

Hypertension – Keep the Pressure Down

Professor Annemarie Hennessy
2010

What is Blood pressure?



The measurement of the blood flow in the arteries.

Discovered in 1850s and was initially thought to be “essential” for good health”

..or at least “essential” to help sick kidneys

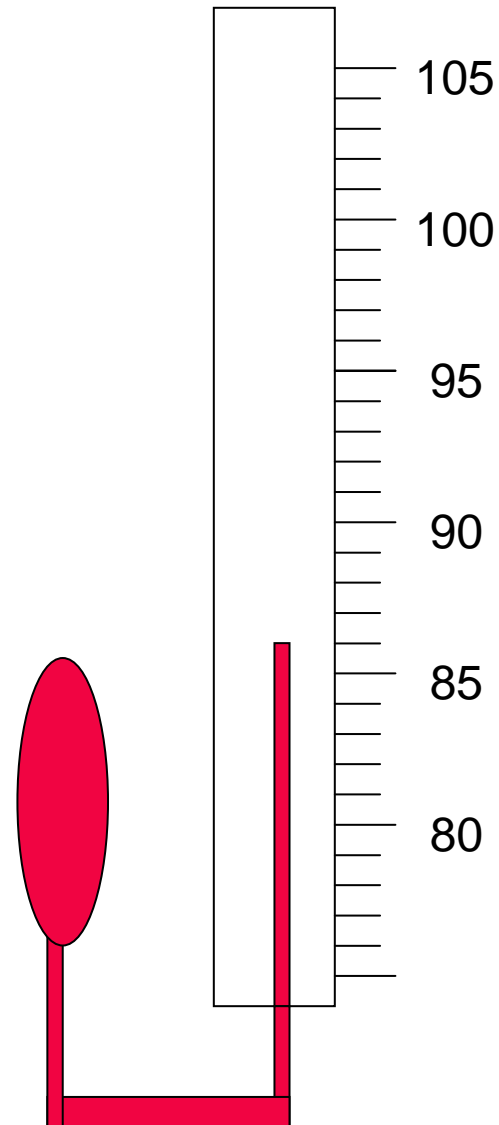
Insurance Industry 1925 increased premiums for men with high blood pressure they didn't live as long

Diastolic Blood Pressure

The pressure of blood at
The end of the heart beat

The amount of blood in the
Circulation at rest

Usually around 70-80 mm
Mercury

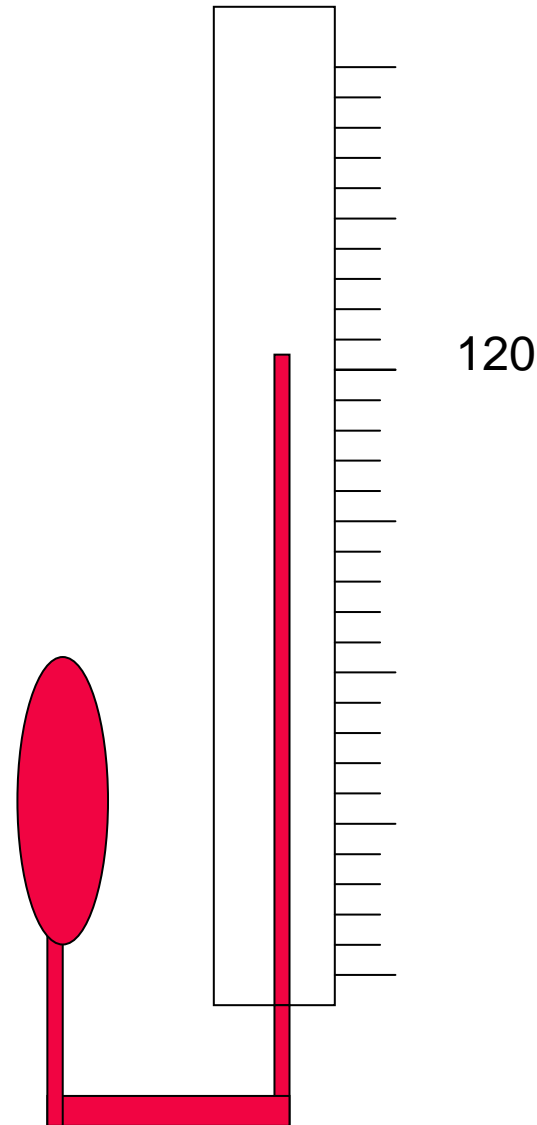


Systolic Blood Pressure

The pressure of blood at the start of the heart beat

The amount of blood in the circulation at rest

Usually around 110-120 mm mercury



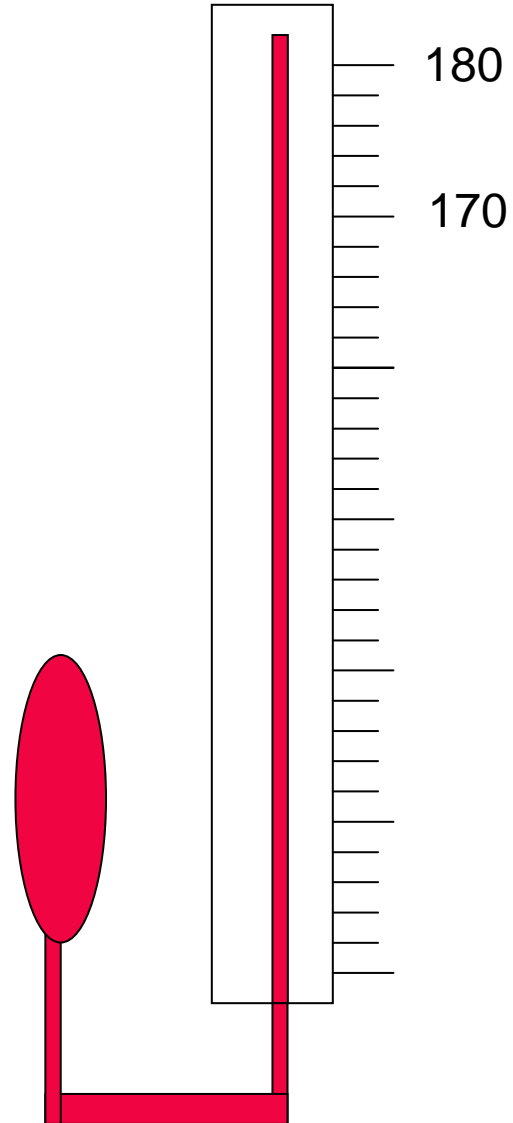
Elevated Blood Pressure Hypertension

An increase in either of these
Measurements

Limits set by

- age
- gender
- pregnancy

- presence of disease



Hypertension is a risk factor for

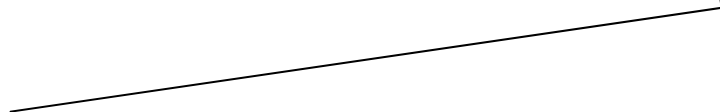
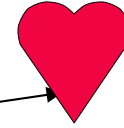
Stroke



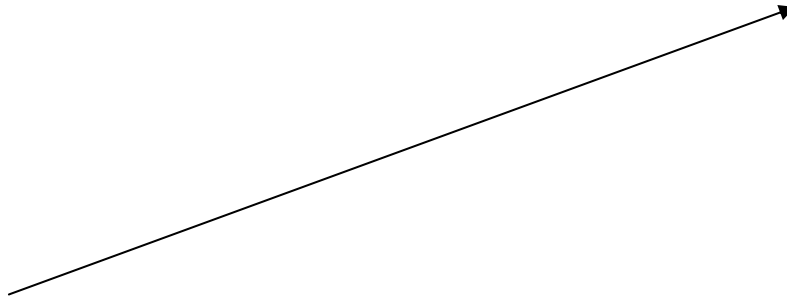
Heart disease

Heart failure

Heart attack



Kidney failure



Commonest killers in developed countries and developing countries rapidly catching up.

Causes of high blood pressure

Lifestyle

- overweight
- Diabetes due to overweight
- Sedentary lifestyle
- Drugs
 - Cocaine
 - Ecstasy
 - Amphetamines
 - Ice
- Alcohol

Other serious causes:

Hormones (endocrine problems)

- Excessive adrenalin
- Excessive aldosterone (kidney)
- Thyroid problems
- Pregnancy

Artery Problems

- Coarctation of the Aorta
- Renal artery stenosis
 - Young women
- Atherosclerosis
 - Older
 - Smokers
 - diabetes

Other serious causes

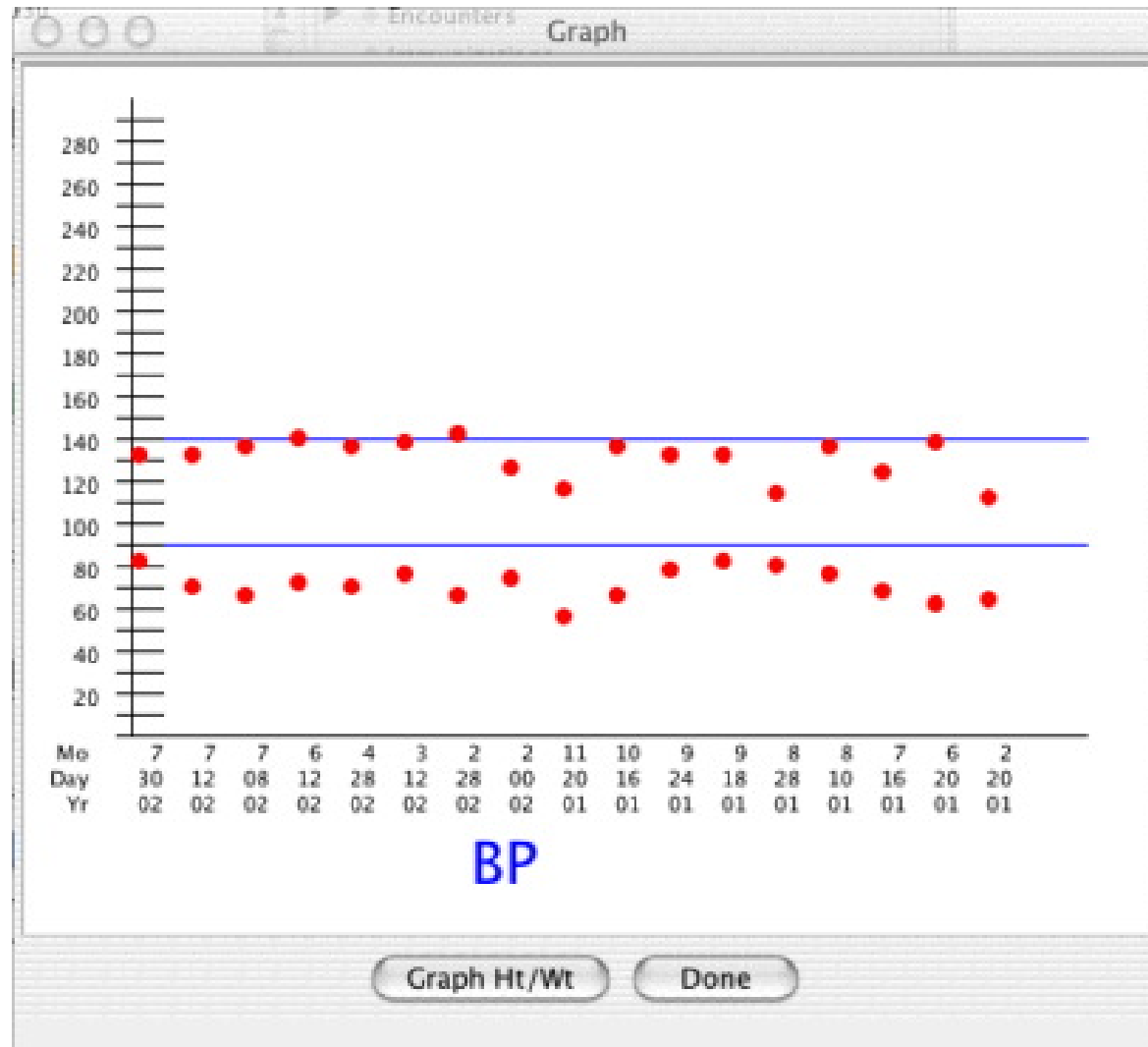
Medications used

- **NSAIDS**
 - Voltaren
 - Brufen
 - Indocid
 - Ponstan
- **Steroids**
 - For asthma
- **Other**
 - Pain killers
 - Rarer reaction to any drug

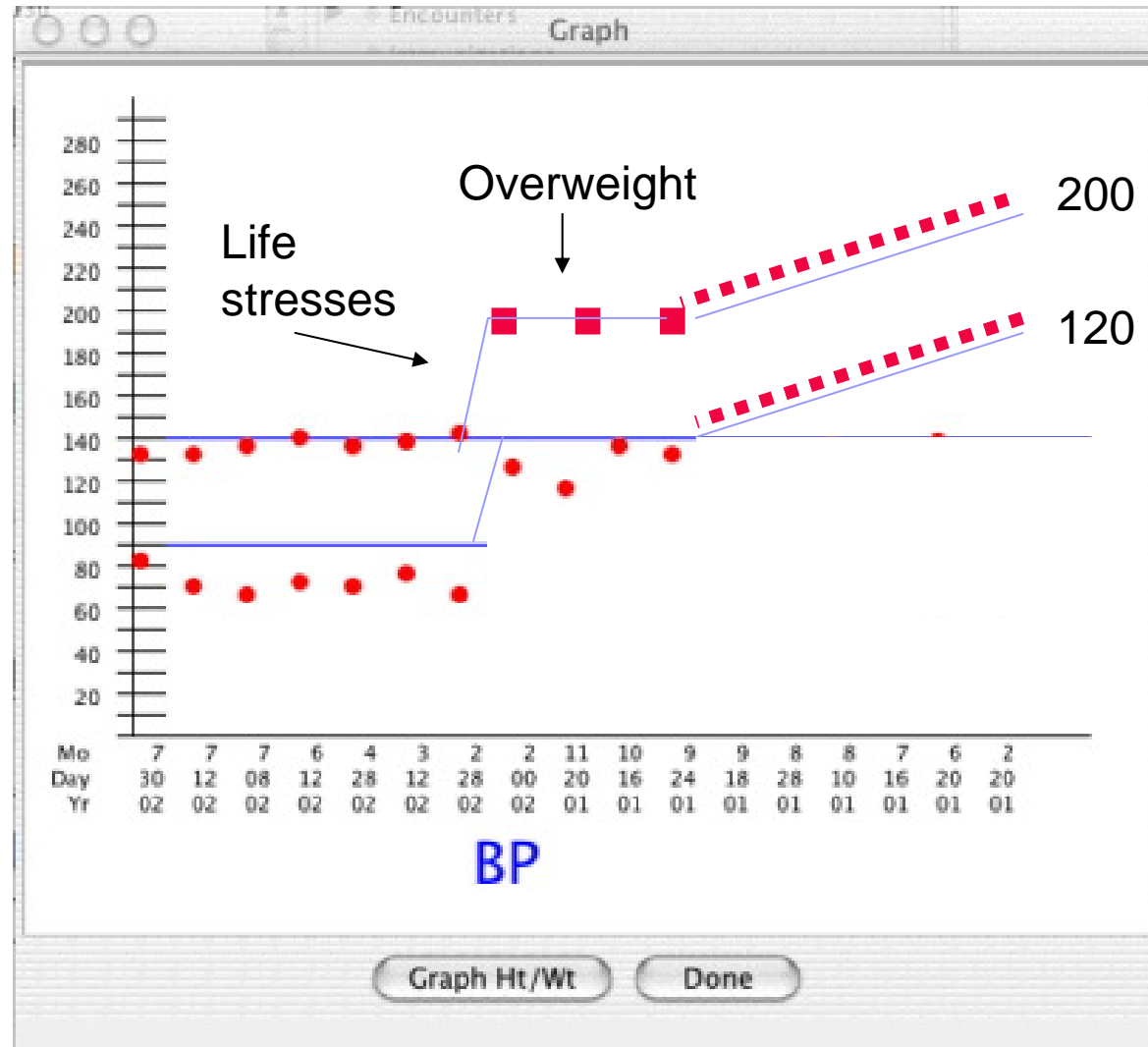
Kidney Disease

- Inherited
- Inflammations
 - Glomerular nephritis
- Diabetes
- Lupus
- Drug reactions
- Related to cancers
- Related to high blood pressure

Typical BP Readout Chart



? BP defining events



Lifestyle

- Overweight is related to increases in blood pressure

Body Mass Index

- 20-25 kg/m² normal
- 25-30 kg/m² overweight
- Over 30 kg/m² obese
- Over 45 kg/m² morbidly obese

Metabolic Syndrome

Overweight

Enlarged waist

Circumference

>88cm women

>95 cm men

Insulin resistance

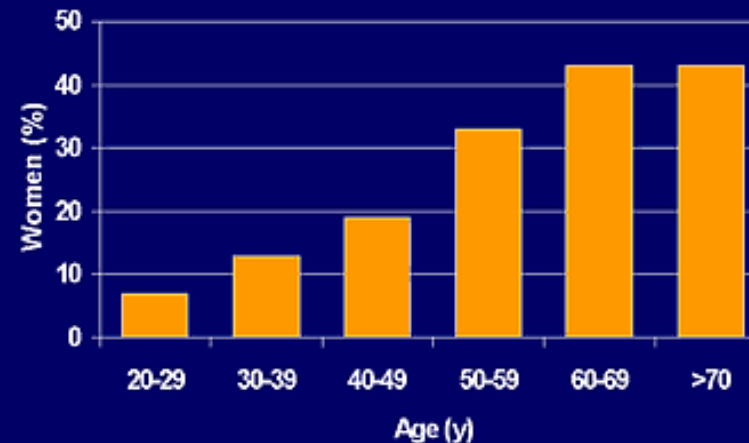
Hypertension

Body changes related

High cholesterol

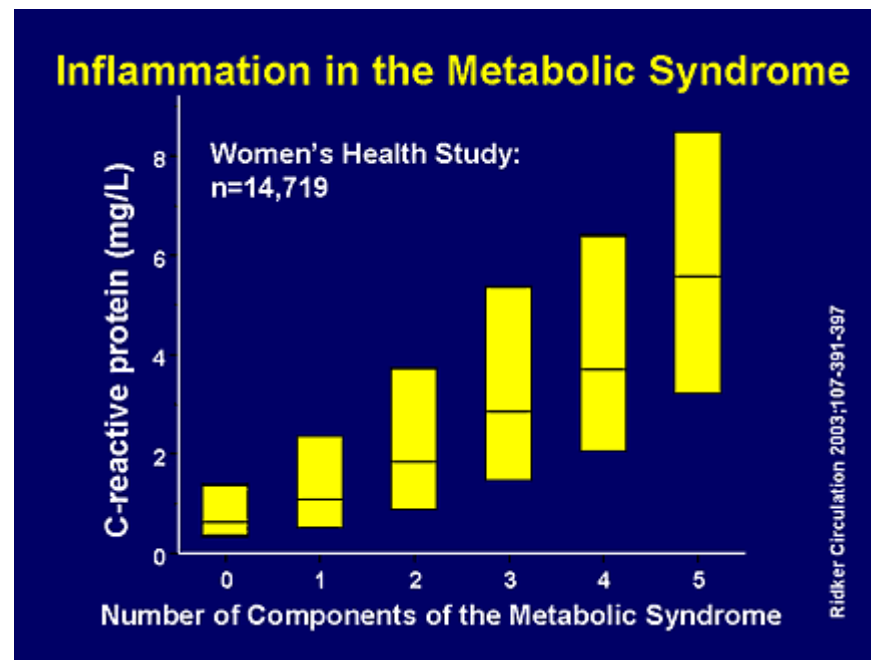
High triglycerides

Metabolic Syndrome: Prevalence in US Women



Ford E, et al. *JAMA*. 2002;287:356-359.

Metabolic Syndrome
Associated with
Increases in inflammation



Inflammation in Atherosclerosis

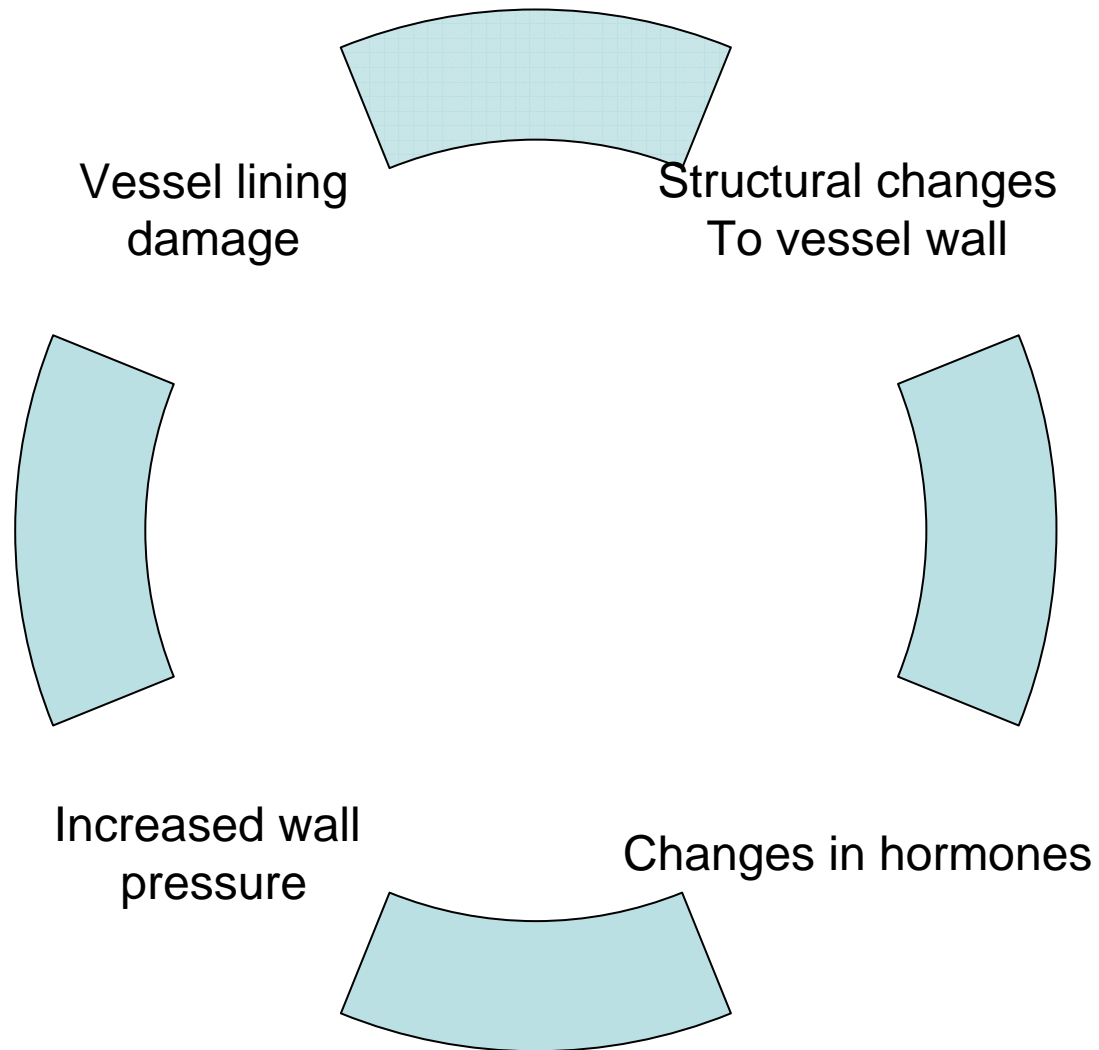


Peter Libby, ***A Fire Within***
Scientific American May 2002

Effects of high pressure



Viscous Cycle



Is BP worth treating?

- The overall conclusions of large clinical trials:
- Older men and women with primarily isolated systolic HYPERTENSION who received active therapy experienced fewer strokes and fewer major cardiovascular events than those receiving placebo. And the absolute benefit of treating a thousand patients for 5 years was the prevention of 29 strokes and 53 major cardiovascular events.

Targets for Blood pressure

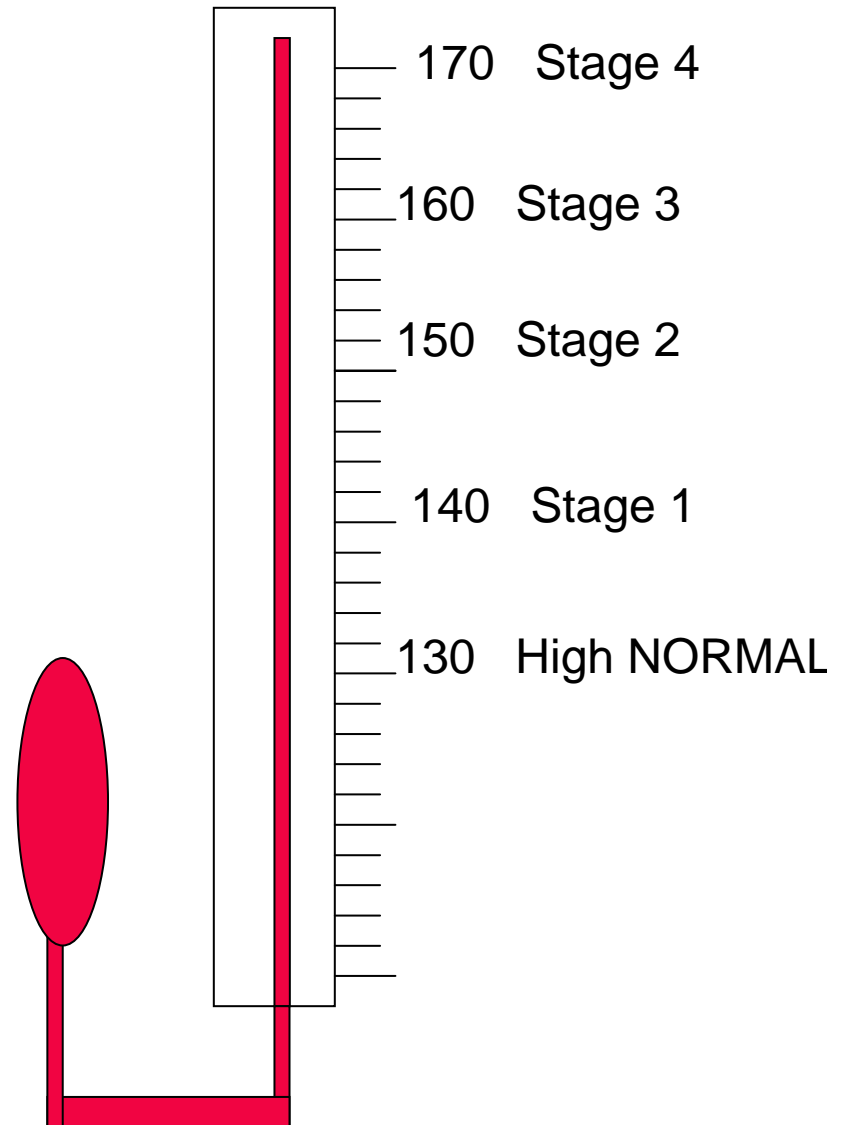
Target BP in healthy
Women 25-45 years

- 120/70

- Diabetics 120/75

- Otherwise healthy
 - 130/80

ALERT



Can weight reduction help?

Follow the DASH diet to potentially lower your blood pressure.



ADAM.

Where does pregnancy fit in?

- Preeclampsia – identifies a group of already at risk women – primary prevention
- Preeclampsia represents an “event “ – secondary prevention



PEARLS

PREECLAMPSIA RESEARCH LABORATORIES

Making a Difference for Mothers and Their Babies



- Weight reduction
- Improves BP
- Improves diabetes risk
- Improves lipids
- ??
- Probably makes you live longer

- Is there an alternative explanation
- Weight reduction as a surrogate for another benefit – exercise in and of itself
- Micronutrients
- Unidentified effects on alcohol consumption
- Effects on smoking

Public Risk

- Epidemic
- World-wide
- Interaction between western food, take-away, alcohol, lack of exercise and smoking - compounding