	Blood pressure	BMI	Smoking	Alcohol use	Fasting glucose	Total chol.	GFR	Sodium	Physical activity	Fruit
Western Europe	Blood pressure	Smoking	BMI	Fasting glucose	Alcohol use	Total chol.	GFR	Physical activity	Sodium	Fruit
Italy	Blood pressure	BMI	Smoking	Fasting glucose	GFR	Total chol.	Sodium	Alcohol use	Physical activity	Bone mineral density

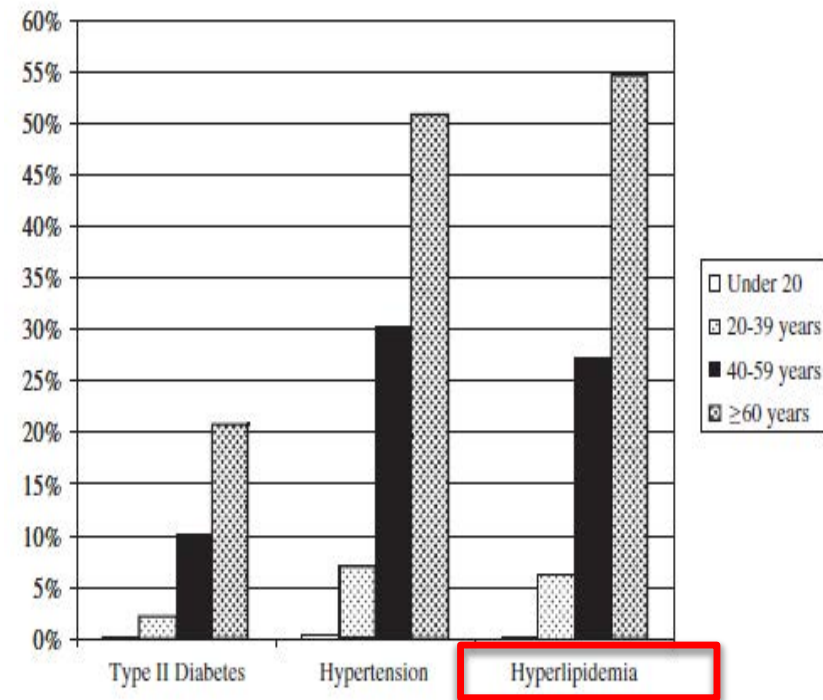
PREVALENZA DIABETE E IPERTENSIONE

associazione lineare con il BMI e l'età

prevalence by BMI category



prevalence by age group



"Hypertension and Diabetes, the bad companions"

H. Keen, 1981

- L'ipertensione è una comorbidità presente in circa l'80% pazienti affetti da diabete mellito di tipo 2.
- I pazienti con DM hanno un elevato rischio cardiovascolare e tale rischio aumenta ulteriormente in presenza di ipertensione arteriosa.

I FARMACI PIU' PRESCRITTI ALLE PERSONE CON DIABETE

(escluse le tp per il DM)

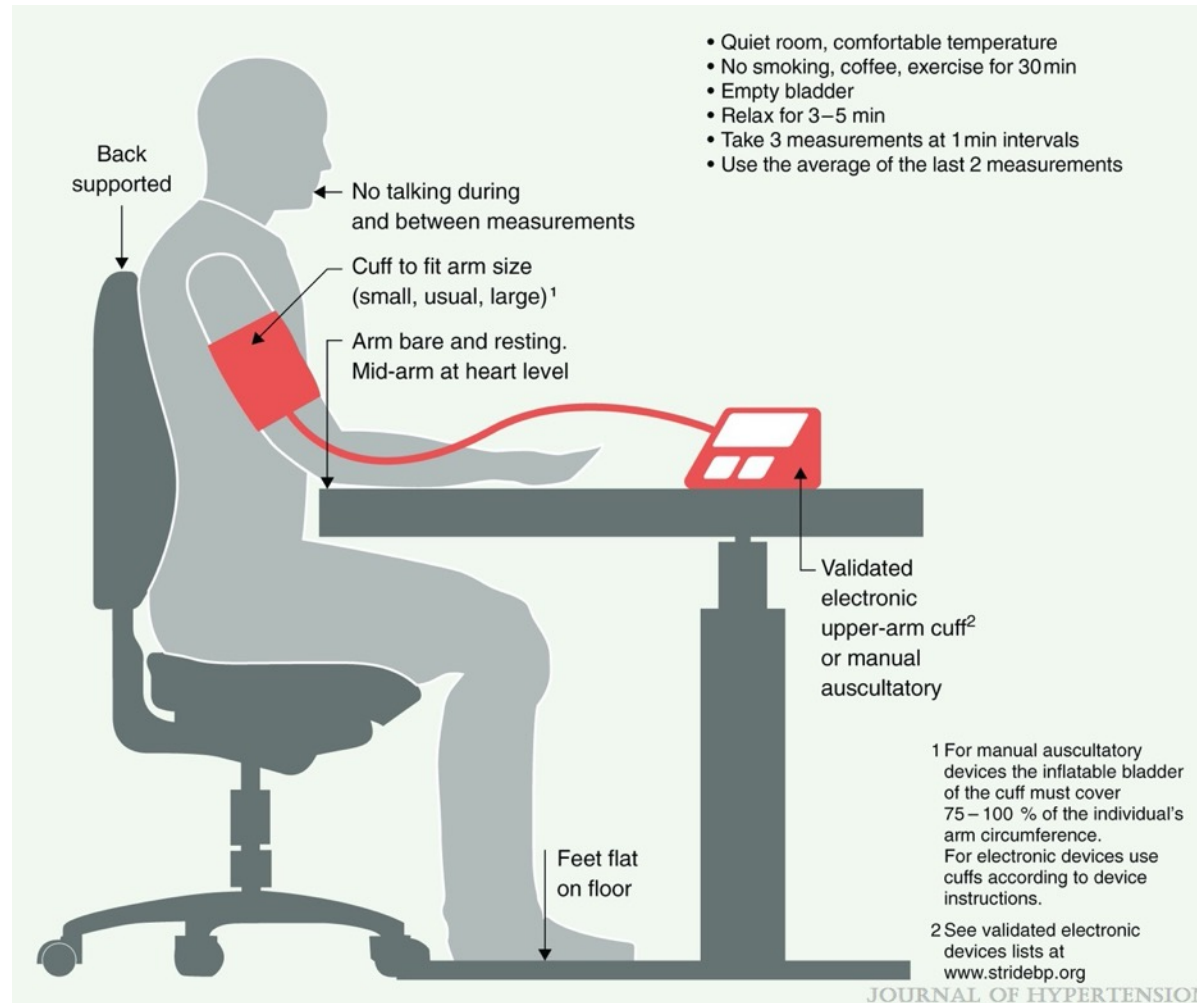
Persone con diabete 697.208	N. trattati con almeno un farmaco 671.036	Spesa complessiva (per tutti i farmaci) € 778.512.704
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Categoria farmaco	Trattati	% su popolazione con diabete	Δ % Casi vs Controlli	Spesa media per trattato €	Spesa media pro capite € (N=697.208)	Δ % Casi vs Controlli
Antipertensivi	519.493	74,5	+59,2	155,50	115,86	+96,1
Antibiotici	377.890	54,2	+36,9	41,78	22,65	+76,6
Ipolipemizzanti	369.503	53,0	+153,6	141,07	74,76	+205,8
Antiacidi+Antiulcera	342.958	49,2	+61,1	96,45	47,44	+91,1
Antiaggreganti piastrinici	298.641	42,8	+152,1	58,26	24,95	+100,1
Antinfiammatori	246.386	35,3	+41,3	18,71	6,61	+51,7
Vitamine	179.097	25,7	+21,6	46,21	11,87	+26,1
Farmaci per il sistema nervoso	159.799	22,9	+62,2	145,59	33,37	+89,6
Antiasmatici	117.826	16,9	+42,4	227,91	38,52	+42,7
Altri antitrombotici	107.350	15,4	+55,3	262,90	40,48	+60,0

Ipertensione nel Diabete

obiettivi pressori...

2020 International Society of Hypertension Global Hypertension Practice Guidelines



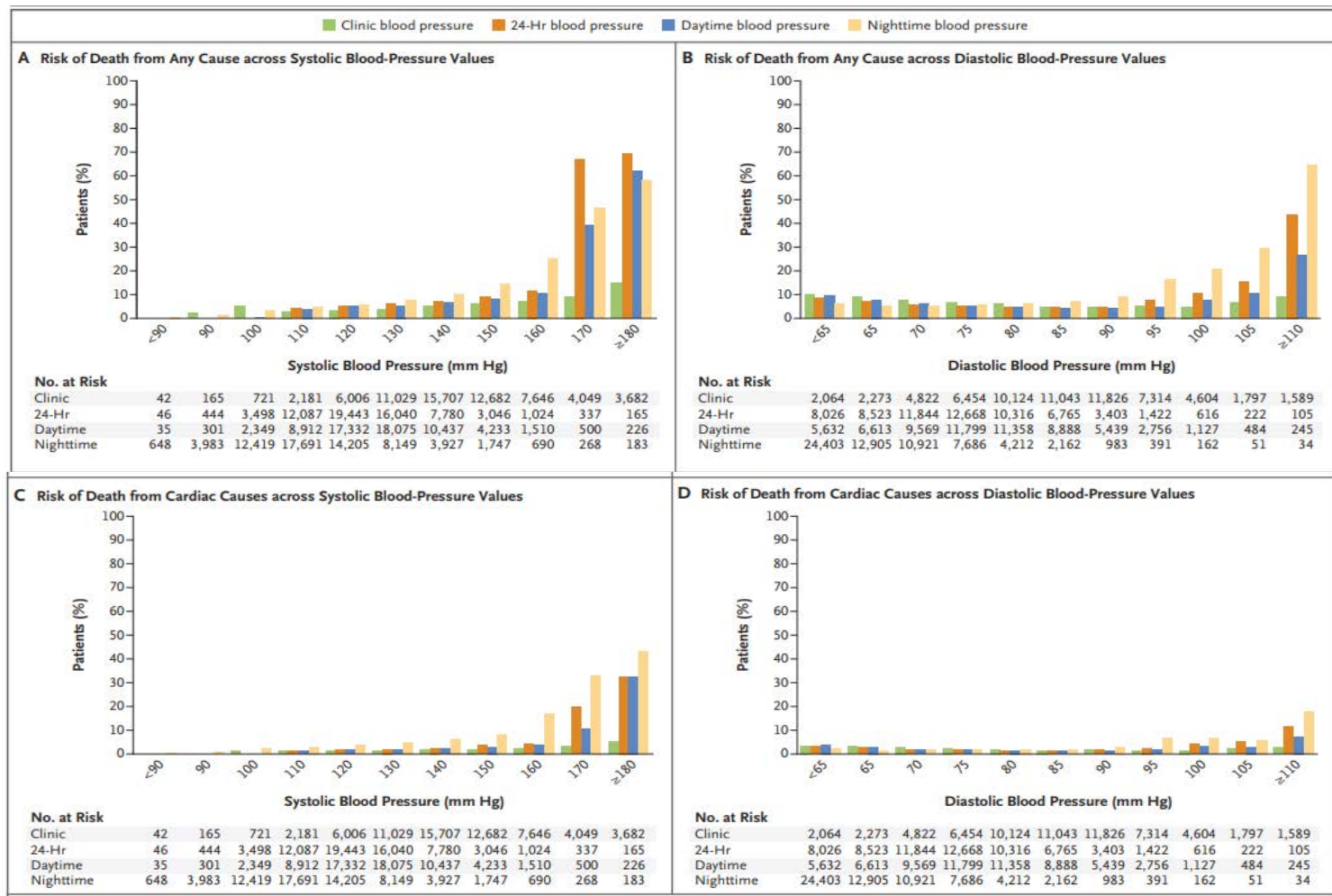
ORIGINAL ARTICLE

Relationship between Clinic and Ambulatory Blood-Pressure Measurements and Mortality

2018

J.R. Banegas, L.M. Ruilope, A. de la Sierra, E. Vinyoles, M. Gorostidi, J.J. de la Cruz, G. Ruiz-Hurtado, J. Segura, F. Rodríguez-Artalejo, and B. Williams

63.910 pz
20% con diabete



«Periodo di avanzamento»

1,4 anni per PAV vs 9,5 anni per SBPM24h

Table 4. Rate Advancement Periods and Population Attributable Fractions for Blood-Pressure Components and Hypertension Phenotypes.*

Blood-Pressure Component and Hypertension Phenotype	Rate Advancement Period†		Population Attributable Fraction‡	
	All-Cause Mortality	Cardiovascular Mortality	All-Cause Mortality	Cardiovascular Mortality
	yr (95% CI)		% (95% CI)	
Blood-pressure component				
Clinic systolic	1.4 (0.6–2.2)	—	—	—
Clinic diastolic	0.9 (0.4–1.5)	—	—	—
24-Hour systolic	9.5 (4.2–14.8)	8.0 (3.5–12.5)	—	—
24-Hour diastolic	7.3 (3.2–11.5)	5.7 (2.5–8.9)	—	—
Daytime systolic	8.5 (3.7–13.3)	7.2 (3.2–11.3)	—	—
Daytime diastolic	—	—	—	—
Nighttime systolic	10.2 (4.4–15.9)	8.4 (3.7–13.1)	—	—
Nighttime diastolic	7.3 (3.2–11.4)	7.3 (3.2–11.5)	—	—
Hypertension phenotypes				
White-coat hypertension§	9.4 (4.3–14.4)	6.6 (2.3–10.9)	3.6 (2.2–4.6)	4.0 (1.5–5.5)
White-coat uncontrolled hypertension¶	—	—	—	—
Masked hypertension	22.6 (15.0–30.2)	20.5 (14.7–26.4)	1.9 (1.6–2.2)	1.6 (1.0–2.0)
Masked uncontrolled hypertension**	14.6 (6.9–22.3)	16.1 (10.1–22.1)	3.0 (2.1–3.8)	4.1 (2.1–5.3)
Masked uncontrolled hypertension among all patients with controlled clinic pressure††	13.2 (5.6–20.7)	11.4 (7.4–15.4)	33.3 (28.8–36.9)	31.7 (24.0–37.3)
Sustained hypertension‡‡	12.8 (5.9–19.7)	13.0 (7.4–18.6)	7.0 (4.5–8.9)	6.5 (2.5–9.0)
Sustained uncontrolled hypertension§§	12.1 (5.4–18.9)	10.2 (4.6–15.8)	12.7 (4.2–19.4)	16.1 (0.1–26.3)

IPERTENSIONE ARTERIOSA

TARGET DA RAGGIUNGERE

- ❑ Il trattamento antipertensivo nei pazienti con diabete ha come obiettivo il raggiungimento di valori di pressione sistolica <140mmHg. (**I A**).
- ❑ In alcune categorie di pazienti (recente diagnosi di ipertensione, giovani, elevato rischio di ictus, pazienti con albuminuria, e uno o più fattori di rischio cardiovascolare aggiuntivi) obiettivo da raggiungere PA sistolica <130mmHg. (**VI C**).
- ❑ Obiettivo <130/80mmHg è raccomandato nei soggetti con diabete con micro e macroalbuminuria. (**III B**).

IPERTENSIONE ARTERIOSA

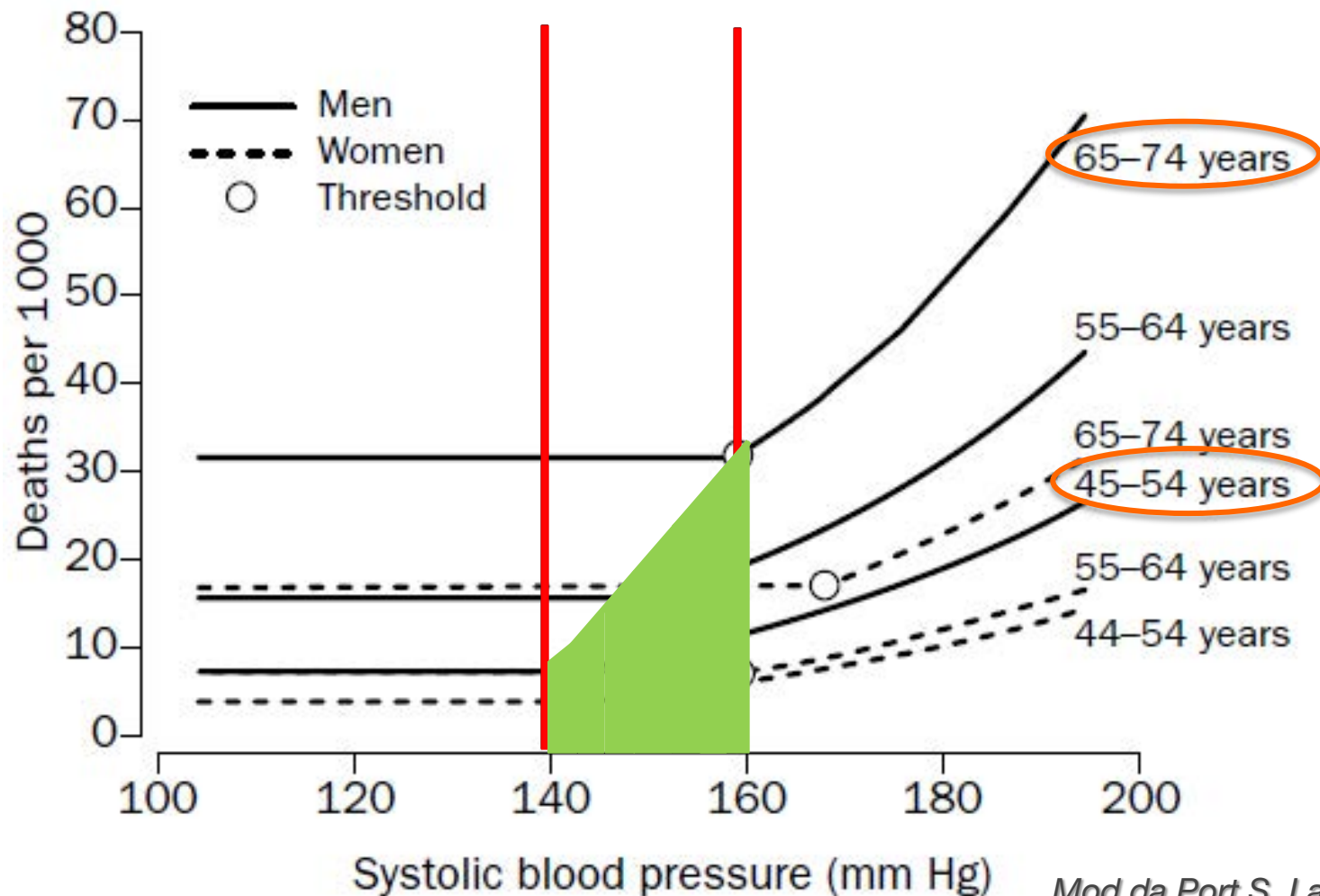
ANZIANI

- ❑ Nei soggetti con diabete anziani obiettivo $<150/90$ mmHg se ben tollerato (**I A**).
- ❑ Dato che i soggetti in età avanzata possono manifestare una scarsa tolleranza alla riduzione dei valori pressori, il trattamento dovrebbe essere instaurato e titolato gradualmente. (**VI B**).

Framingham study

mortalità in relazione all'età e alla PA

La soglia di PA sistolica alla quale si assiste ad un incremento della mortalità, in funzione dell'aumento della PA, aumenta con l'aumentare dell'età

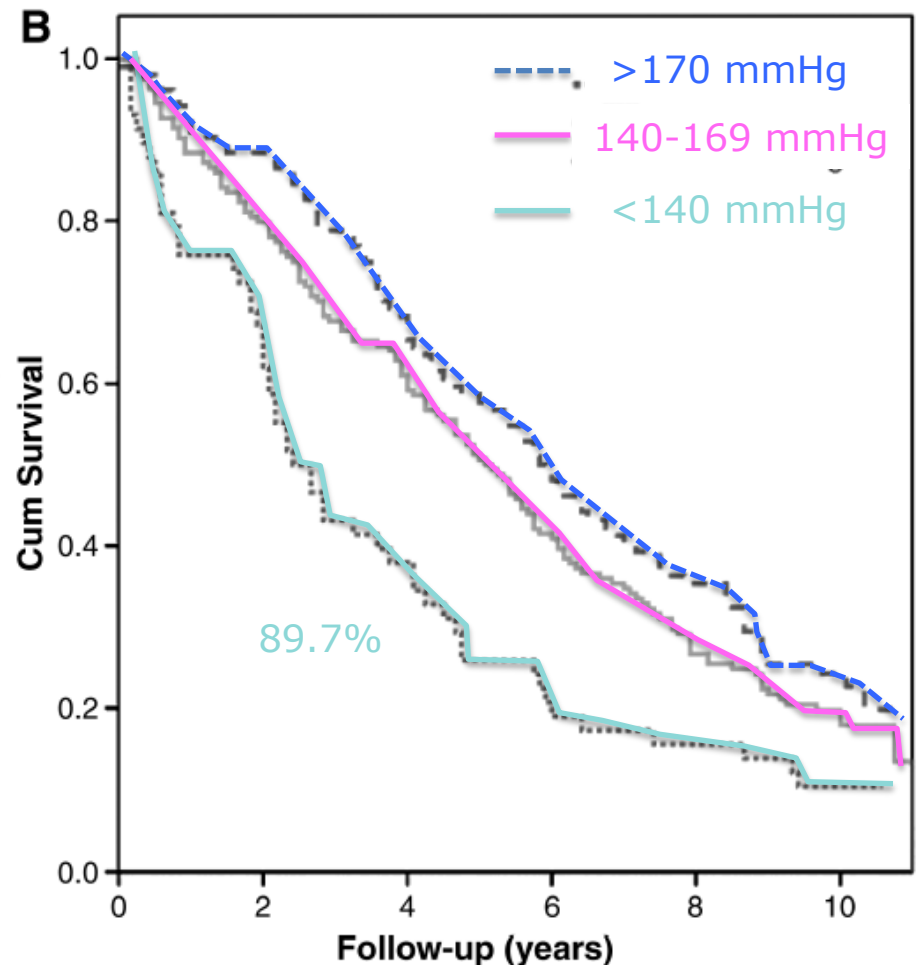
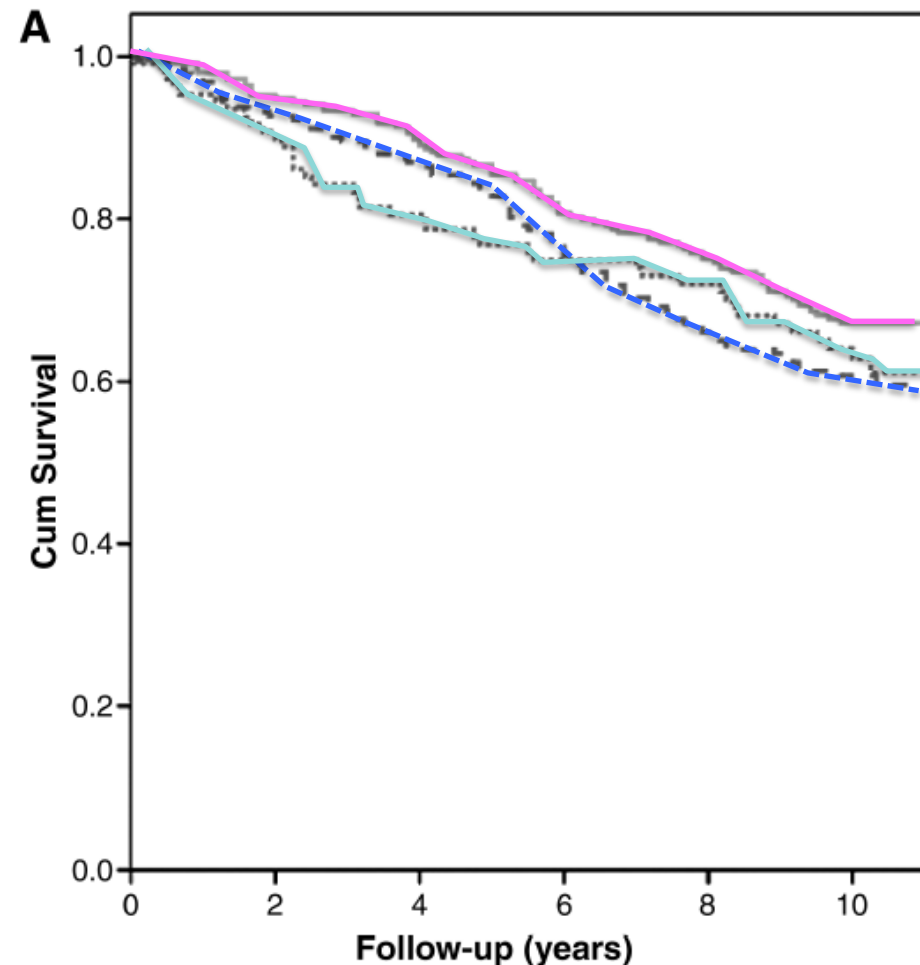


ANZIANO

Ridurre la PA <140mmHg aumenta la mortalità (ZODIAC-12)

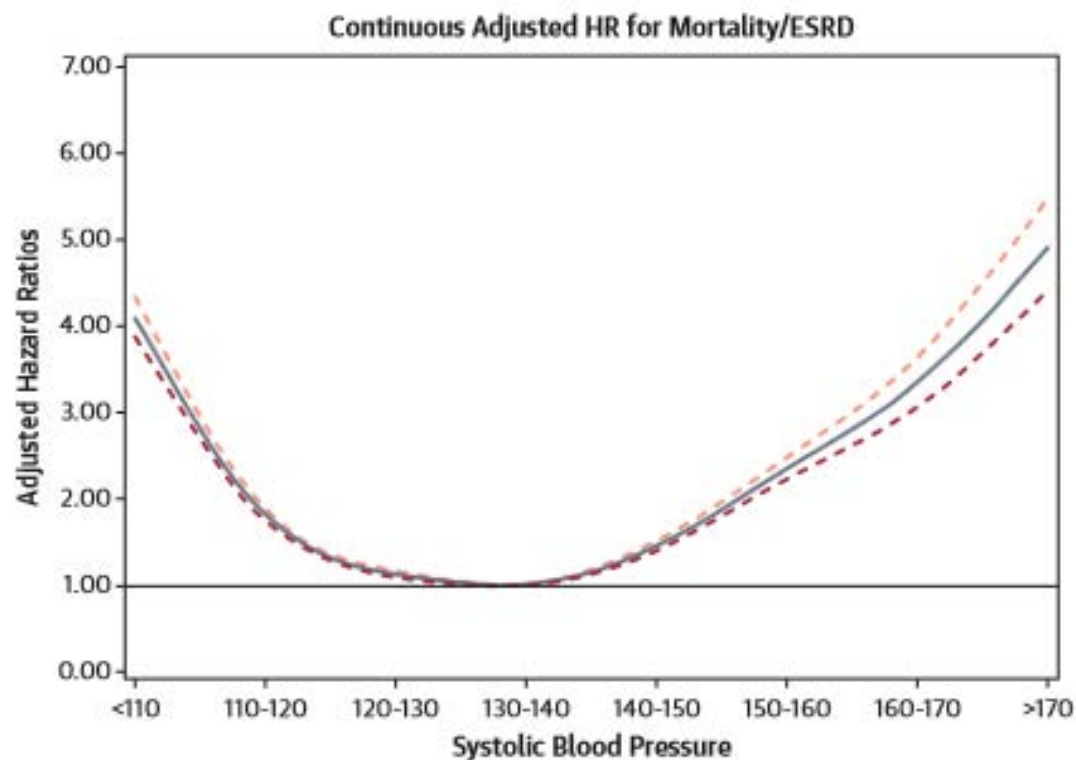
60-75 years

>75 years

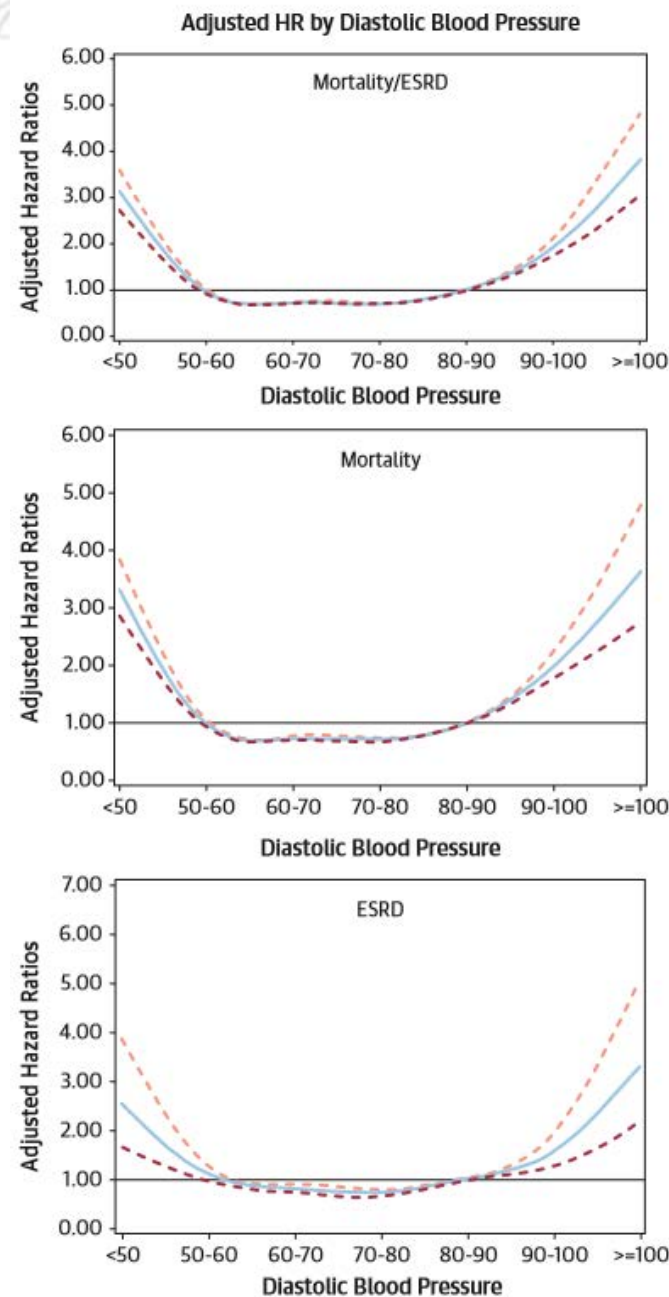


Impact of Achieved Blood Pressures on Mortality and End-Stage Renal Disease Among a Large, Diverse Hypertension Population

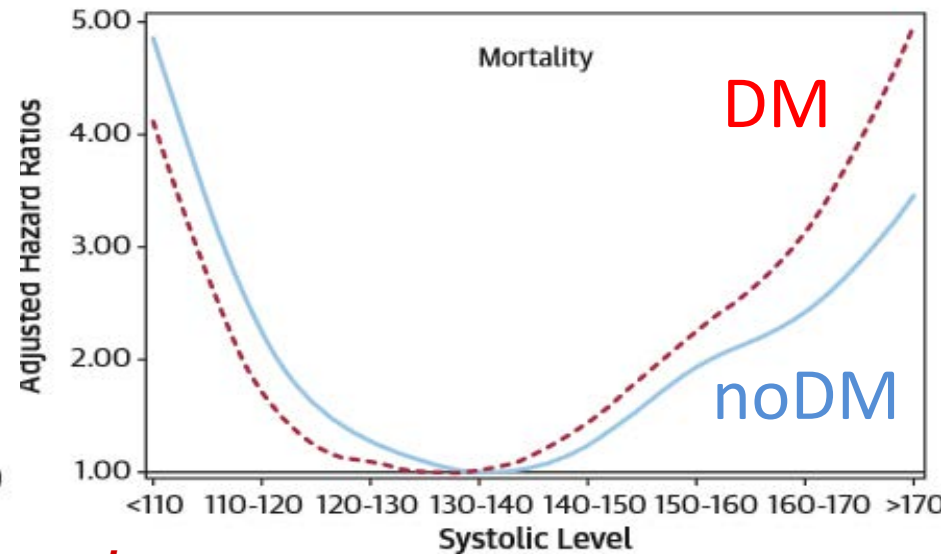
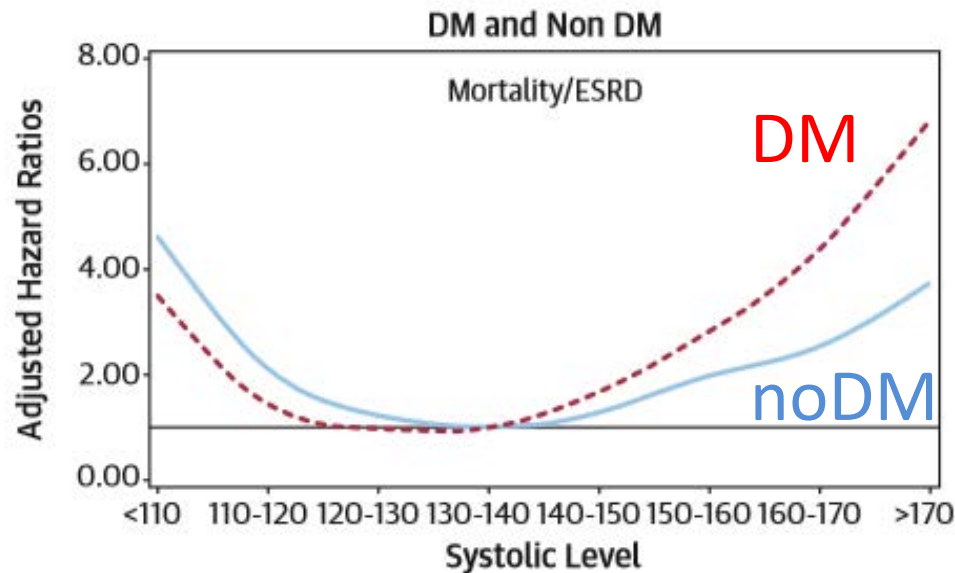
*Soggetti ipertesi in terapia, intervalli di pressione che si associano ad un minore rischio di morte o di ESRD:
sistolica 130-140 mmHg diastolica 60-80 mmHg*



Systolic BP 130 to 139 mmHg was associated with the lower risk.
Diastolic BP 60 to 79 mmHg was associated with the lowest risk.
The nadir sBP and dBP for the lowest risk were 137 and 71 mmHg.
The nadir sBP and dBP for the lowest risk was 131 and 69 mmHg, in DM



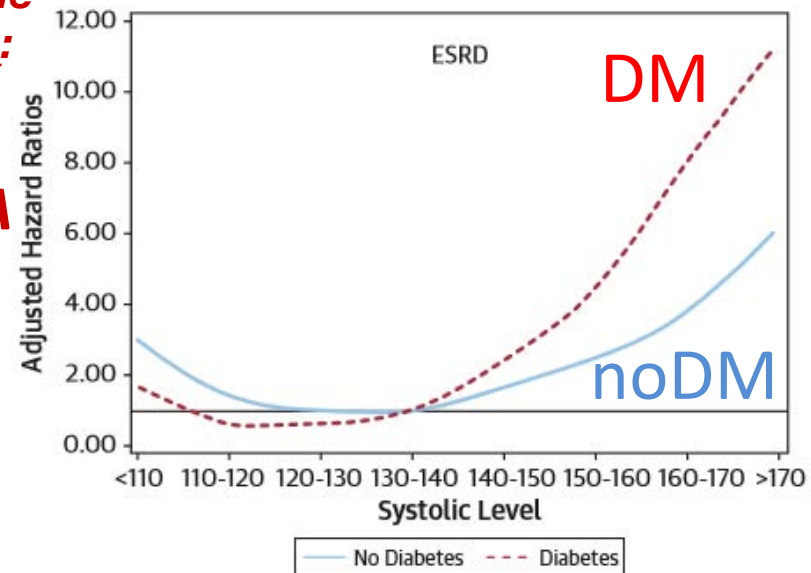
Impact of Achieved Blood Pressures on Mortality and End-Stage Renal Disease Among a Large, Diverse Hypertension Population



Soggetti ipertesi in terapia, intervalli di pressione che si associano ad un minore rischio di morte o di ESRD: sistolica 130-140 mmHg diastolica 60-80 mmHg

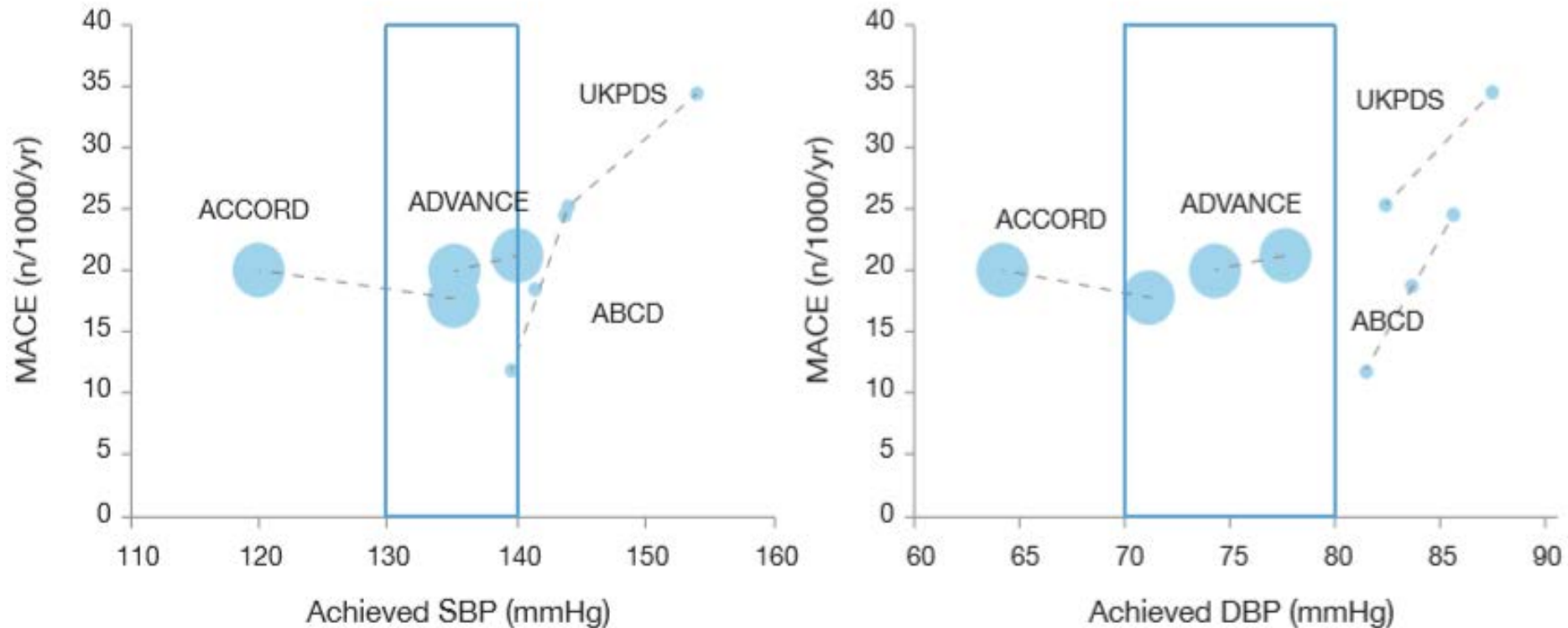
INDIPENDENTEMENTE DALLA PRESENZA DI DIABETE

Systolic BP 130 to 139 mmHg was associated with the lower risk.
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The nadir sBP and dBP for the lowest risk were 137 and 71 mmHg.
The nadir sBP and dBP for the lowest risk was 131 and 69 mmHg, in DM



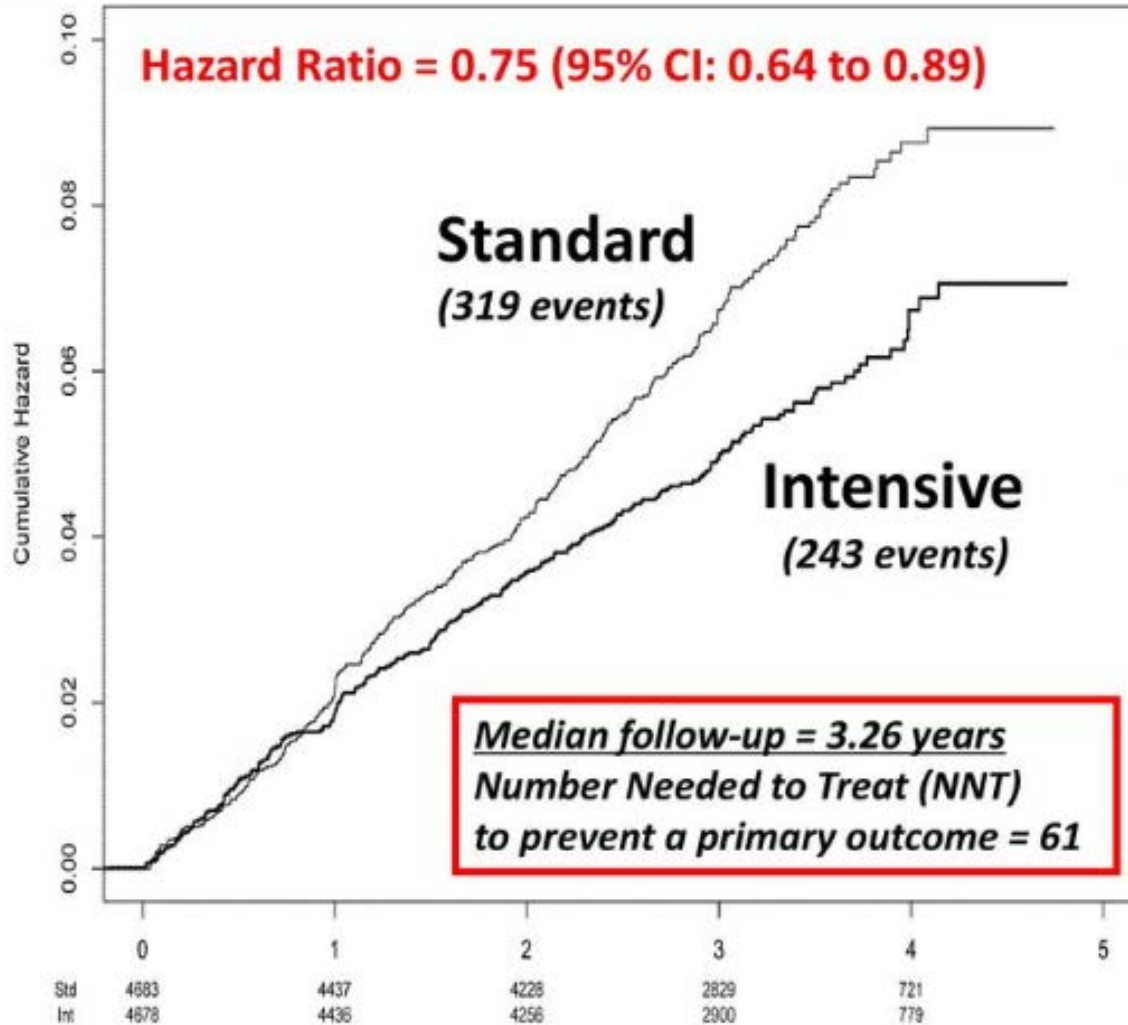
LIVELLO PRESSORI RAGGIUNTI ED EVENTI CARDIOVASCOLARI

studi ACCORD, ADVANCE, UKPDS e ABCD



Studio SPRINT

La riduzione della PAS a valori inferiori a 120mmHg determinava una riduzione significativa degli outcome primari



Endpoint primario: infarto del miocardio, sindrome coronarica acuta, ictus, scompenso cardiaca, morte per cause cardiovascolari

Pz non diabetici

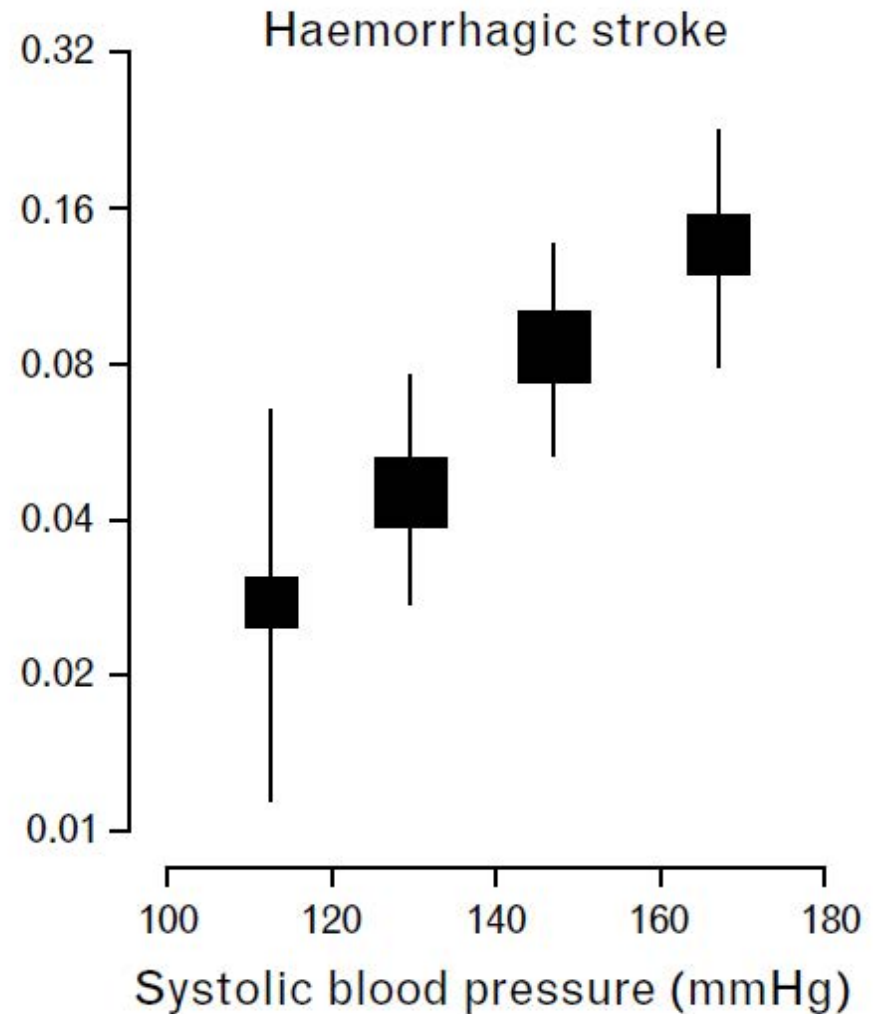
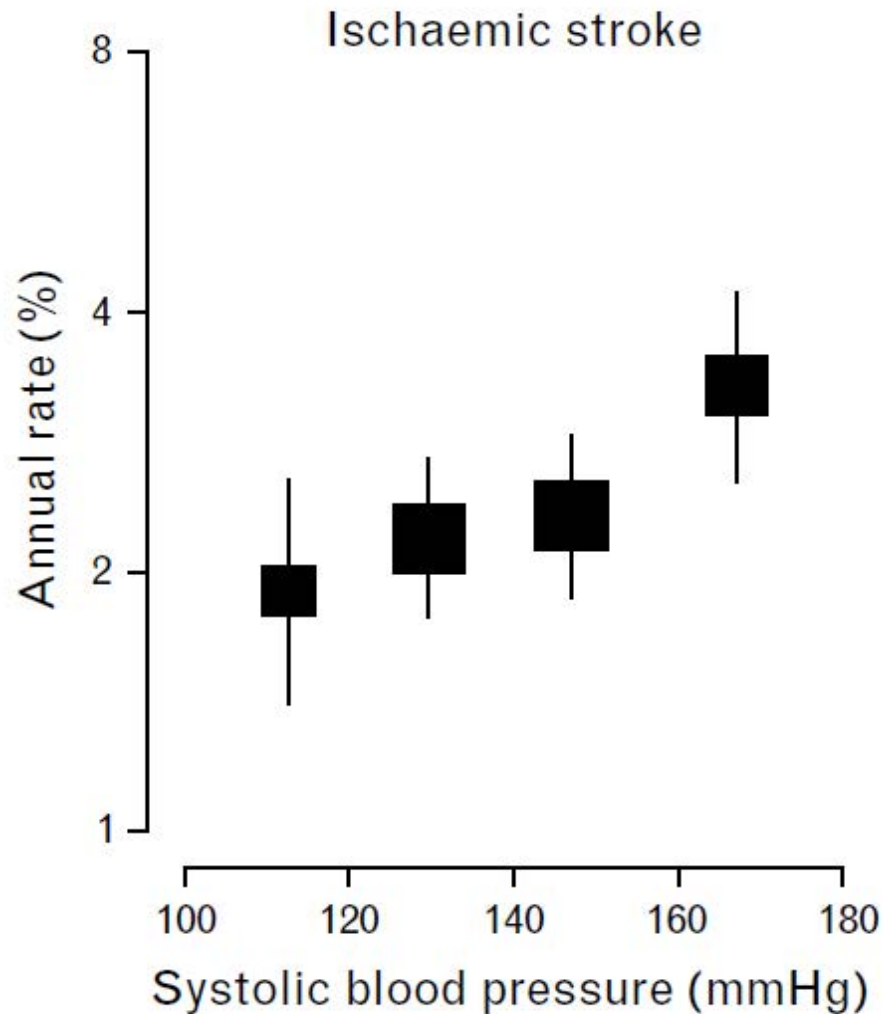
Ad un anno:

Braccio in tp intensiva
PAS media 121,4 mmHg

Braccio in tp standard
PAS media 136,2 mmHg

Studio PROGRESS

progressiva riduzione della recidiva di ictus anche per
 $PAS < 115 \text{ mmHg}$ in assenza di curva J



ORIGINAL RESEARCH

Age-Specific Associations Between
Systolic Blood Pressure and Cardiovascular
Disease: A 10-Year Diabetes Mellitus Cohort
Study

J Am Heart Assoc. 2020;9

OBIETTIVO: nella persona con diabete studiare l'associazione tra la PAS e il CVD nelle diverse fasce d'età

180.492 adulti

follow-up di 9,3 anni

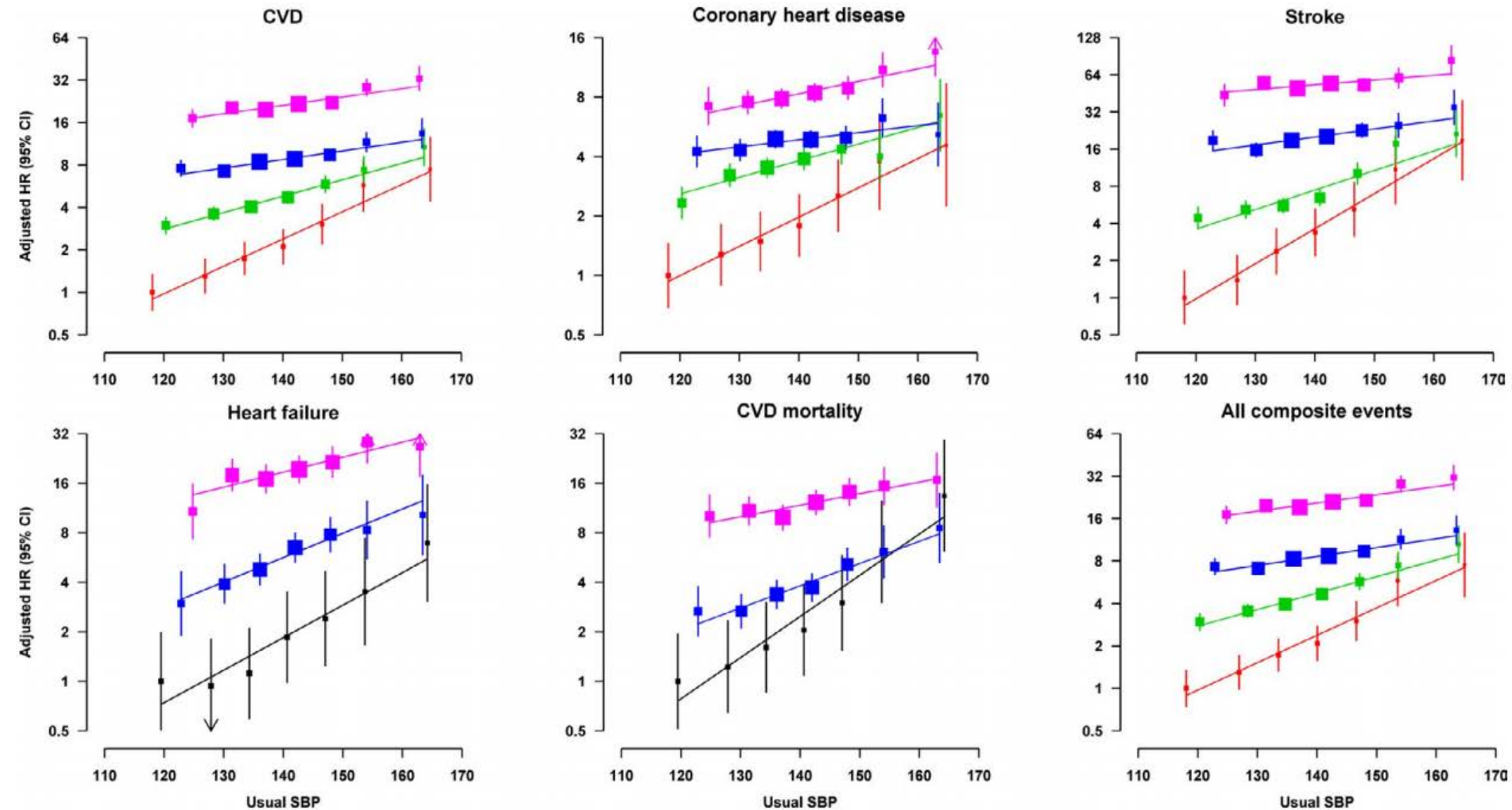
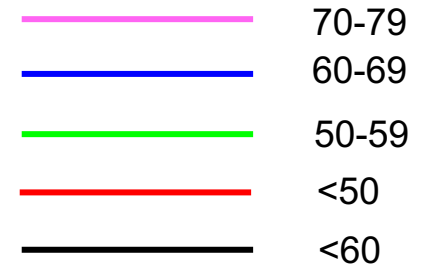
32.545 eventi

ORIGINAL RESEARCH

Age-Specific Associations Between Systolic Blood Pressure and Cardiovascular Disease: A 10-Year Diabetes Mellitus Cohort Study

J Am Heart Assoc. 2020;9

Età (anni)



Mortality in Individuals Aged 80 and Older with Type 2 Diabetes Mellitus in Relation to Glycosylated Hemoglobin, Blood Pressure, and Total Cholesterol

Shota Hamada, DrPH,* and Martin C. Gulliford, MA*†

J Am Geriatr Soc 64:1425– 1431, 2016

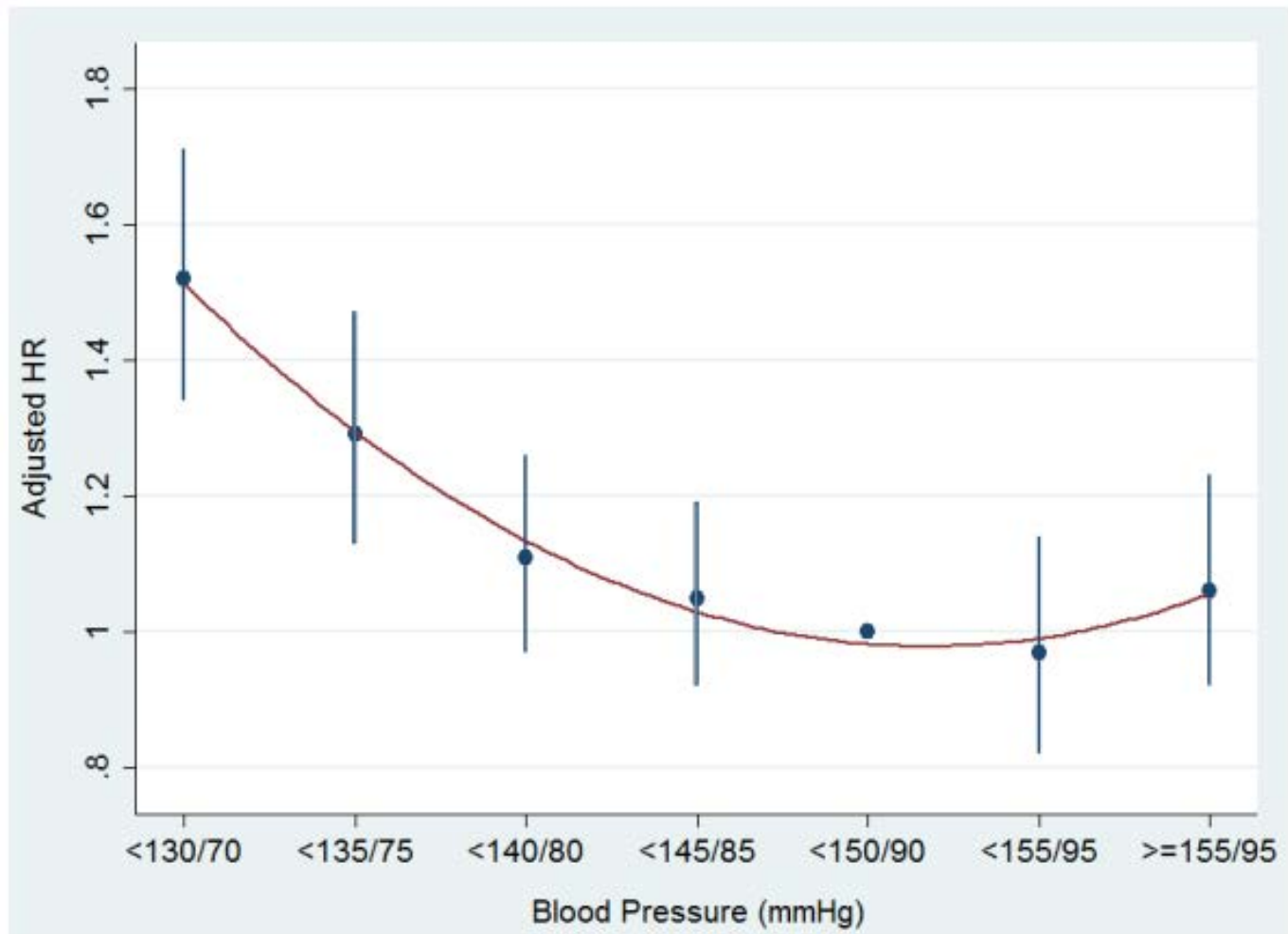
Table 3. Associations Between Glycosylated Hemoglobin (HbA1c), Blood Pressure, and Total Cholesterol and All-Cause Mortality (N = 25,966)

Factor	Deaths, n/N	%	Mortality (1,000 Person-Years)	Unadjusted	Adjusted
				Hazard Ratio (95% Confidence Interval)	P-Value
HbA1c, % (mmol/mol)					
<6.0 (<42)	301/1,387	21.7	134.9	1.21 (1.03–1.42) .02	1.04 (0.88–1.23) .67
6.0–6.4 (42–47)	506/2,976	17.0	102.1	0.92 (0.80–1.05) .21	0.91 (0.79–1.05) .19
6.5–6.9 (48–52)	1,081/7,463	14.5	85.6	0.77 (0.68–0.87) <.001	0.84 (0.74–0.96) .009
7.0–7.4 (53–57)	648/4,700	13.8	80.9	0.72 (0.63–0.83) <.001	0.80 (0.70–0.91) .001
7.5–7.9 (58–63)	453/2,777	16.3	98.6	0.88 (0.77–1.02) .09	0.90 (0.79–1.04) .15
8.0–8.4 (64–68)	324/1,780	18.2	111.5	Reference	Reference
≥8.5 (≥69)	641/3,006	21.3	133.1	1.20 (1.05–1.37) .009	1.04 (0.91–1.19) .55
Missing	536/1,877	28.6	195.9	1.76 (1.53–2.02) <.001	1.01 (0.86–1.19) .88
Blood pressure, mmHg					
<130/70	982/4,116	23.9	151.7	1.89 (1.67–2.13) <.001	1.52 (1.34–1.72) <.001
≥130/70 & <135/75	815/4,416	18.5	112.3	1.40 (1.23–1.58) <.001	1.30 (1.14–1.48) <.001
≥135/75 & <140/80	719/4,749	15.1	90.3	1.12 (0.99–1.27) .08	1.11 (0.97–1.27) .13
≥140/80 & <145/85	685/4,746	14.4	85.6	1.06 (0.93–1.21) .35	1.09 (0.95–1.24) .23
≥145/85 & <150/90	349/2,534	13.8	80.5	Reference	Reference
≥150/90 & <155/95	231/1,717	13.5	80.3	1.00 (0.85–1.18) .98	0.97 (0.82–1.14) .70
≥155/95	419/2,663	15.7	94.0	1.17 (1.01–1.35) .03	1.05 (0.91–1.22) .49
Missing	290/1,025	28.3	191.2	2.38 (2.04–2.78) <.001	1.38 (1.18–1.61) <.001
Total cholesterol, mmol/L					
<3.0	455/2,033	22.4	138.7	1.58 (1.39–1.80) <.001	1.42 (1.24–1.64) <.001
3.0–3.4	630/3,857	16.3	97.6	1.11 (0.99–1.25) .08	1.15 (1.02–1.29) .02
3.5–3.9	787/5,247	15.0	89.2	1.02 (0.91–1.14) .78	1.08 (0.96–1.21) .20
4.0–4.4	728/4,666	15.6	92.9	1.06 (0.94–1.19) .33	1.16 (1.03–1.30) .01
4.5–4.9	468/3,158	14.8	87.7	Reference	Reference
5.0–5.4	276/1,822	15.1	90.6	1.03 (0.89–1.20) .67	1.00 (0.85–1.16) .96
≥5.5	347/2,288	15.2	91.4	1.04 (0.91–1.20) .56	0.99 (0.86–1.13) .85
Missing	799/2,895	27.6	185.9	2.12 (1.89–2.38) <.001	1.40 (1.22–1.60) <.001

Mortality in Individuals Aged 80 and Older with Type 2 Diabetes Mellitus in Relation to Glycosylated Hemoglobin, Blood Pressure, and Total Cholesterol

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J Am Geriatr Soc 64:1425– 1431, 2016



Ipertensione nel Diabete

Controllo pressorio ottimale per ogni età?

Nella persona con diabete gli stessi valori di PA hanno un diverso impatto sul rischio cardiovascolare in funzione dell'età del paziente

I benefici sul rischio cardiovascolare di obiettivi pressori ambiziosi si riducono progressivamente con l'aumentare dell'età

Nell'anziano raggiungere valori di PA particolarmente bassi può aumentare il rischio cardiovascolare



2019 ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD

Recommendations for the management of blood pressure in patients with diabetes and pre-diabetes

Recommendations	Class ^a	Level ^b
Treatment targets		



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Recommendations for the management of blood pressure in patients with diabetes and pre-diabetes

Recommendations	Class ^a	Level ^b
Treatment targets		
Antihypertensive drug treatment is recommended for people with DM when office BP is >140/90 mmHg. ^{155,178–180}	I	A



2019 ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD

Recommendations for the management of blood pressure in patients with diabetes and pre-diabetes

Recommendations	Class ^a	Level ^b
Treatment targets		
Antihypertensive drug treatment is recommended for people with DM when office BP is >140/90 mmHg. ^{155,178–180}	I	A
It is recommended that patients with hypertension and DM are treated in an individualized manner. The BP goal is to target SBP to 130 mmHg and <130 mmHg if tolerated, but not <120 mmHg. In older people (aged >65 years), the SBP goal is to a range of 130–139 mmHg. ^{155,159,160,181–183}	I	A

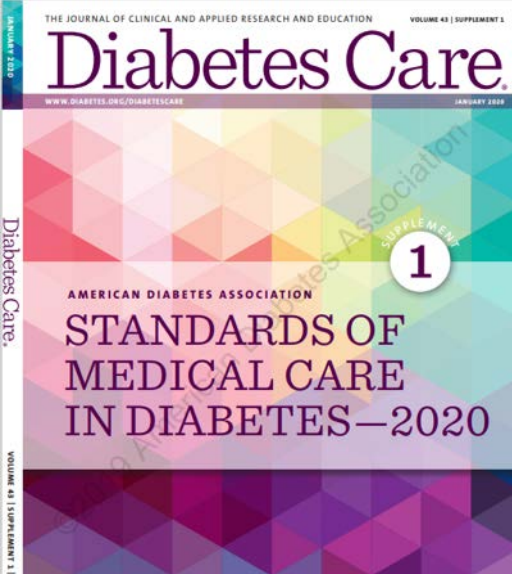
2020 International Society of Hypertension Global Hypertension Practice Guidelines



Diabete

La pressione arteriosa deve essere ridotta se $\geq 140 / 90$ mmHg e trattata a un target $< 130 / 80$ mmHg

PA $< 140 / 80$ nei pazienti anziani



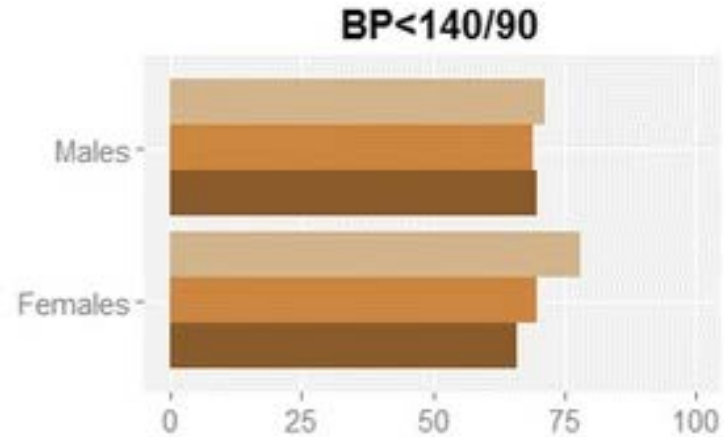
Recommendations

- 10.3** For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses cardiovascular risk, potential adverse effects of antihypertensive medications, and patient preferences. **C**
- 10.4** For individuals with diabetes and hypertension at higher cardiovascular risk (existing atherosclerotic cardiovascular disease [ASCVD] or 10-year ASCVD risk $\geq 15\%$), a blood pressure target of $<130/80$ mmHg may be appropriate, if it can be safely attained. **C**
- 10.5** For individuals with diabetes and hypertension at lower risk for cardiovascular disease (10-year atherosclerotic cardiovascular disease risk $<15\%$), treat to a blood pressure target of $<140/90$ mmHg. **A**

DM2

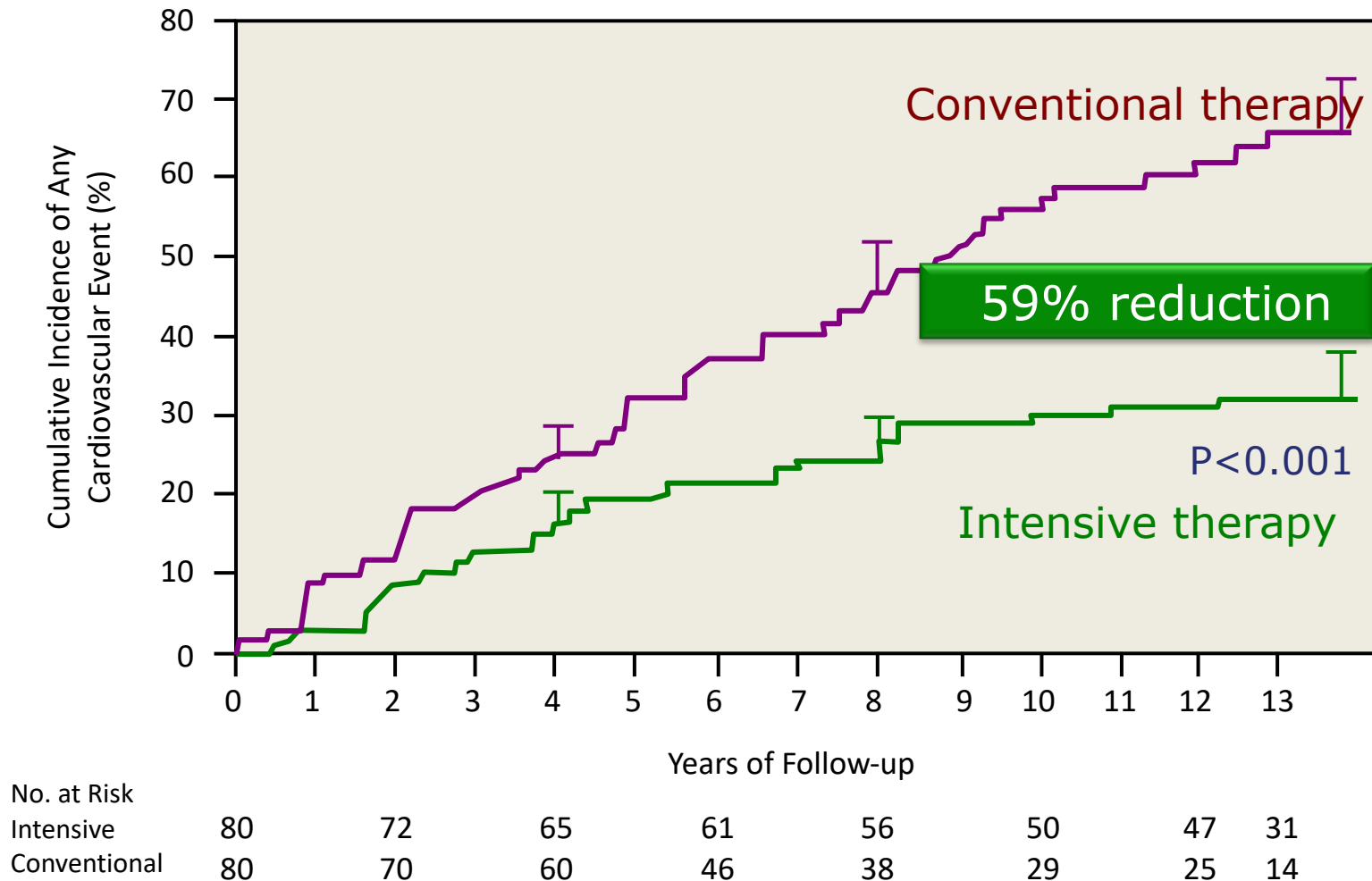
target raggiunti: HbA1c BP LDL

n 32638



age  <65  65-75  >75

Multi-factorial Intervention and CVD in Patients with Type 2 Diabetes: Long-term Follow-up STENO study



La CVD nel pz con diabete tipo 2 ha una genesi multifattoriale

DIABETE =

Ipertensione



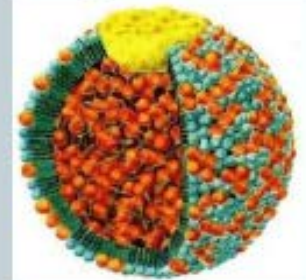
Iperglicemia



Obesità



Dislipidemia



**Malattia
cardiovascolare**



Grazie per l'attenzione