

Comparaison entre mesures de PA au cabinet, automesure et

MAPA

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Questions face à une HTA

- **Mon patient est-il réellement hypertendu?**
- Quelle est l'origine de l'HTA?
- Quelles complications?
- Quelle prise en charge?
- Quels objectifs?
- **Quelle efficacité thérapeutique?**

Fiabilité de la mesure de la pression

Important factors affecting measurement

- The inherent variability of blood pressure
 - The defence reaction
 - The limitations of the device being used
 - The accuracy of the device
 - Blood pressure is not as easily measured in some groups, such as elderly people
-



Rev. Stephen Hales
(1677-1761)

BP= 8 feet 3 inches of water



Mercury sphygmomanometer

Blood pressure variability:

“... It is enough to speak to the patient, invite him to read, or look at him suddenly, or perhaps it will take a sudden noise, a carriage going past in the street, a shout of a loud but distant noise to make the blood pressure rise, and not necessarily to the same extent in all cases.”

“...Although it is not the only factor, the simple application of of the instrument can cause a temporary rise in blood pressure. It is therefore necessary to take not just one reading but several in succession....

Scipione Riva-Rocci 1896

Scipione Riva-Rocci and his Sphygmomanometer



NUM. 50

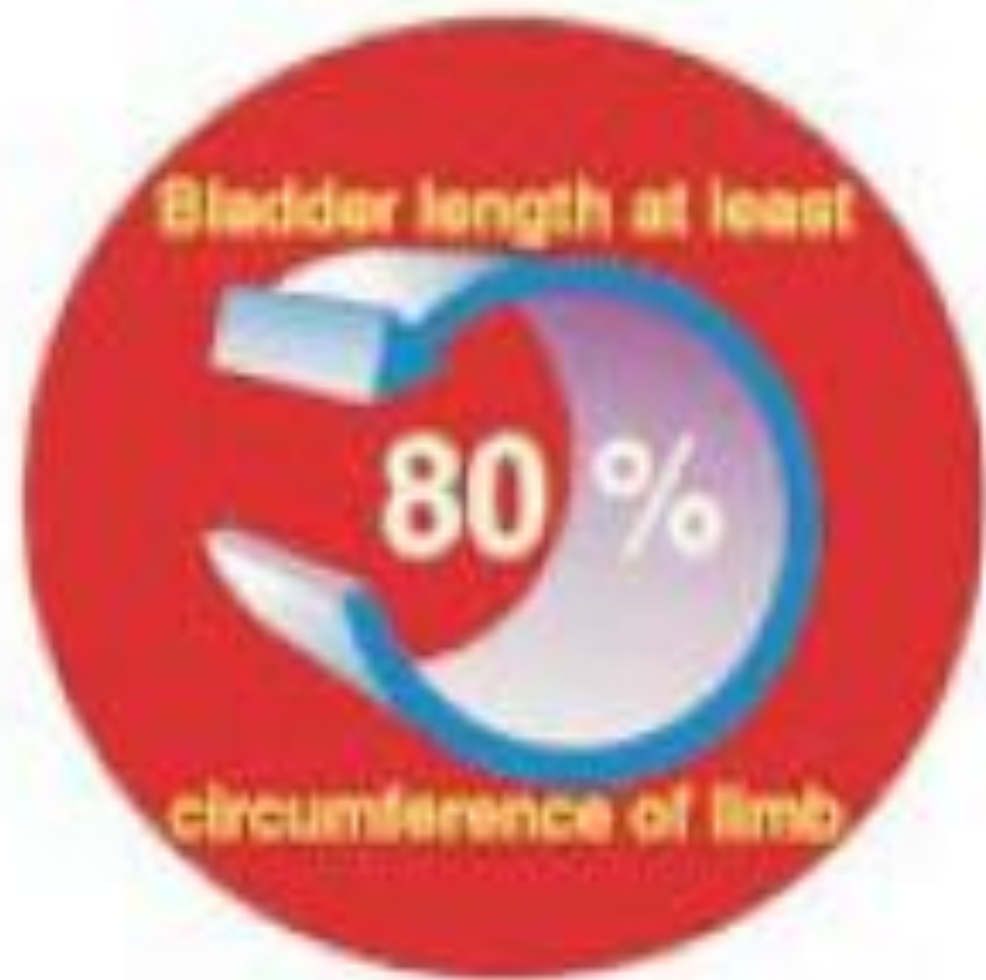
10 DICEMBRE 1896

ANNO XLVII

Gazzetta Medica di Torino

SOMMARIO

Contribuzioni originali: Scipione Riva-Rocci, La pressione sphygmomanometrica.
Sperimenti e ipotesi sulla natura e sulla causa di un tipo di ipertensione. — Carlo Forster, Sulla causa
della ipertensione. — De' casi di "St. Vitae" in un ospedale. — Carlo Forster, Sulla causa
della ipertensione. — De' casi di "St. Vitae" in un ospedale. — Il sale di cerise e di carbone
di calcio.
Notizie della medicina di Torino in corso di anno di venturo.



Recommended bladder length

Measurement of blood pressure: an evidence based review

Finlay A McAlister, Sharon E Straus

BMJ 2001

Table 1 Effects of routine activities on blood pressure (adapted from Campbell et al²)

Activity	Effect on blood pressure (mm Hg)	
	Systolic blood pressure	Diastolic blood pressure
Attending a meeting	↑ 20	↑ 15
Commuting to work	↑ 16	↑ 13
Dressing	↑ 12	↑ 10
Walking	↑ 12	↑ 6
Talking on telephone	↑ 10	↑ 7
Eating	↑ 9	↑ 10
Doing desk work	↑ 6	↑ 5
Reading	↑ 2	↑ 2
Watching television	↑ 0.3	↑ 1

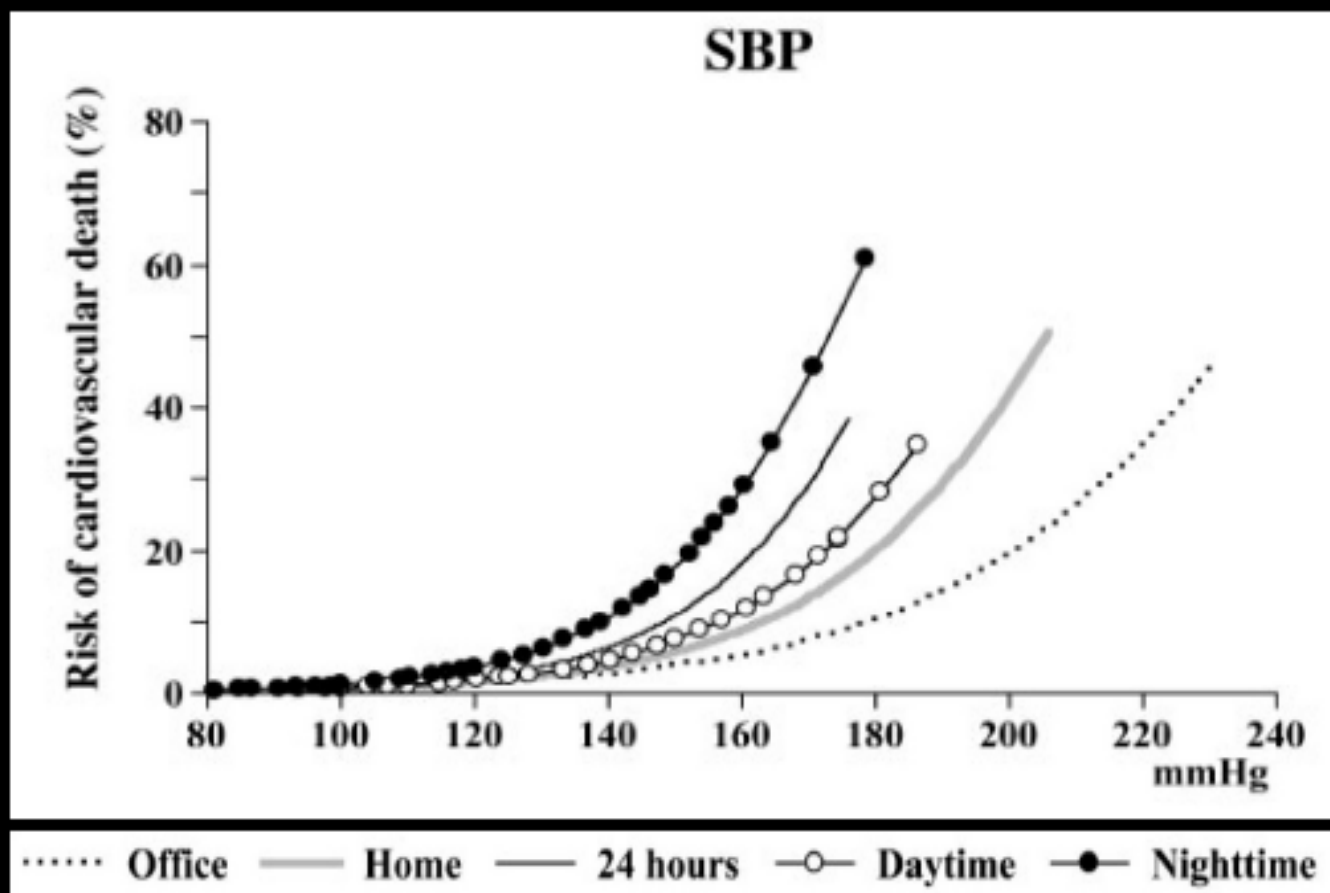
How should we take blood pressure in clinical practice?: The wider use of home and ambulatory monitoring should be encouraged

Thomas G Pickering

BMJ 2003;327:E150-E151; originally published online 26 Jan 2003;

Compared with home
and ambulatory
readings, it is the
physicians' readings
that are the
odd man out.

Prognostic Value of Ambulatory and Home Blood Pressures in the General Population



Sega R, Circulation 2005;111:1777-1783

JHTA2008

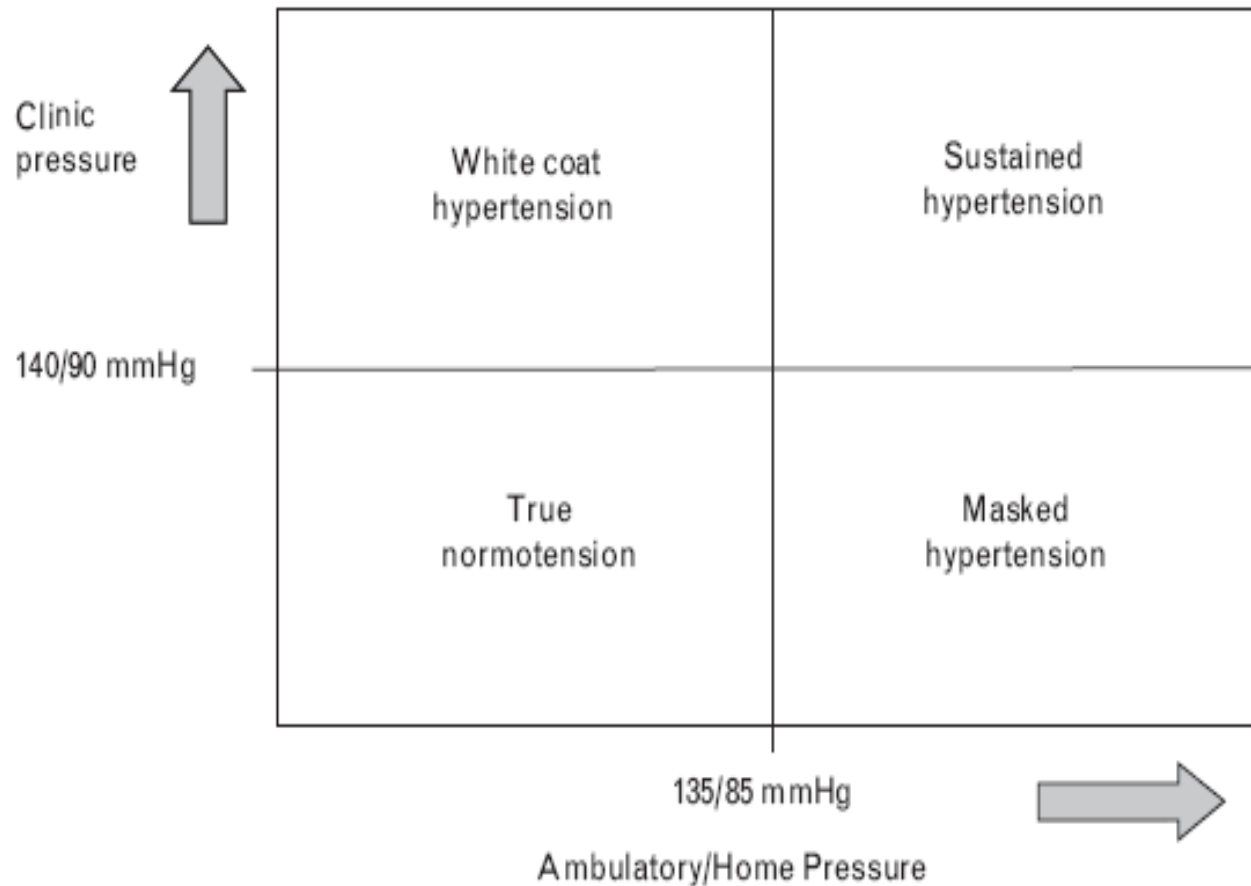


Fig. 1

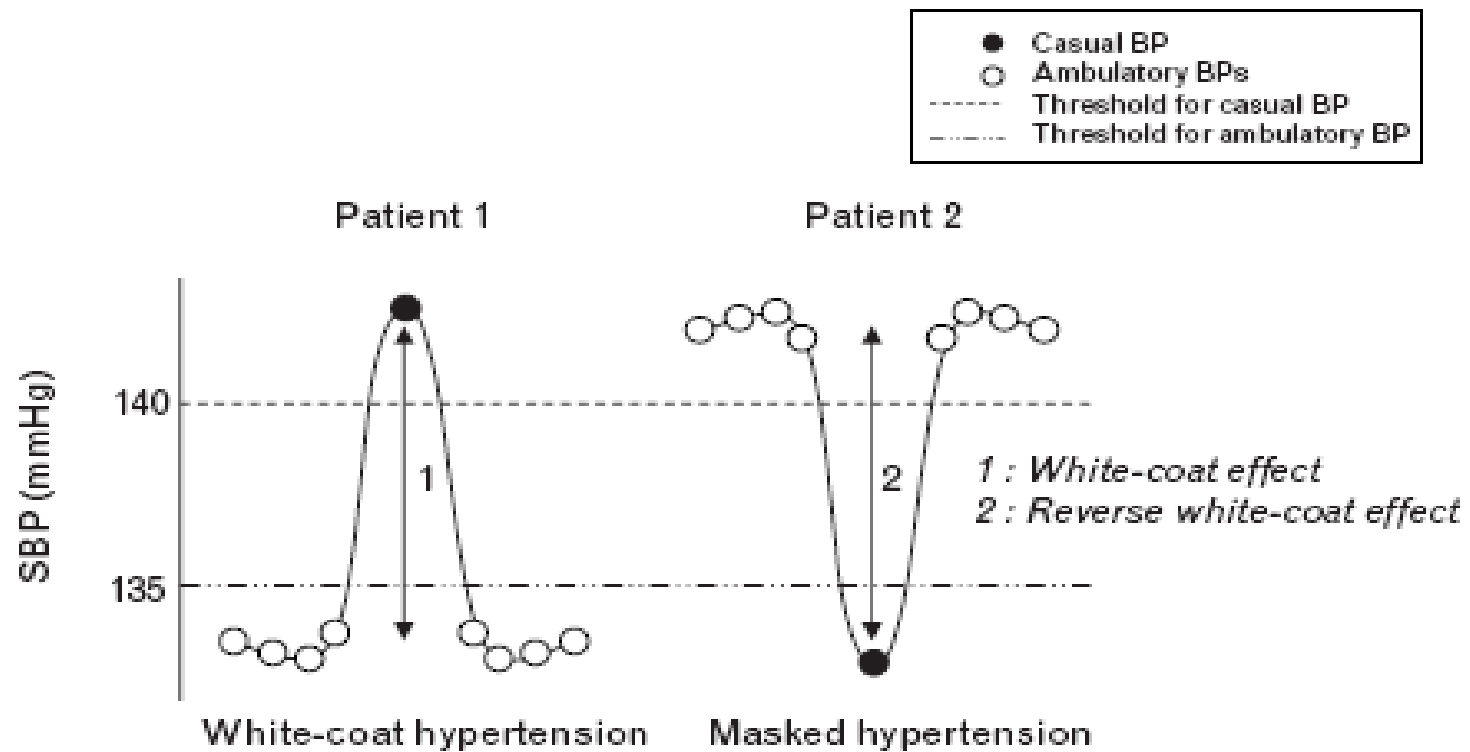
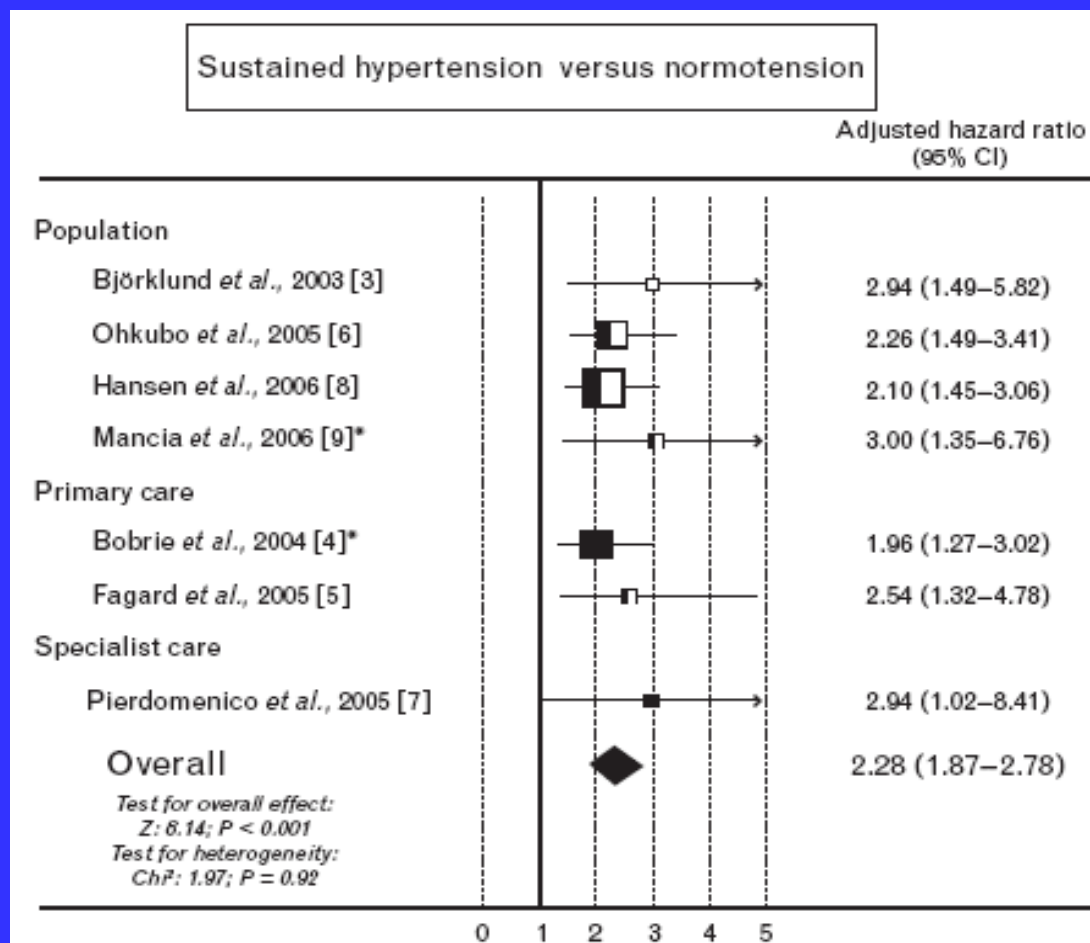


Diagram representing the behavior of blood pressure in a patient with white-coat hypertension (patient 1) and in a patient with masked hypertension (patient 2). BP, blood pressure; SBP, systolic blood pressure.

Incidence of cardiovascular events in white-coat, masked and sustained hypertension versus true normotension: a meta-analysis

Robert H. Fagard and Véronique A. Cornelissen

JHTA 2007

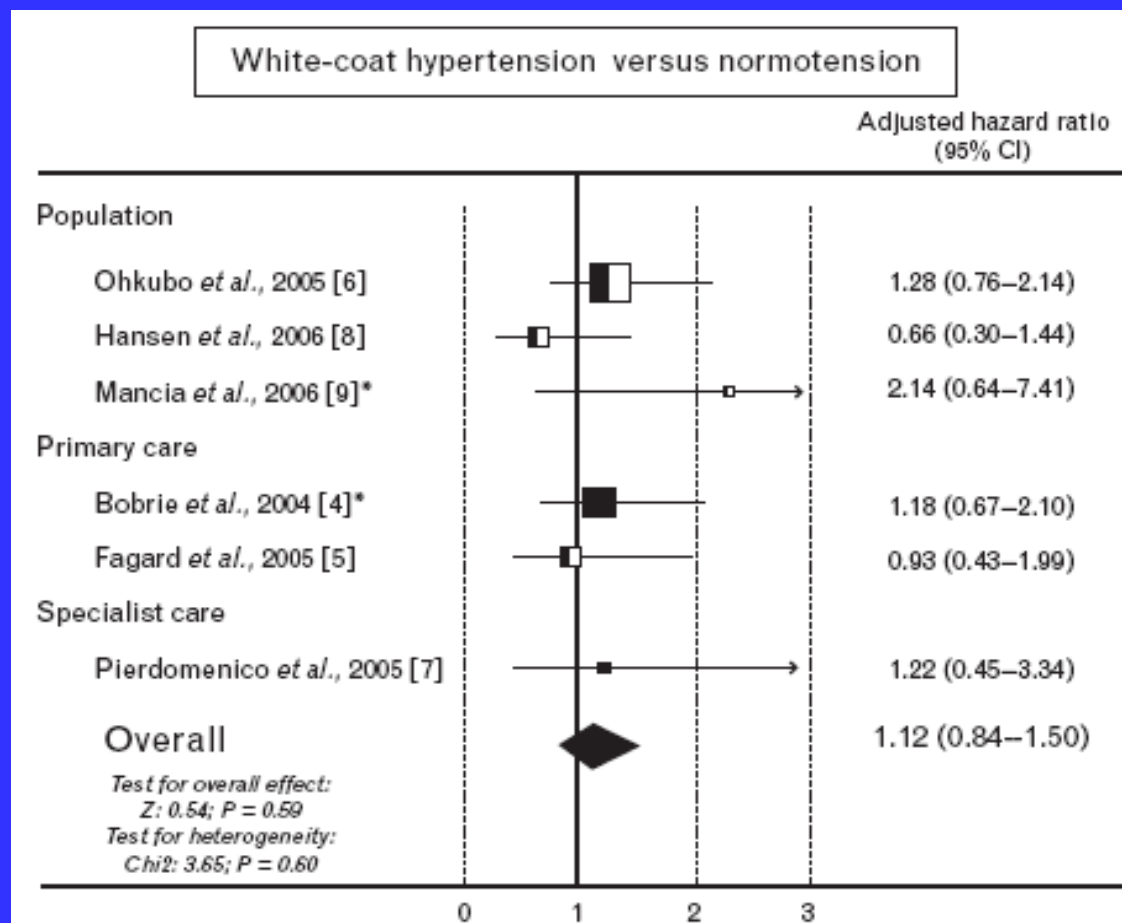


Adjusted hazard ratios and 95% confidence intervals of the individual studies and of the overall analysis for the incidence of cardiovascular events in sustained hypertension compared with true normotension.

Incidence of cardiovascular events in white-coat, masked and sustained hypertension versus true normotension: a meta-analysis

Robert H. Fagard and Véronique A. Cornelissen

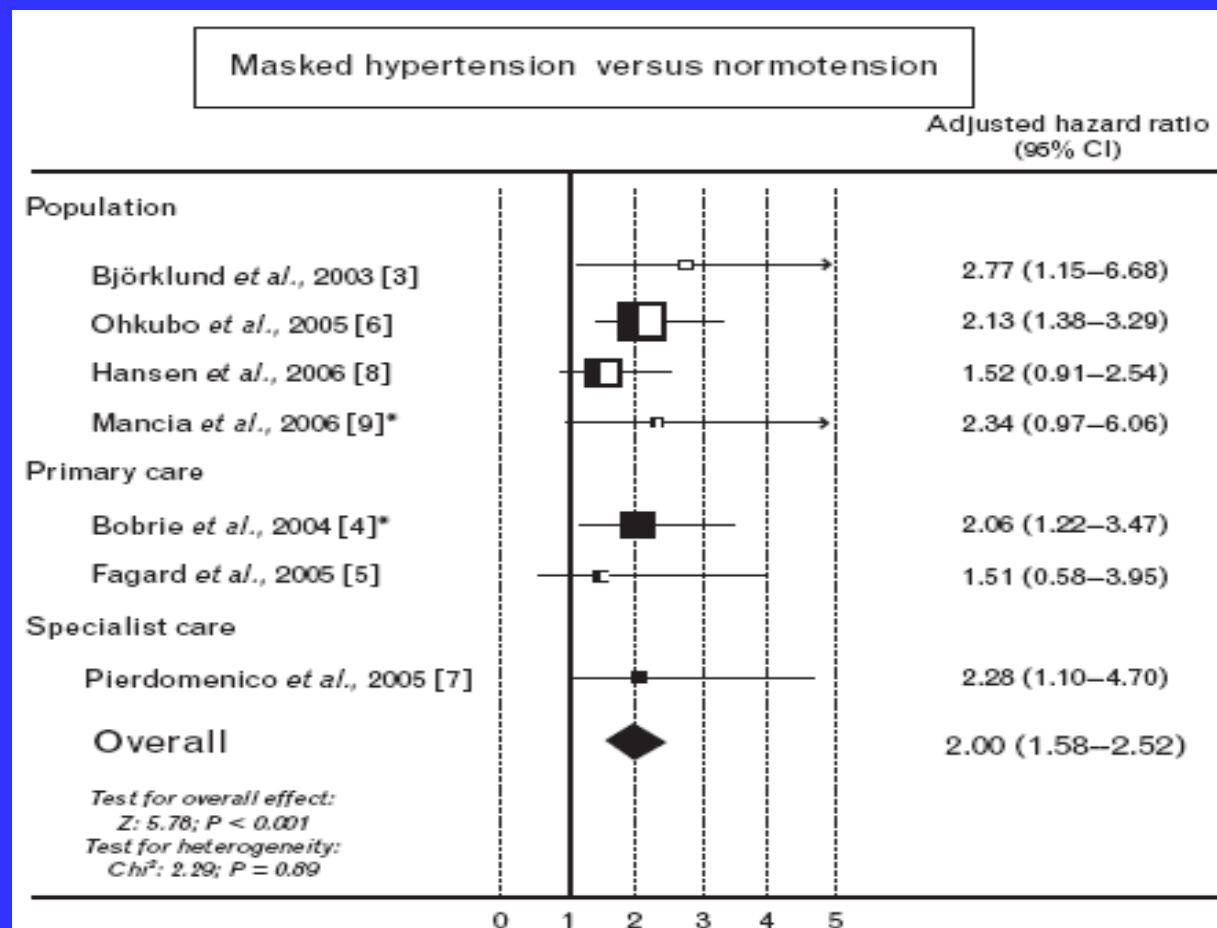
JHTA 2007



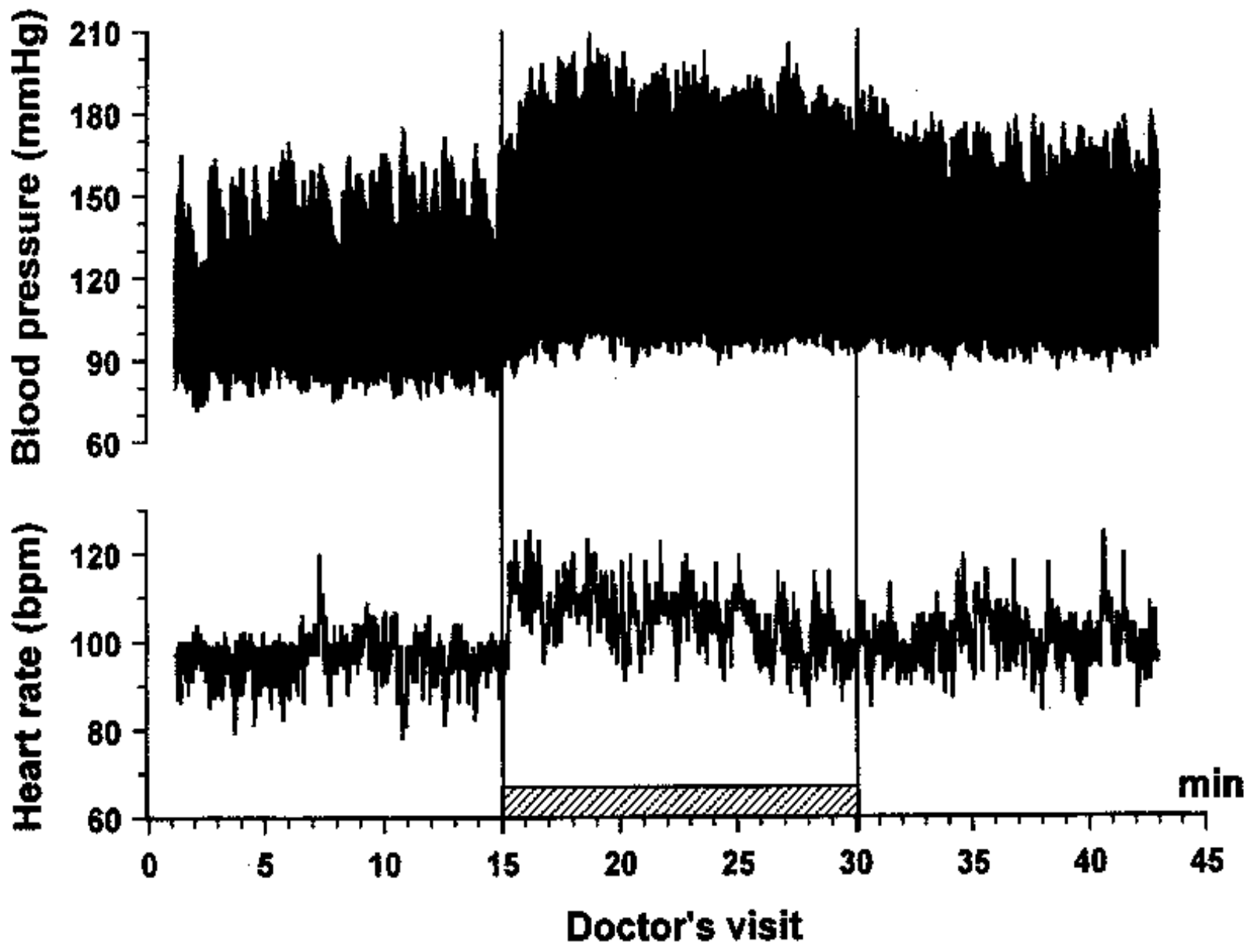
Adjusted hazard ratios and 95% confidence intervals of the individual studies and of the overall analysis for the incidence of cardiovascular events in white-coat hypertension compared with true normotension.

Incidence of cardiovascular events in white-coat, masked and sustained hypertension versus true normotension: a meta-analysis

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Adjusted hazard ratios and 95% confidence intervals of the individual studies and of the overall analysis for the incidence of cardiovascular events in masked hypertension compared with true normotension. The

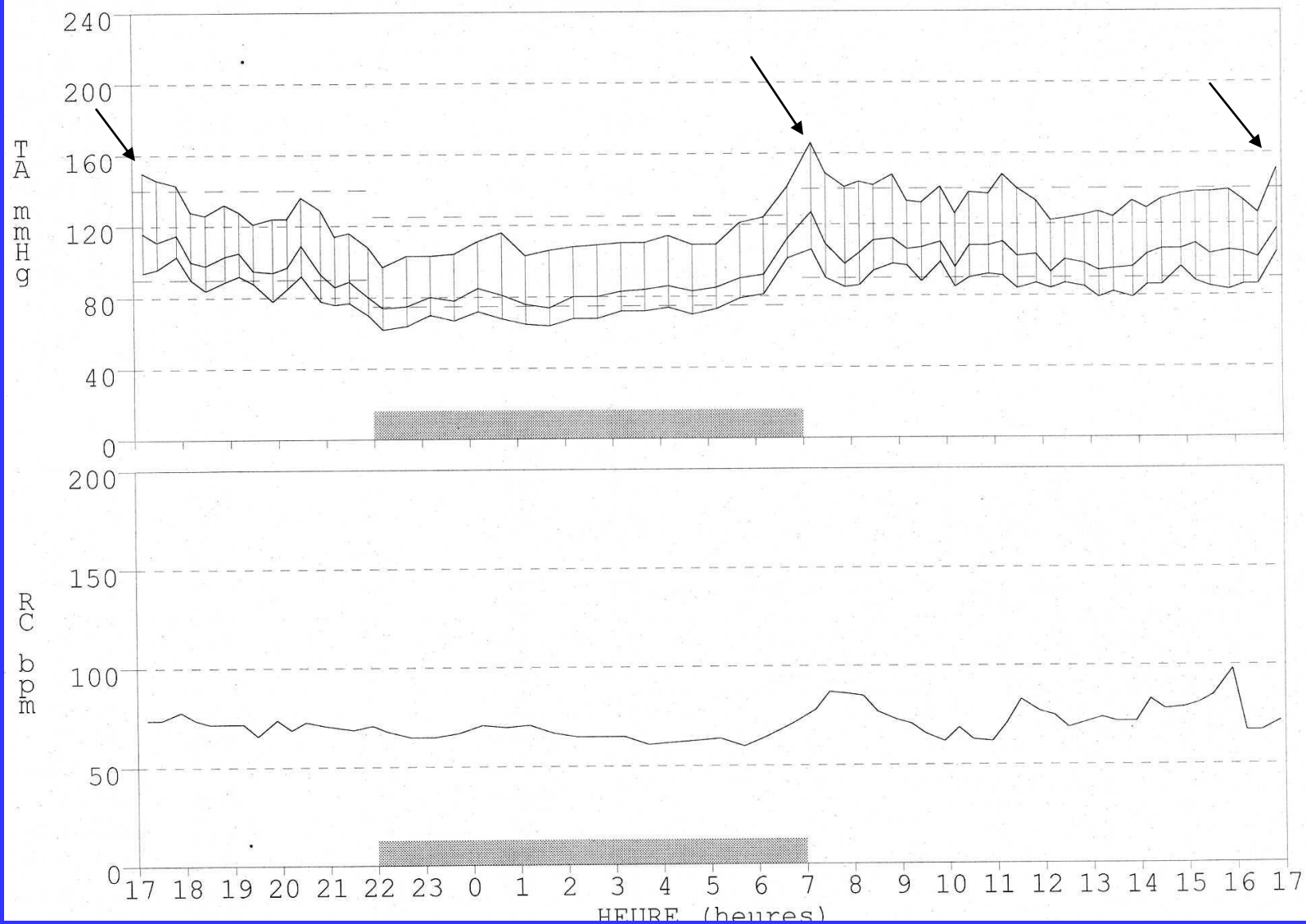


Intérêt de la MAPA

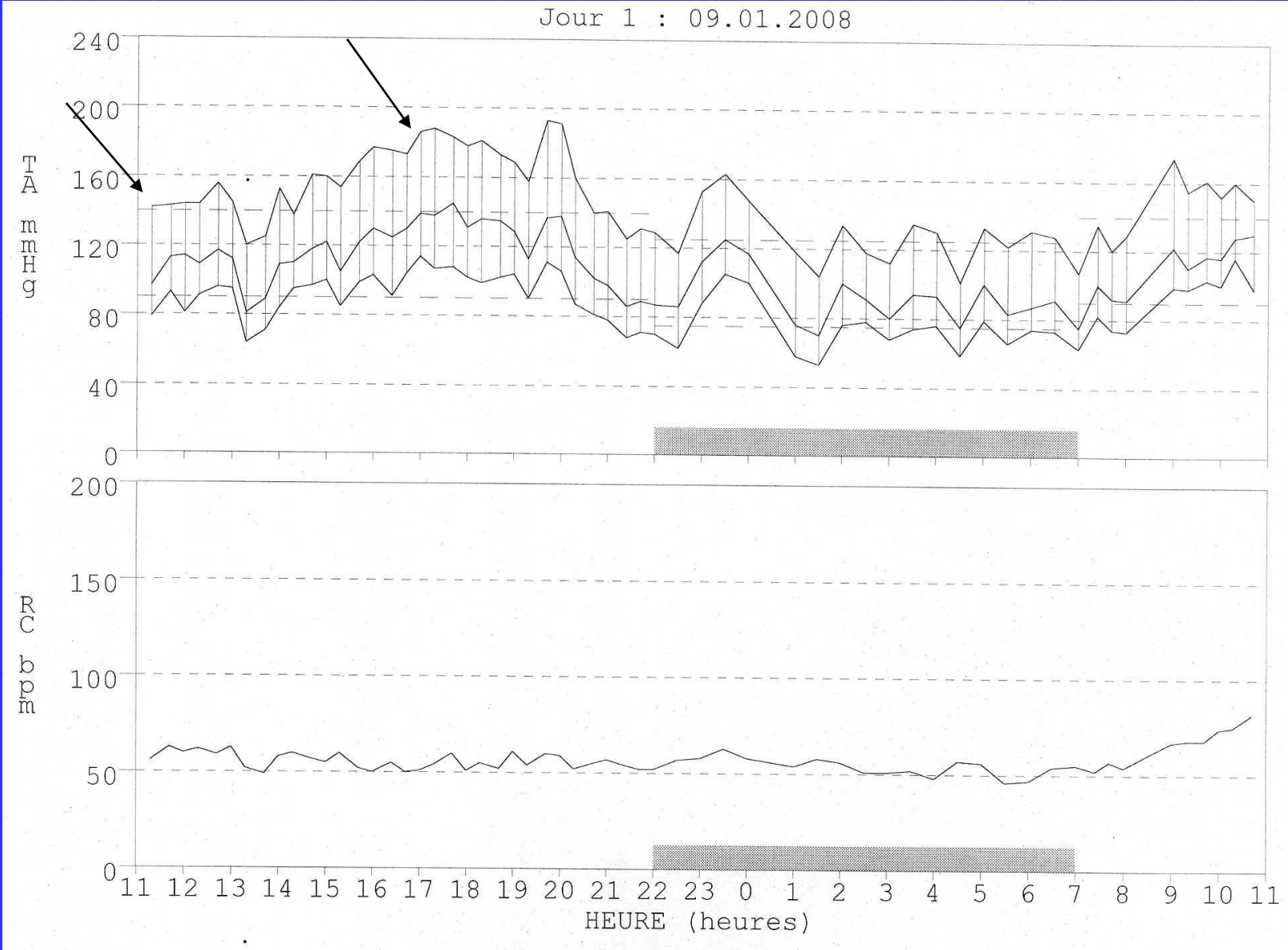
- Confirmer une HTA (HTA de la blouse blanche)
- HTA masquée
- Evaluation du rythme nyctéméral
- Confirmer le contrôle correct de la PA
- Symptômes d'hypotension sous traitement
- HTA résistante
- Grossesse
- Diabète

F.S. âgé de 50 ans, HTA blouse blanche

Jour 1 : 07.01.2008



D.J. âgé de 70 ans, HTA masquée



Prevalence and Persistence of Masked Hypertension in Treated Hypertensive Patients

Willem J. Verberk, Theo Thien, Abraham A. Kroon, Jacques W.M. Lenders, Gert A. van Montfrans, Andries J. Smit, and Peter W. de Leeuw

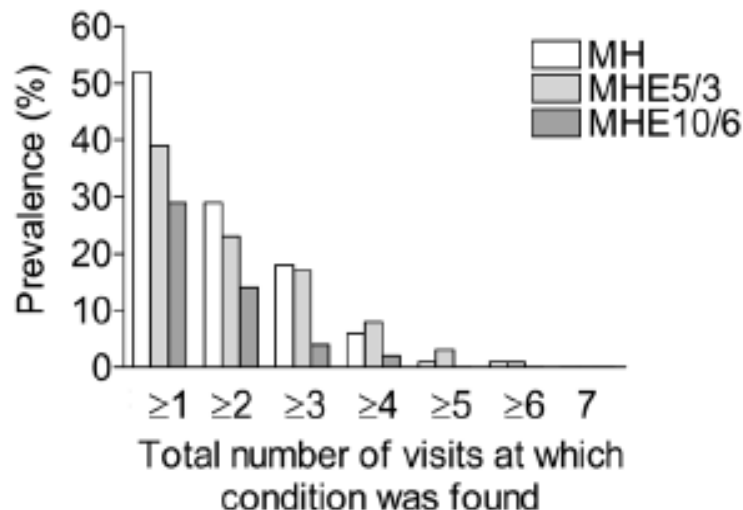


FIG. 2. Prevalence of treated patients with masked hypertension (MH), a masked hypertensive effect (MHE) at 5/3 (self blood-pressure measurement [SBPM] exceeds office blood pressure measurement [OBPM] by 5 mm Hg systolic and 3 mm Hg diastolic), and MHE at 10/6 (SBPM exceeds OBPM by 10 mm Hg systolic and 6 mm Hg diastolic), based on blood-pressure measurements on seven occasions. The X-axis depicts total number of visits (not necessarily consecutively) during which the condition was found.

Conclusions: We conclude that MH and MHE at 5/3 mm Hg and MHE at 10/6 mm Hg commonly occur in treated patients, but are not persistent phenomena and probably result from an accidentally low OBPM value on one particular occasion. *Am J Hypertens* 2007;20:

Valeurs normales de PA (mmHg) lors de la MAPA

- PA de 24h : $< 130/80$
- PA diurne : $< 135/85$
- PA nocturne : $< 120/70$



Figure 1

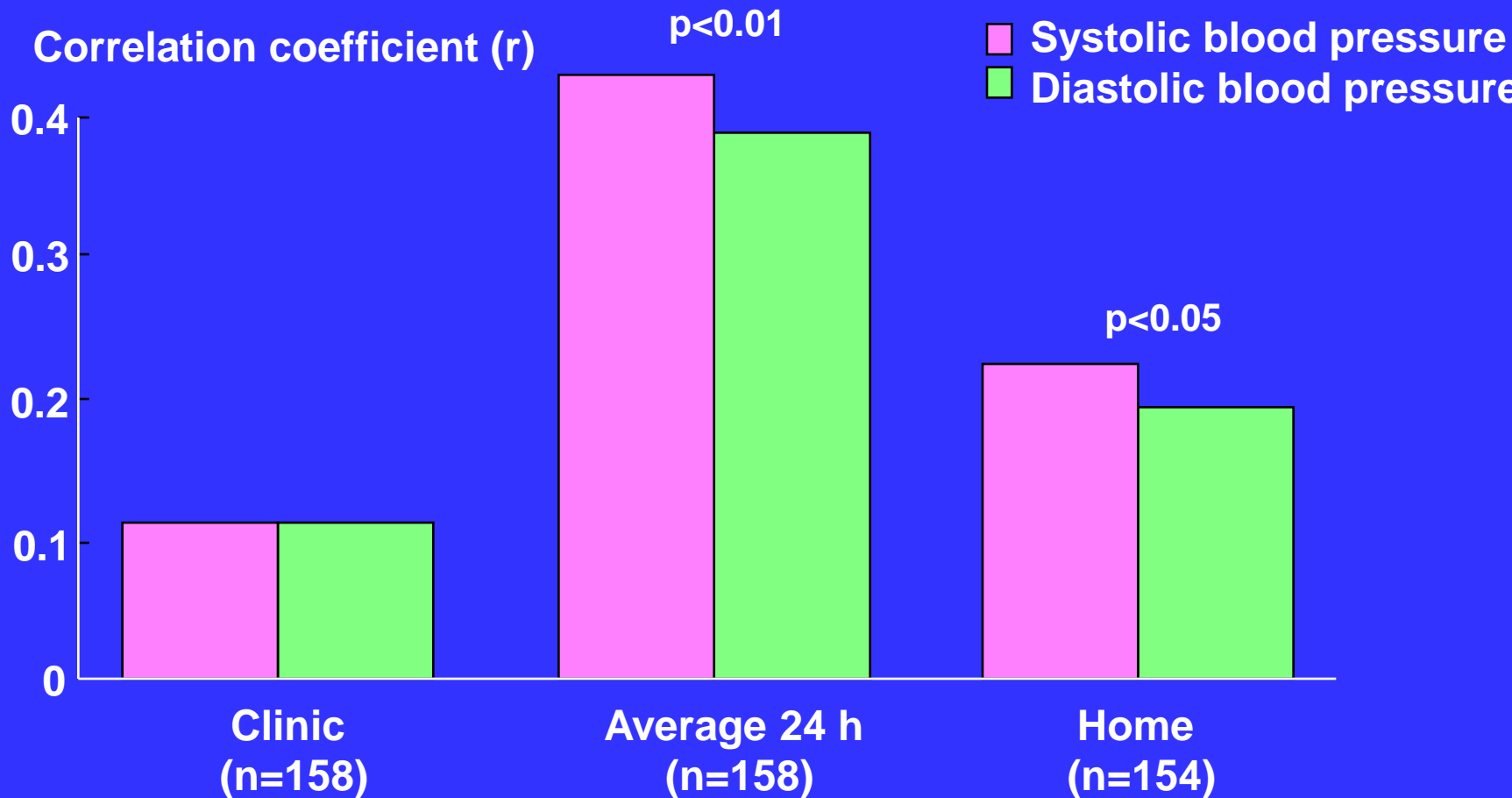
Volontaire équipé de l'appareil d'enregistrement ambulatoire de la tension artérielle.

Hypertension and cardiovascular disease

24-h average blood pressure is correlated with:

- Overall target organ damage score
- Left ventricular mass
- Impaired left ventricular function
- (Micro) albuminuria
- Brain damage
- Retinopathy

Correlation of change in LVMI and change in blood pressure after 1 year of treatment: The SAMPLE study



Prognostic value of ambulatory blood-pressure recordings in patients with treated hypertension

Clement D et al., *N Engl J Med* 2003; 348: 2407-15

Methods : Assessment of the association between baseline ambulatory blood pressures in treated patients and subsequent cardiovascular events.

Population: 1963 patients (mean age 56y) with a median follow-up of 5 years.

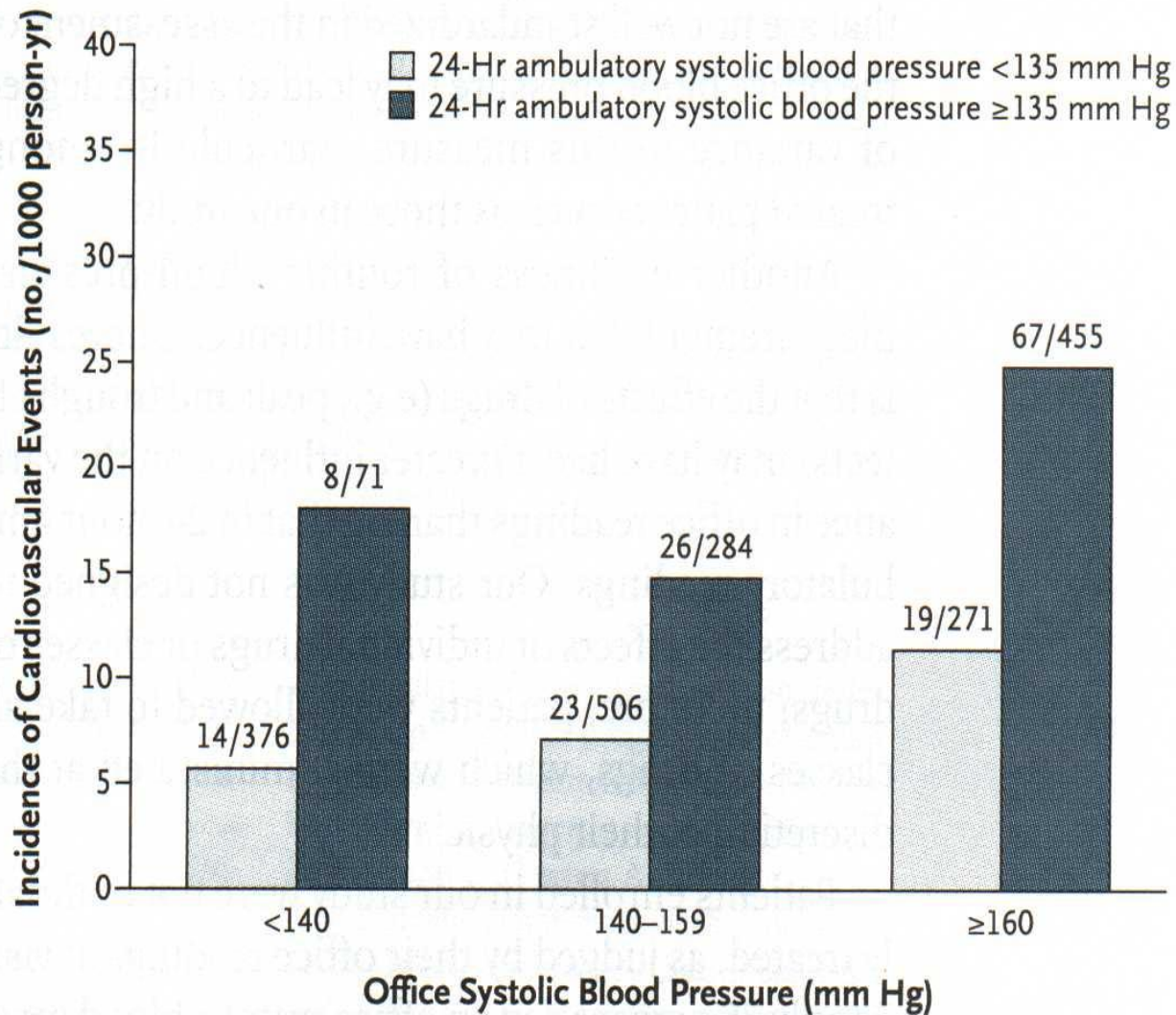


Figure 2. Incidence of Cardiovascular Events According to Category of Office Systolic Blood Pressure.

Clement D. et al., *N Engl J Med* 2003; 348: 2407-15

Prognostic value of ambulatory blood-pressure recordings

in patients with treated hypertension

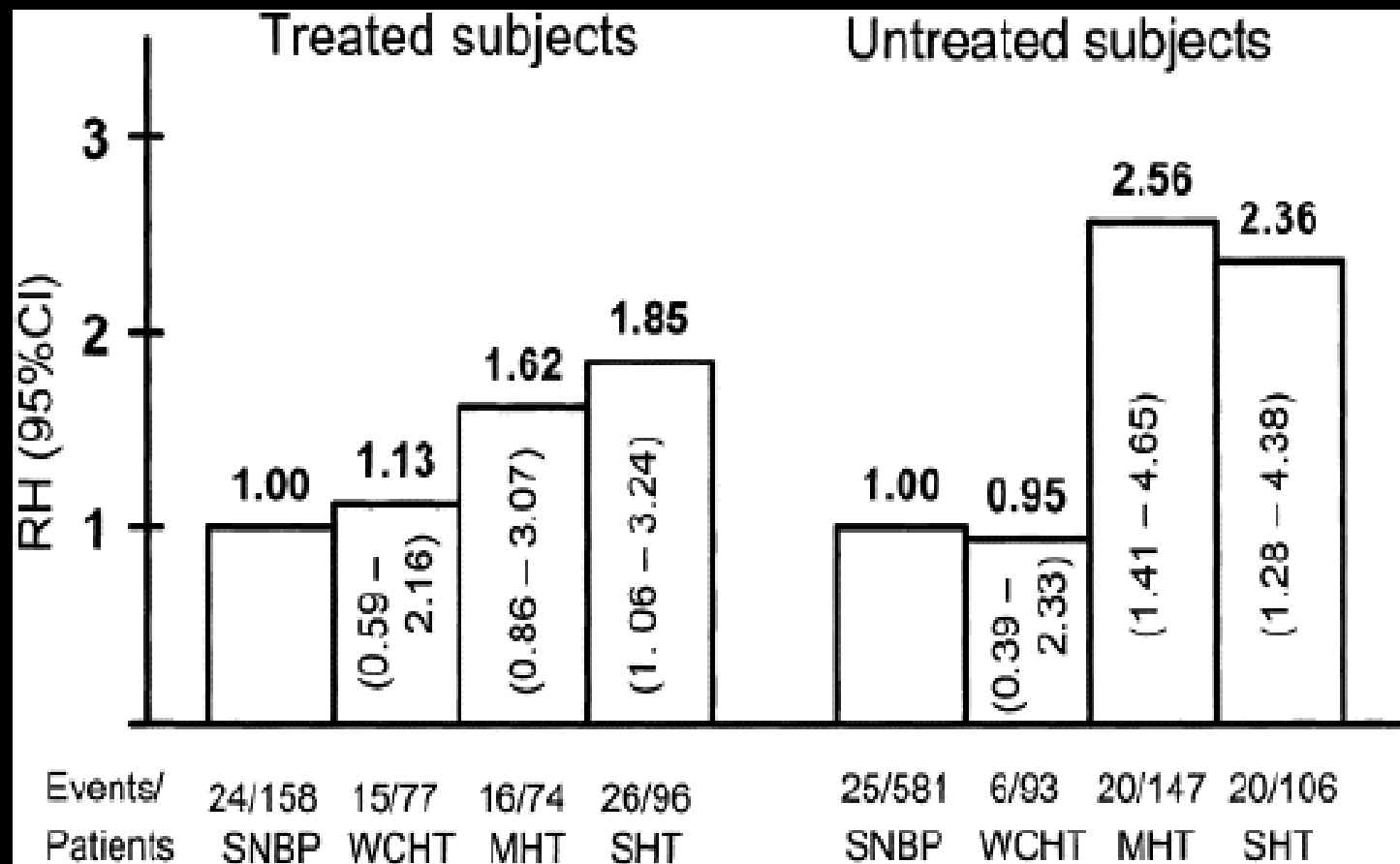
Clement D et al., *N Engl J Med* 2003; 348: 2407-15

Conclusions :

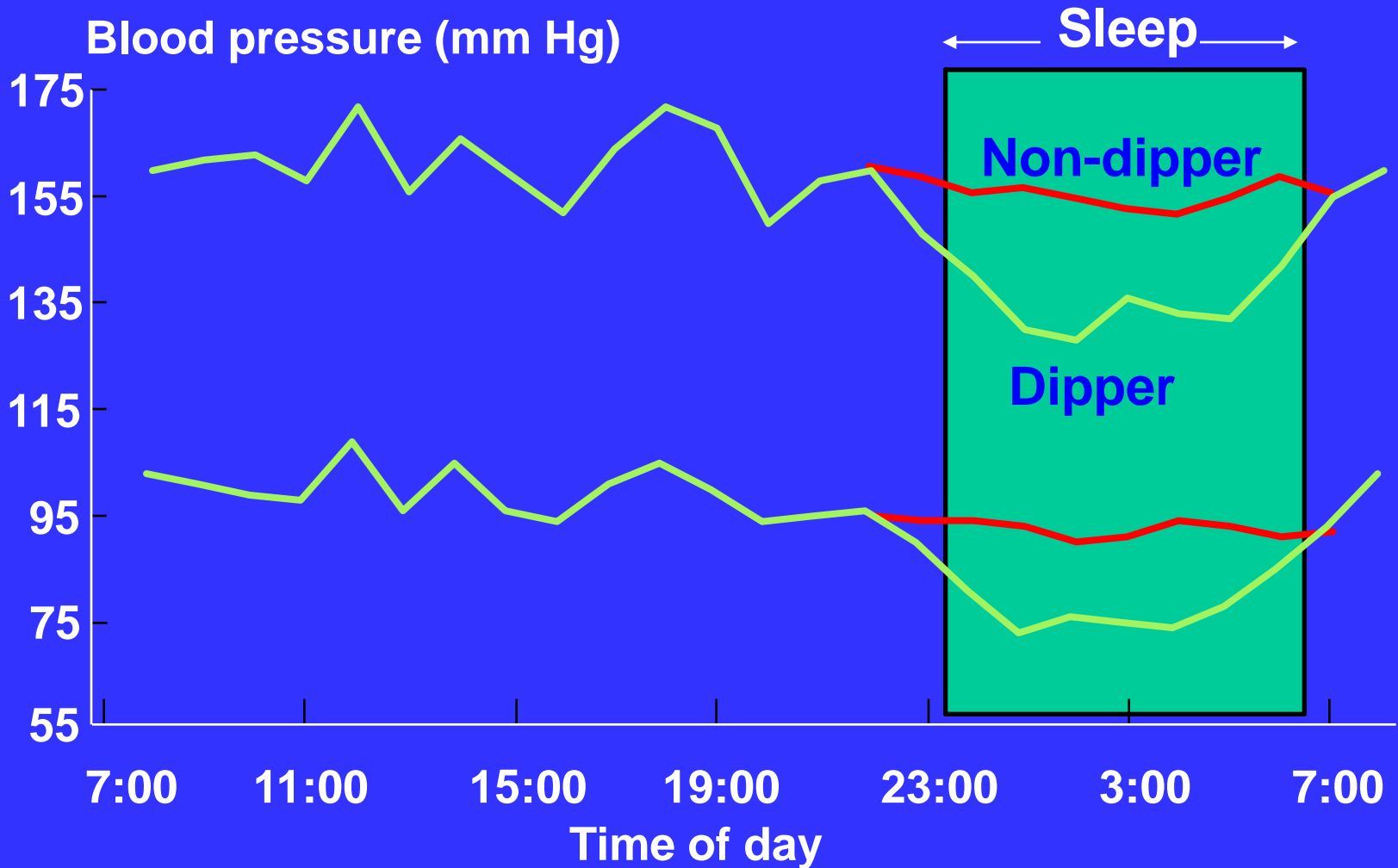
In patients with treated hypertension,

a **higher ambulatory systolic or diastolic blood pressure predicts cardiovascular events** even after adjustment for classic risk factors including office measurements of blood pressure.

Prognosis of “Masked” and “White-Coat” Hypertension Detected by 24-h ABPM



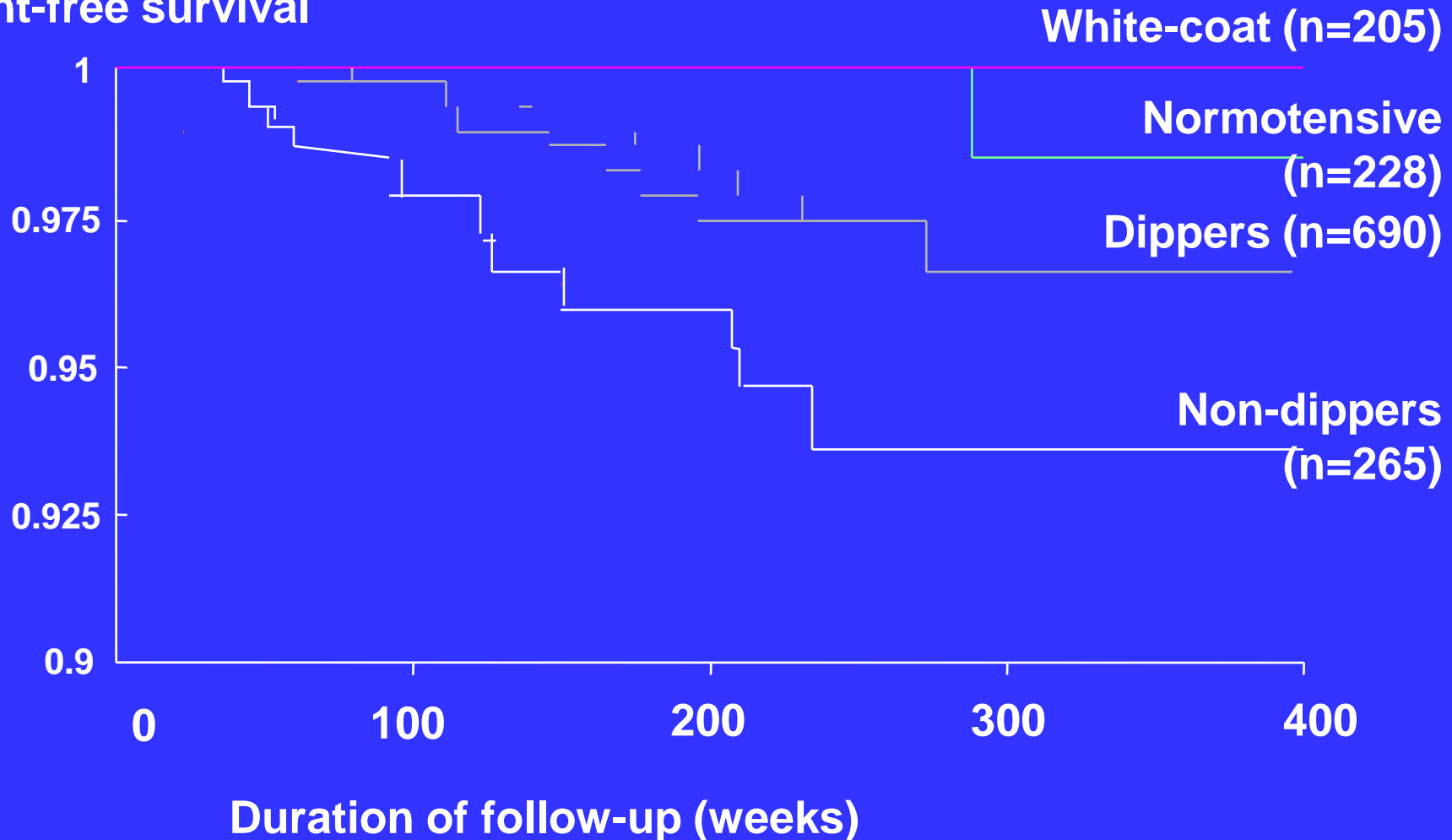
24-h blood pressure profile in two kind of patients with hypertension (dipper and non-dipper)





Cardiovascular event-free survival according to blood pressure

Probability of event-free survival



**Recommendations for Blood Pressure Measurement in Humans and
Experimental Animals: Part 1: Blood Pressure Measurement in Humans: A
Statement for Professionals From the Subcommittee of Professional and Public
Education of the American Heart Association Council on High Blood Pressure
Research**

Thomas G. Pickering, John E. Hall, Lawrence J. Appel, Bonita E. Falkner, John
Graves, Martha N. Hill, Daniel W. Jones, Theodore Kurtz, Sheldon G. Sheps and
Edward J. Roccella

Circulation 2005;111:697-716

TABLE 2. Features of Different Methods of BP Measurement

	Clinic	Home	Ambulatory
Predicts outcome	Yes	Yes	Yes
Initial diagnosis	Yes	Yes	Yes
Upper limit of normal	140/90	135/85	135/85 (day)
Evaluation of Treatment	Yes	Yes	Limited
Assess diurnal rhythm	No	No	Yes
Cost	Inexpensive	Inexpensive	Moderate

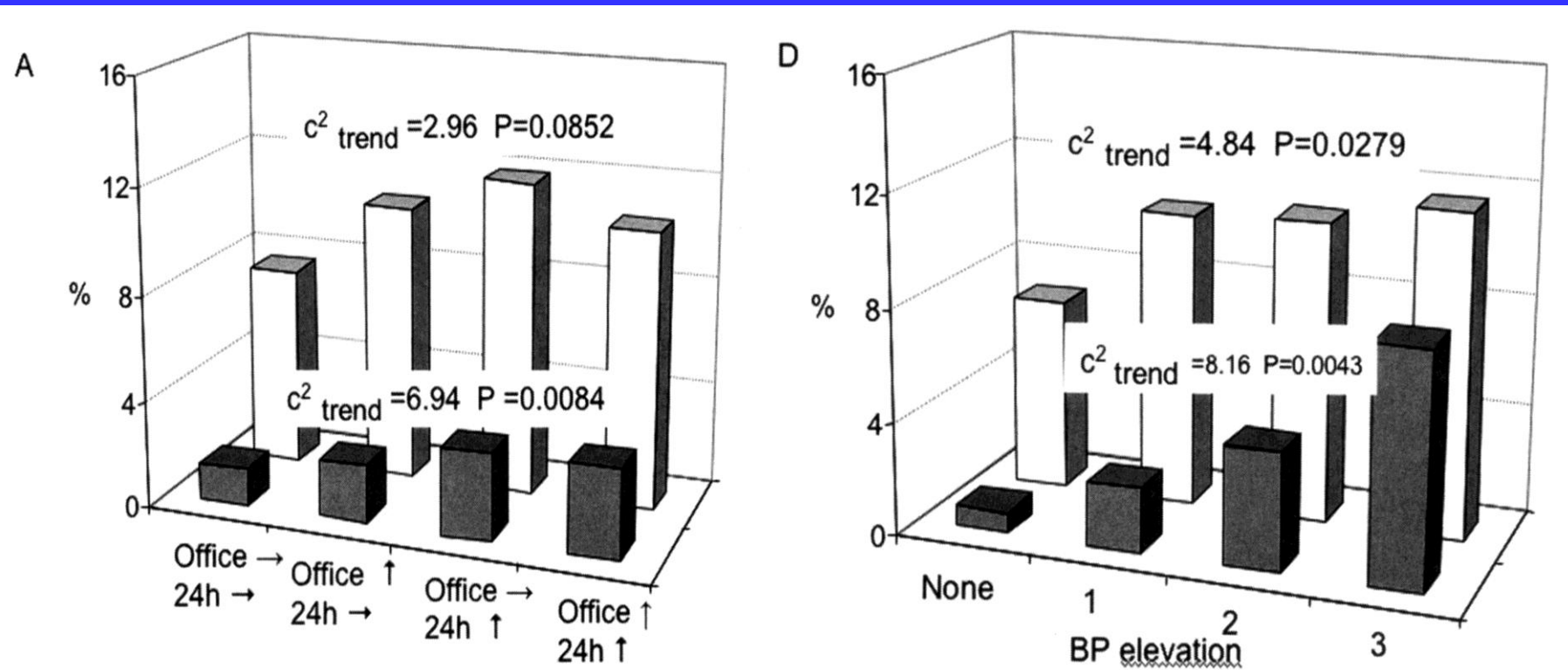
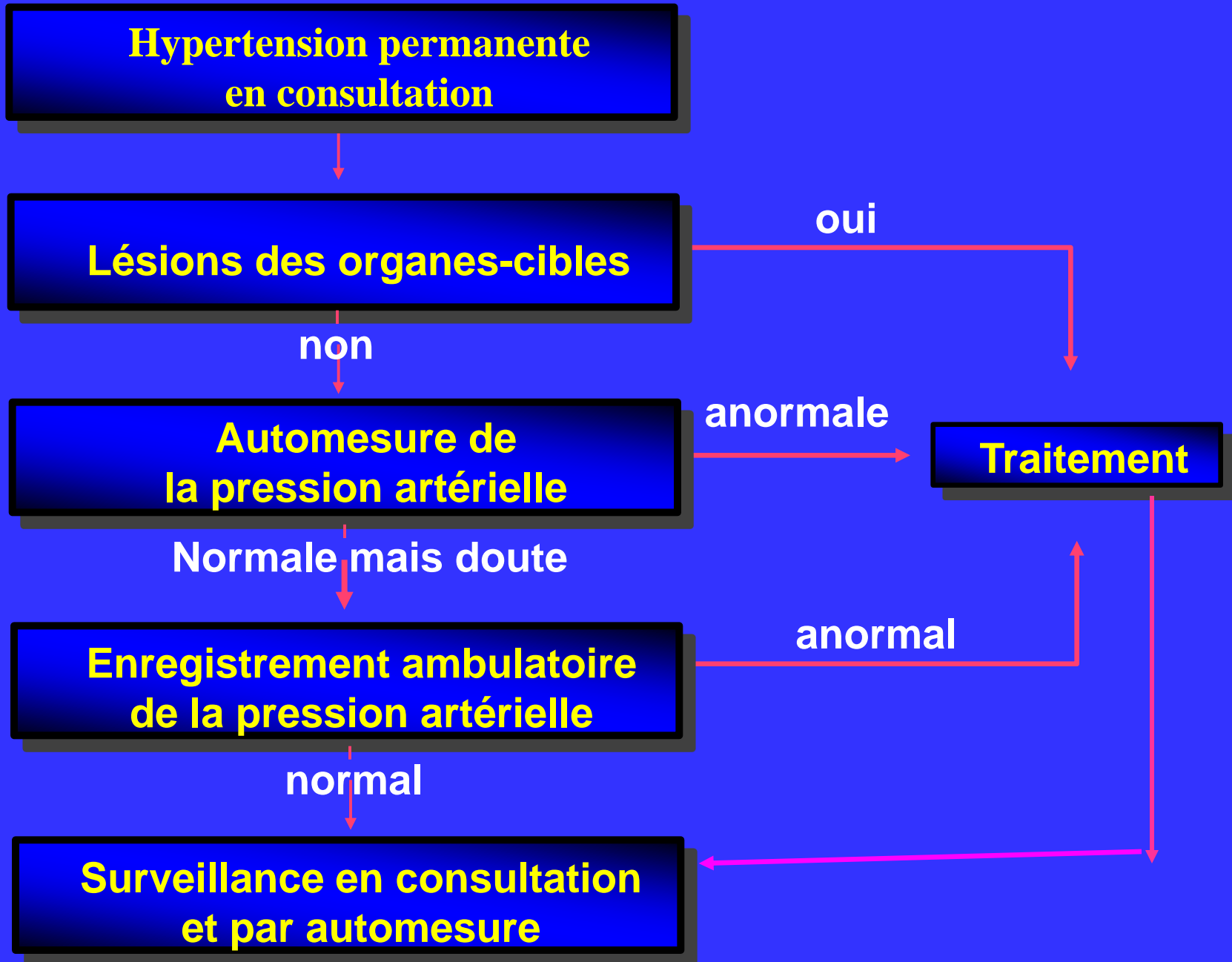


Figure 1. Percentage incidence of CV (■) and all-cause death (□) over an average follow-up of 148 months in subjects with various combinations of normality or elevation in office, home, and 24-hour BP. Data are adjusted for age and gender. Numbers refer to χ^2 trends and related *P* values.

Quelle technique proposer en plus de la mesure classique?

- MAPA: information sur 24h, rythme nyctéméral, variabilité, charge tensionnelle, mais contrainte de la durée pendant 1 jour.
- Auto-mesure: information sur plusieurs jours, plus confortable, mais pas d'information la nuit et nécessite une éducation, crée parfois de l'anxiété.
- En fait apportent des informations complémentaires
- Contre-indication relative si FA ou arythmie fréquente vu la technique oscillométrique.



Conclusions

- Comment faire pour améliorer la précision de ma mesure? (penser patient, appareil, médecin)
- Que peut m'apporter l'auto-mesure?
(penser effet blouse blanche, HTA masquée)
- Quand penser à demander une MAPA?
(penser pas d'automesure, intérêt de connaître la PA nocturne et/ou la variabilité)
- Quand devrais-je recontrôler la PA?
(à individualiser)