

## CONTROLLO OTTIMALE DELLA PRESSIONE ARTERIOSA

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2° Corso Interattivo di Aggiornamento  
sulla "Ipertensione Arteriosa"  
IL DANNO D'ORGANO  
Foligno, 23-24 Ottobre 2003

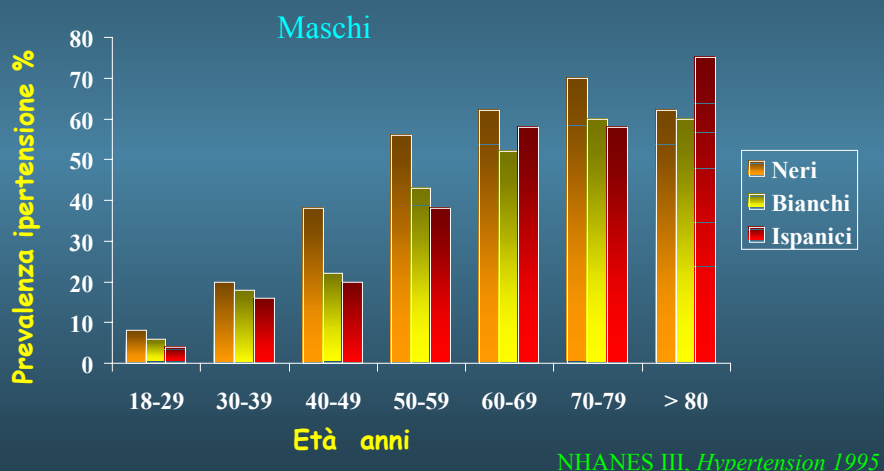
Da oltre cento anni, da quando  
l'ipertensione fu chiaramente distinta  
dalla Malattia di Bright, si discute sul  
livello di pressione arteriosa da  
considerare patologico

- “ Non esiste una vera demarcazione. Quanto più è elevata la pressione, tanto peggiore è la prognosi “ *Pickering 1972*
- “L'ipertensione è il livello al quale i benefici dell'intervento superano quelli dell'astensione “ *Rose 1980*

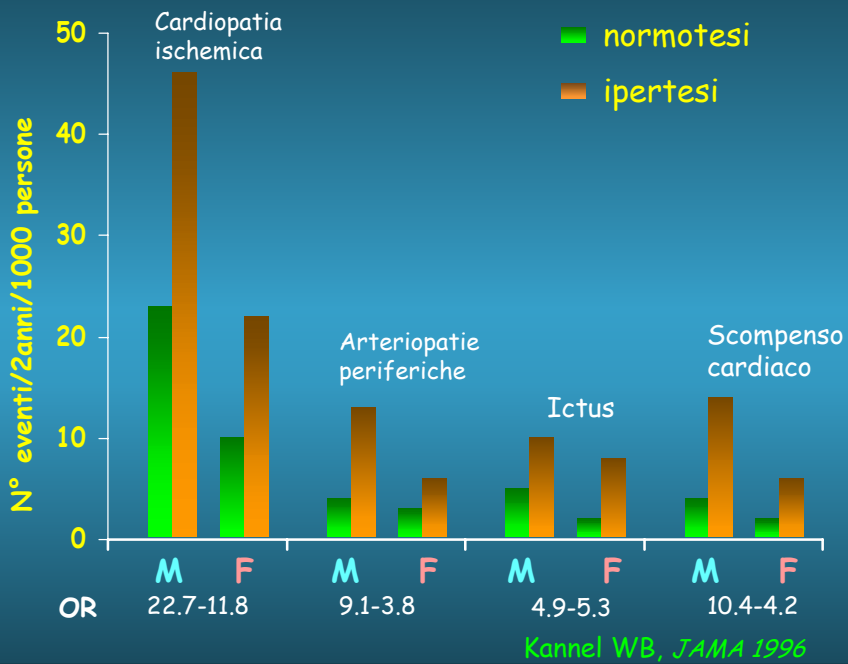
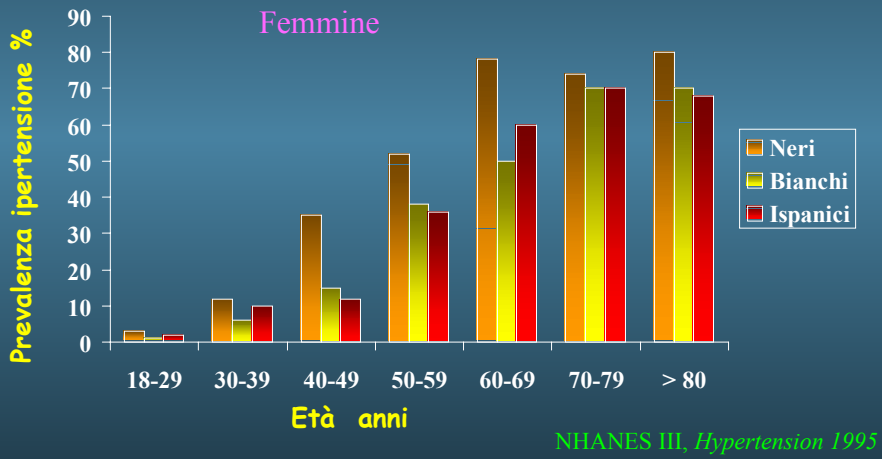
“ L'Ipertensione arteriosa è il livello di pressione per il quale i benefici (meno i rischi ed i costi) dell'azione sono superiori ai rischi e ai costi (meno i benefici) dell'astensione “

*Kaplan 1998*

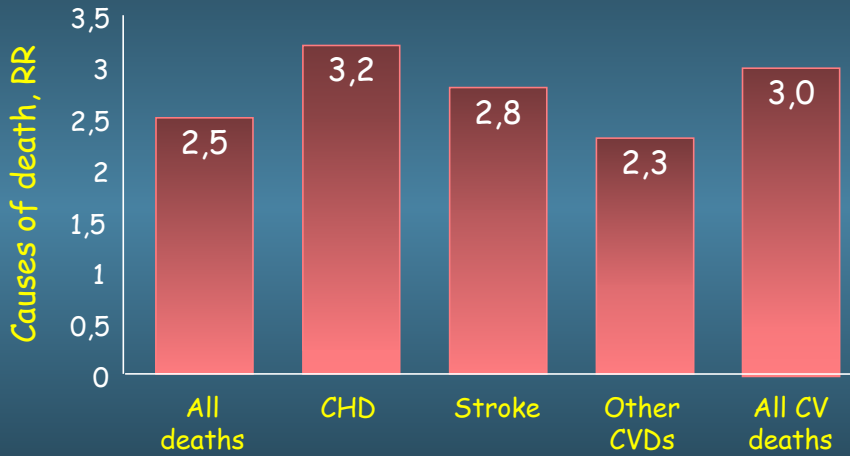
## Prevalenza di ipertensione arteriosa in rapporto ad età e razza negli USA



## Prevalenza di ipertensione arteriosa in rapporto ad età e razza negli USA

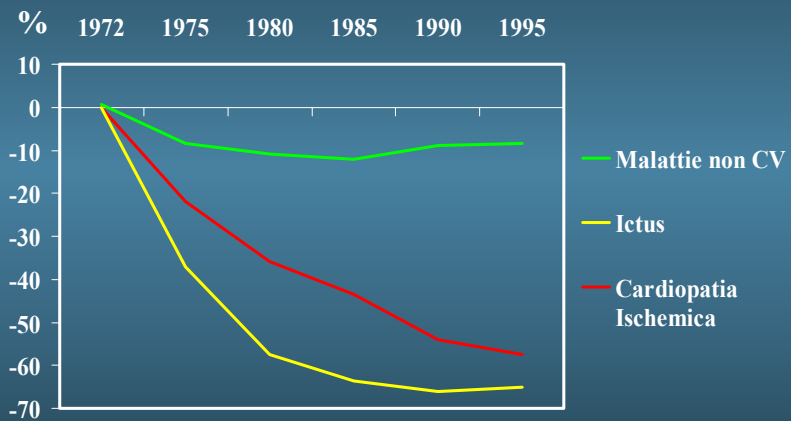


## Multiple Risk Factor Intervention Trial



Stamler J. et al., Diabetes Care, 1993

## Riduzione percentuale dei tassi di mortalità corretti per l'età negli USA



National Center for Health Statistics, 1997

## Trials exploring the optimal drug

*Trials comparing more intensive and less intensive blood pressure lowering strategies*

## Prospectively designed overviews of randomised trials

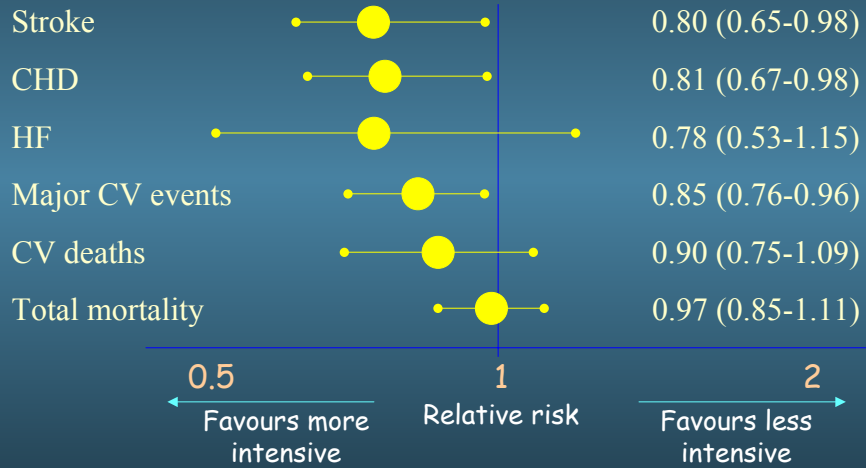
Trials comparing more intensive and less intensive blood pressure lowering strategies



	SBP	DBP	follow-up
ABCD-hypert	-6	-8	5
HOT	-3	-3	4
UKPDS-HDS	-10	-5	8

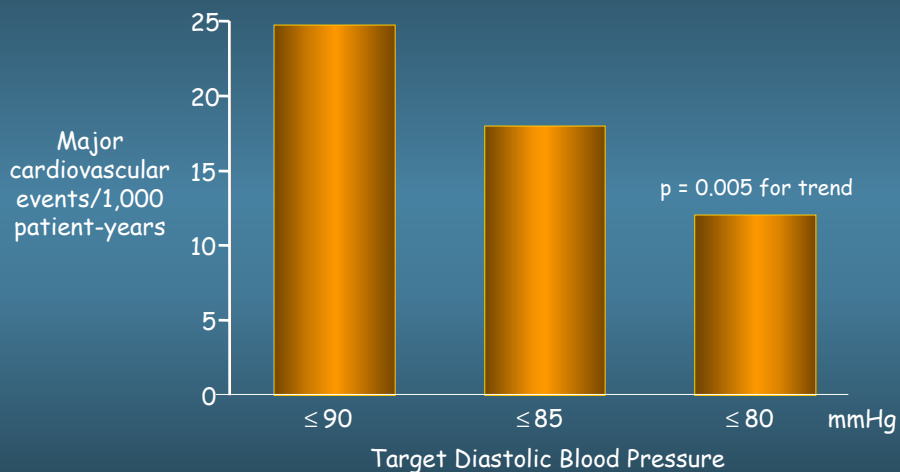
Blood Pressure Lowering Treatment Trialists' Collaboration, The Lancet, 356, 2000

### Prospectively designed overviews of randomised trials Trials comparing more intensive and less intensive blood pressure lowering strategies



Blood Pressure Lowering Treatment Trialists' Collaboration, *The Lancet*, 356, 2000

### HOT Study: Significant Benefit from Intensive Treatment in the Diabetic Subgroup




Hansson L et al. *Lancet* 1998;351:1755-1762.

## Trials exploring the optimal drug

*Trials comparing active treatment and placebo*

## Prospectively designed overviews of randomised trials

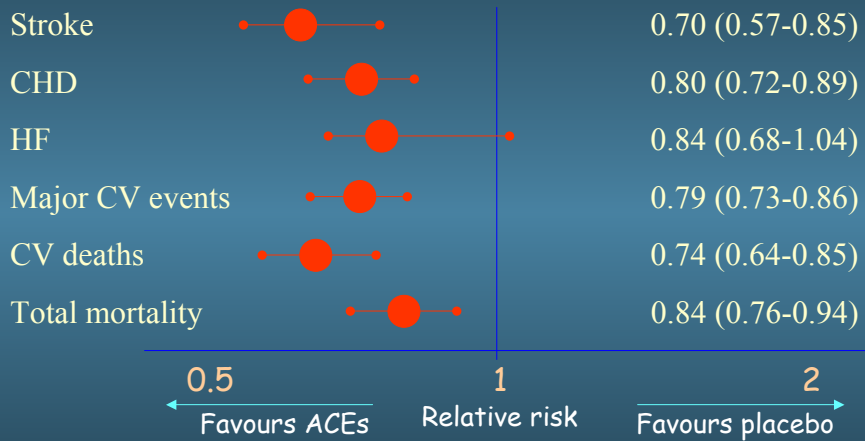
ACE-inhibitor-based therapy vs placebo



	SBP	DBP	follow-up
HOPE	-3	-1	5
PART2	-6	-4	4
QUIET	---	---	2
SCAT	-4	-3	5

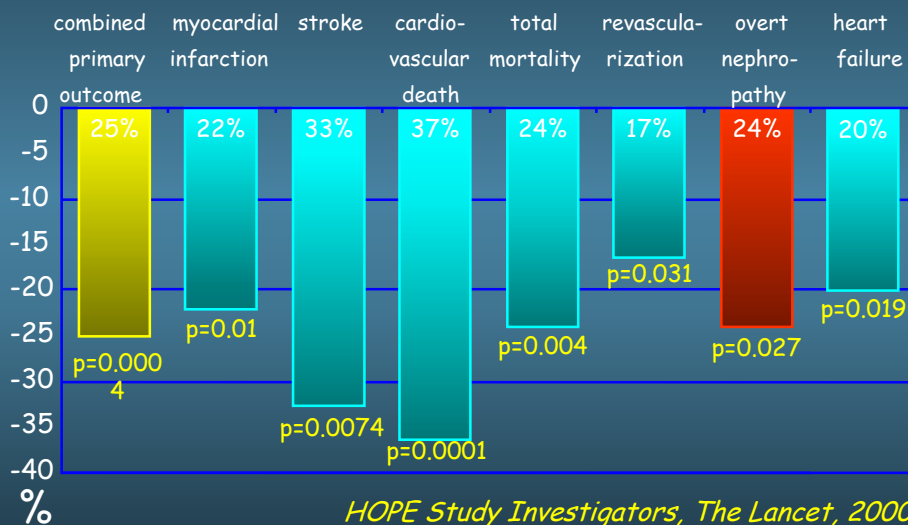
Blood Pressure Lowering Treatment Trialists' Collaboration, The Lancet, 356, 2000

### Prospectively designed overviews of randomised trials ACE-inhibitor-based therapy vs placebo



Blood Pressure Lowering Treatment Trialists' Collaboration, *The Lancet*, 356, 2000

### Effects of ramipril on cardiovascular and microvascular outcomes in people with diabetes mellitus: results of the HOPE study and MICRO-HOPE substudy.



HOPE Study Investigators, *The Lancet*, 2000



## Prospectively designed overviews of randomised trials

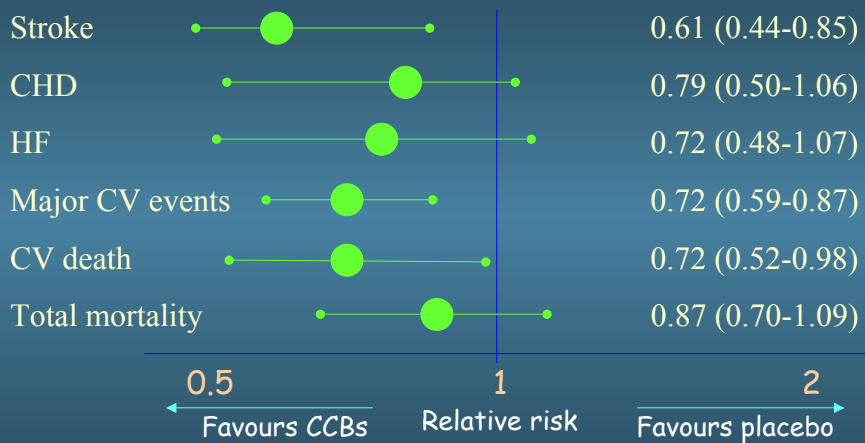
### Calcium-antagonist-based therapy vs placebo

	SBP	DBP	follow-up
PREVENT	-5	-4	3
SYST-EUR	-10	-5	2

Blood Pressure Lowering Treatment Trialist' Collaboration, The Lancet, 356, 2000

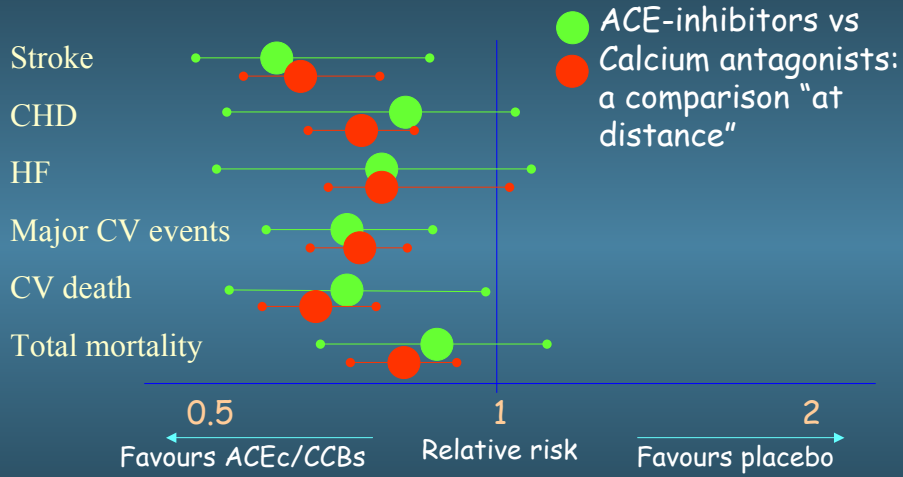
## Prospectively designed overviews of randomised trials

### Calcium-antagonist-based therapy vs placebo



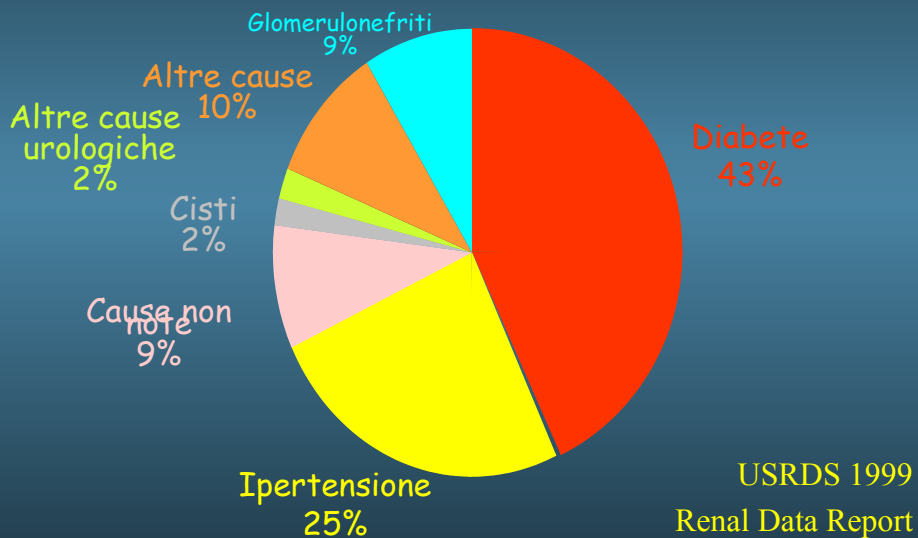
Blood Pressure Lowering Treatment Trialist' Collaboration, The Lancet, 356, 2000

### Prospectively designed overviews of randomised trials



Blood Pressure Lowering Treatment Trialists' Collaboration, The Lancet, 356, 2000

### Cause principali di nuovi casi di ESRD negli USA (1997)



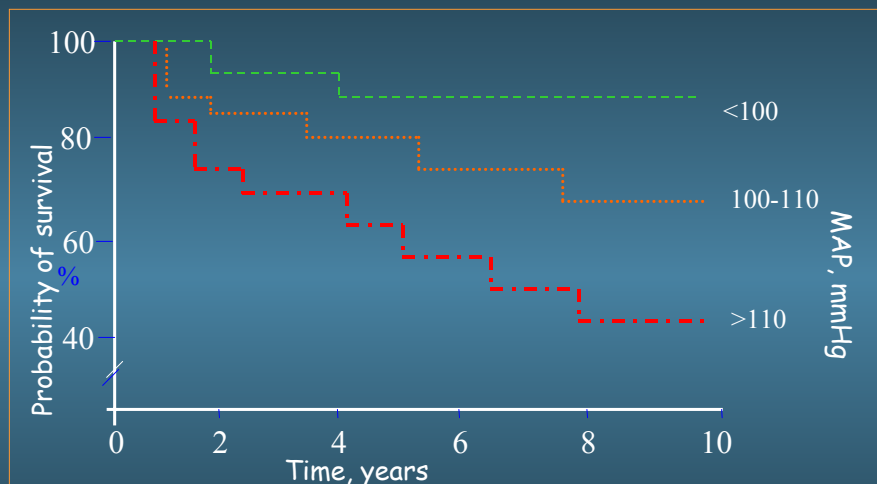
## Ruolo dell'ipertensione arteriosa nel determinare il danno renale

Ipertensione arteriosa (stadio III)

Ipertensione arteriosa (stadio I- II)

Ben documentato

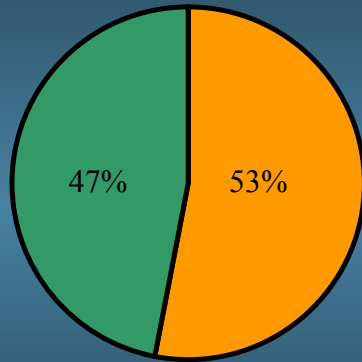
Fino a 10 anni fa prevaleva l'idea che fosse una situazione innocua per il rene



Renal survival probability in 423 patients with non diabetic renal disease and chronic renal failure

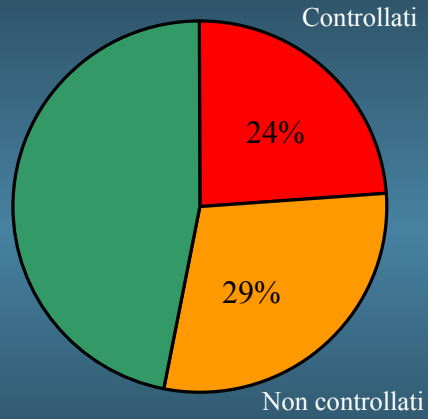
*Oldrizzi L, Am J Kidney Dis 1993*

### % Ipertesi in Trattamento



■ Non trattati ■ Trattati

### % Ipertesi Controllati



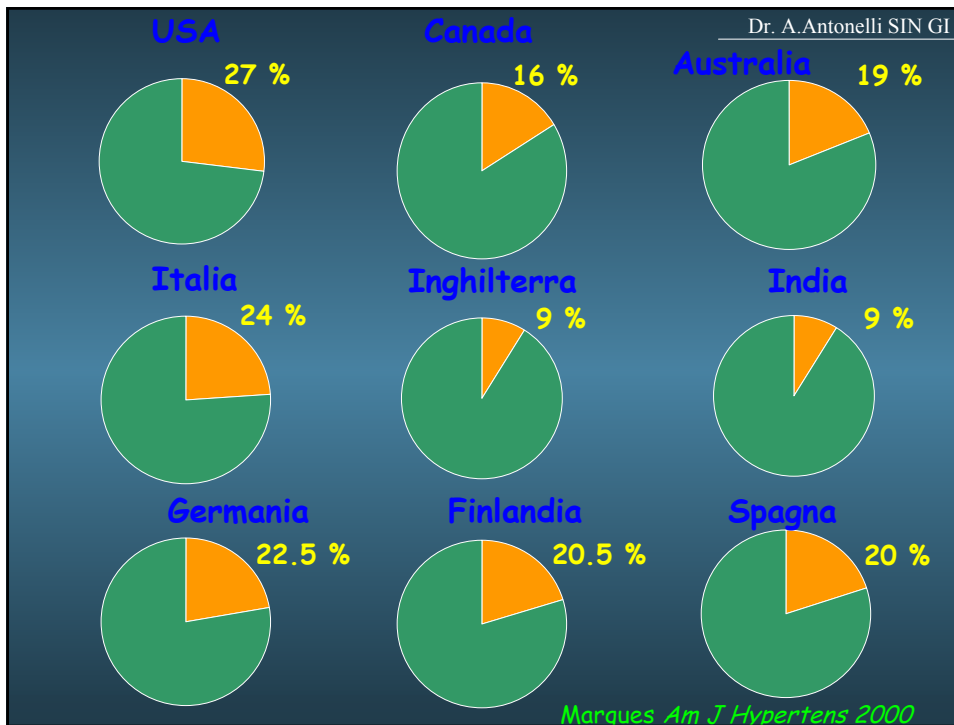
Burt et al; *Hypertension* 95

Qual' è la prevalenza del controllo ottimale dell'ipertensione arteriosa in Italia ?

1 - 50%

2 - 32%

3 - 24%



Dr. A. Antonelli SIN GI

### Stratification of Risk to Quantify Prognosis

*1999 WHO-ISH Guidelines for the Management of Hypertension*

Other Risk Factors & Disease History	Grade 1 (mild) <i>SBP 140-159 or DBP 90-99</i>	Grade 2 (moderate) <i>SBP 160-179 or DBP 100-109</i>	Grade 3 (severe) <i>SBP ≥180 or DBP ≥110</i>
I. no other risk factors	LOW RISK	MED RISK	HIGH RISK
II. 1-2 risk factors	MED RISK	MED RISK	V HIGH RISK
III. 3 or more risk factors or TOD or diabetes	HIGH RISK	HIGH RISK	V HIGH RISK
IV. ACC	V HIGH RISK	V HIGH RISK	V HIGH RISK

TOD - Target Organ Damage  
ACC - Associated Clinical Conditions, including clinical CVD or renal disease

## Stratification of Risk to Quantify Prognosis

1999 WHO-ISH Guidelines for the Management of Hypertension

Other Risk Factors & Disease History	Grade 1 (mild) SBP 140-159 or DBP 90-99	Grade 2 (moderate) SBP 160-179 or DBP 100-109	Grade 3 (severe) SBP $\geq$ 180 or DBP $\geq$ 110
I. no other risk factors	Lifestyle 12	Drug therapy	Drug therapy
II. 1-2 risk factors	Lifestyle 6	Drug therapy	Drug therapy
III. 3 or more risk factors or TOD or diabetes	Drug therapy	Drug therapy	Drug therapy
IV. ACC	Drug therapy	Drug therapy	Drug therapy

TOD - Target Organ Damage  
ACC - Associated Clinical Conditions, including clinical CVD or renal disease

## Stratification of Risk to Quantify Prognosis

1999 WHO-ISH Guidelines for the Management of Hypertension

Other Risk Factors & Disease History	High-Normal SBP 130-139 DBP 85-89	Grade 1 (mild) SBP 140-159 or DBP 90-99	Grade 2 (moderate) SBP 160-179 or DBP 100-109	Grade 3 (severe) SBP $\geq$ 180 or DBP $\geq$ 110
I. no other risk factors	Lifestyle	Lifestyle 12	Drug therapy	Drug therapy
II. 1-2 risk factors	Lifestyle	Lifestyle 6	Drug therapy	Drug therapy
III. 3 or more risk factors or TOD or diabetes	Drug therapy	Drug therapy	Drug therapy	Drug therapy
IV. ACC	Drug therapy	Drug therapy	Drug therapy	Drug therapy

TOD - Target Organ Damage  
ACC - Associated Clinical Conditions, including clinical CVD or renal disease

## Stratification of Risk to Quantify Prognosis

*European Society of Hypertension Guidelines 2003*

Altri fattori di rischio e anamnesi	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 $\geq 180$ DBP $\geq 110$
I. no other risk factors	RANGE RISK	RANGE RISK	LOW RISK	MED RISK	HIGH RISK
II. 1-2 risk factors	LOW RISK	LOW RISK	MED RISK	MED RISK	V HIGH RISK
III. 3 or more risk factors or TOD or diabetes	MED RISK	HIGH RISK	HIGH RISK	HIGH RISK	V HIGH RISK
IV ACC	HIGH RISK	V HIGH RISK	V HIGH RISK	V HIGH RISK	V HIGH RISK

TOD - Target Organ Damage

ACC - Associated Clinical Conditions, including clinical CVD or renal disease

		Soglia di intervento		Obiettivi del trattamento	
		PAS	PAD	PAS	PAD
National Joint Committee VI In presenza di proteinuria >1g/24h	1997	130	85	<130 <125	<85 <75
Italian Hypertension Guidelines	1999	140	90	<130	<85
World Health Organization & International Society of Hypertens In presenza di proteinuria <1g/24h In presenza di proteinuria >1g/24h	1999	140	90	<130 <130 <125	<85 <80 <75
German Hypertension Guidelines In presenza di proteinuria >1g/24h	2002	140	90	<135 <125	<85 <75
American Diabetes Association	2002	140	90	<130	<80

## Quali sono i valori ottimali della pressione arteriosa secondo i criteri del JNC VII ?

1 - < 129/84 mmHg

2 - < 120/80 mmHg

3 - < 140/90 mmHg

## The Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure

### Classification and Management of Blood Pressure

	Normal	Pre-hypertension	Stage 1 Hypertension	Stage 2 hypertension
	SBP <120 DBP <80	SBP 120-139 DBP 80-89	SBP 140-159 DBP 90-99	SBP >159 DBP >99
<b>Lifestyle modification</b>	Encourage	Yes	Yes	Yes
<b>With compelling indications</b>		Drug(s) for the compelling indications	Drug(s) for the compelling indications	Drug(s) for the compelling indications

The JNC 7 Report, JAMA 289: 2560-2572, 2003



## The Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure

### Compelling Indications for Individual Drug Classes

High-Risk Conditions with compelling indications	Diuretic	$\beta$ -Blocker	ACE inhibitor	ARB	CCB	Aldosterone antagonist
Heart failure	●	●	●	●		●
Post-myocardial infarction		●	●			●
High coronary disease risk	●	●	●		●	
<b>DIABETES</b>	●	●	●	●	●	
Chronic kidney disease			●	●		
Recurrent stroke prevention	●		●			

The JNC 7 Report, JAMA 289: 2560-2572, 2003

## Quali dei seguenti sono fattori utilizzati per la stratificazione del rischio cardiovascolare ?

- 1 - Dislipidemia
- 2 - Abitudine al fumo
- 3 - Microalbuminuria
- 4 - Obesità addominale
- 5 - Nefropatia Diabetica
- 6 - Proteina C Reattiva

### Factors influencing prognosis

#### Risk factors for cardiovascular disease used for stratification

- Levels of systolic and diastolic BP
- Men >55 years
- Women > 65 years
- Smoking
- Dyslipidaemia  
(total cholesterol >6.5 mmol/l, >250 mg/dl,  
or LDL-cholesterol > 4.0 mmol/l, >155 mg/dl,  
or HDL-cholesterol M < 1.0, W < 1.2 mmol/l,  
M < 40, W < 45 mg/dl)
- Family history of premature cardiovascular disease  
(at age < 55 years M, < 65 years W)
- Abdominal obesity  
(abdominal circumference M > 102 cm, W > 88 cm)
- C-reactive protein >1 mg/dl

### TARGET ORGAN DAMAGE

- **Left ventricular hypertrophy**  
(electrocardiogram:  
Sokolow–Lyons .38 mm; Cornell .2440 mm<sub>ms</sub>;  
echocardiogram:  
LVMI M > 125, W > 110 g/m<sup>2</sup>)
- **Ultrasound evidence of arterial wall thickening**  
(carotid IMT > 0.9 mm) or atherosclerotic  
plaque
- **Slight increase in serum creatinine**  
(M 115–133, W 107– 124 <sub>μ</sub>mol/l;  
M 1.3–1.5, W 1.2–1.4 mg/dl)
- **Microalbuminuria**  
(30–300 mg/24 h; albumin–creatinine  
ratio M > 22, W > 31 mg/g;  
M > 2.5, W > 3.5 mg/mmol)

## Clinical Conditions Associated

- **Cerebrovascular disease:**  
ischaemic stroke;  
cerebral haemorrhage;  
transient ischaemic attack
- **Heart disease:**  
myocardial infarction;  
angina;  
coronary revascularization;  
congestive heart failure
- **Renal disease:**  
diabetic nephropathy;  
renal impairment  
(serum creatinine M >133, W>124 umol/l;M  
>1.5, W>1.4 mg/dl)  
proteinuria (>300 mg/24 h)
- **Peripheral vascular disease**
- **Advanced retinopathy:**  
haemorrhages or exudates,  
papilloedema

## CONCLUSIONI

Hypertension:

“test of vascular health”

“important target in the prevention of  
cardiovascular disease”

*T.D. Giles* New York ASH 15/5/2003

- Le nostre conoscenze sull'ipertensione arteriosa sono notevolmente aumentate negli anni ed è il momento di valorizzarle trasformandole in comportamenti di buona pratica clinica.
- Le linee guida diagnostiche terapeutiche delle diverse comunità scientifiche rappresentano una ulteriore risorsa per raggiungere il controllo ottimale della pressione arteriosa.