

Hypertension

How Nurses Can Make a Difference!

For the AHA/ASA Pacific Mountain Affiliate

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**National Association of Chronic Disease
Directors**

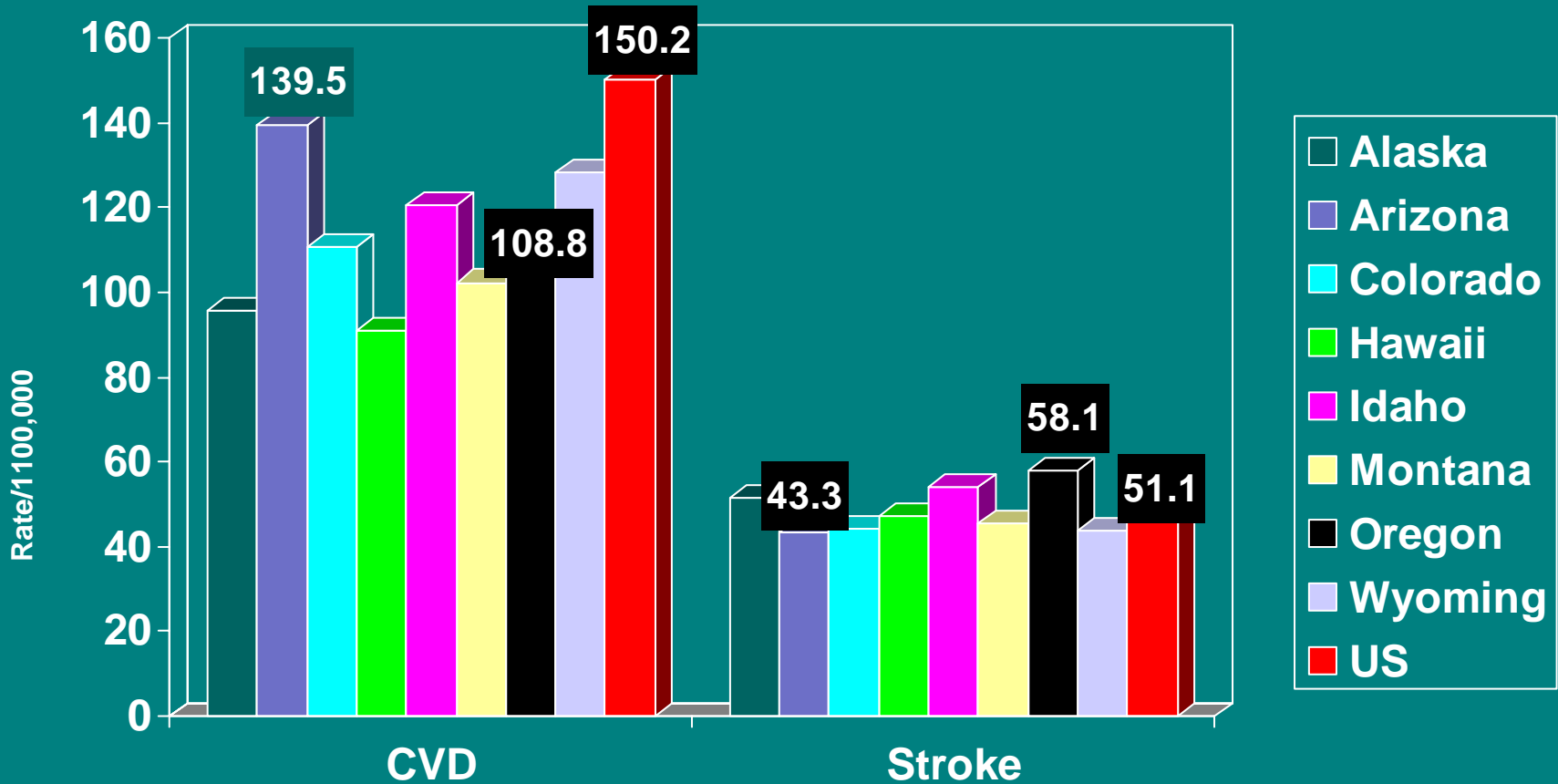
Decreased Heart Disease and Stroke Mortality

Between 1999-2005:

- Heart disease mortality rates decreased by **25.8%**, from 195 to 144 per 100,000 population (1)
- Stroke mortality rates decreased by **24.4%** from 61 to 47 per 100,000 population (2)

2004 Age-Adjusted CHD and Stroke Mortality

Pacific Mountain Affiliate



Source: American Heart Association Heart Disease and Stroke Statistics—2008 Update

Why Worry About Hypertension?

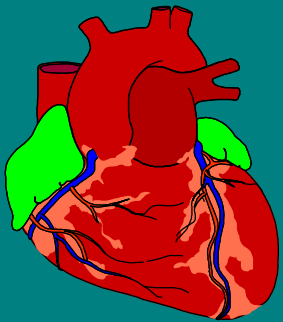
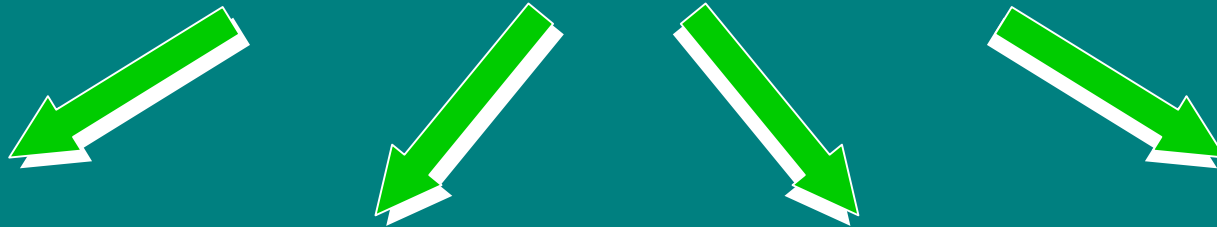
- **Most Common Chronic Disease** ⁽³⁾
- **One in four adults has hypertension** ⁽³⁾
- **The most important risk factor for stroke**
 - **BP below 120/80 mmHg have half lifetime stroke risk, compared to higher BP** ⁽⁴⁾
- **69% of first heart attacks,**
- **77% of first strokes. and**
- **74% of heart failure patients, have BP > 140/90 mmHg** ⁽⁴⁾

Why Worry About Hypertension?

- **Leading reason for office visits to physicians** ⁽⁵⁾
- **Prevalence increasing in children and adolescents** ⁽⁴⁾
- **Associated with shorter overall life expectancy** ⁽⁴⁾
- **May be responsible for up to 75% of complications from diabetes** ⁽⁶⁾

Hypertension Affects Target Organs

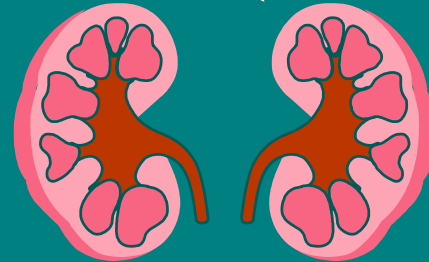
Hypertension



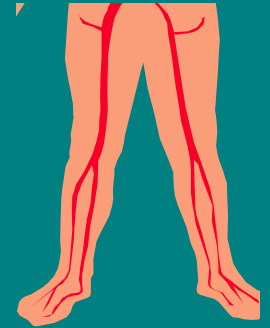
- Angina pectoris
- Unstable angina
- Myocardial infarction
- Sudden death
- Heart failure



- TIA
- Ischemic stroke
- Hemorrhagic stroke



- Renovascular disease
- Renal failure



- Claudication
- Aneurysm
- Critical limb ischemia

Hypertension Is

- **Preventable**
- **Treatable**
- **Controllable**

Progress so Far

1976-80 (NHANES)

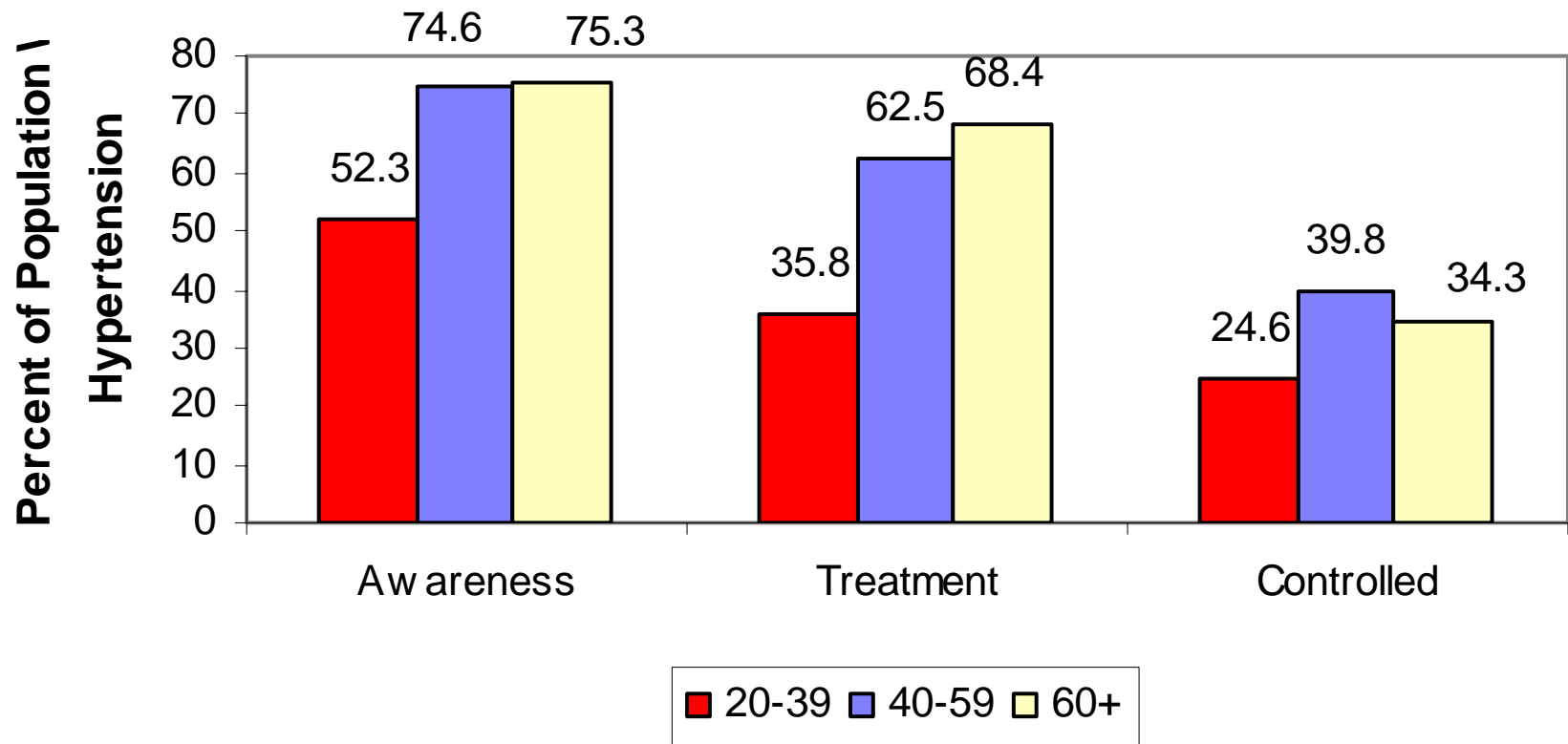
- **Aware: 51%**
- **Treated: 31%**
- **Controlled: 10%**

2004 (AHA)

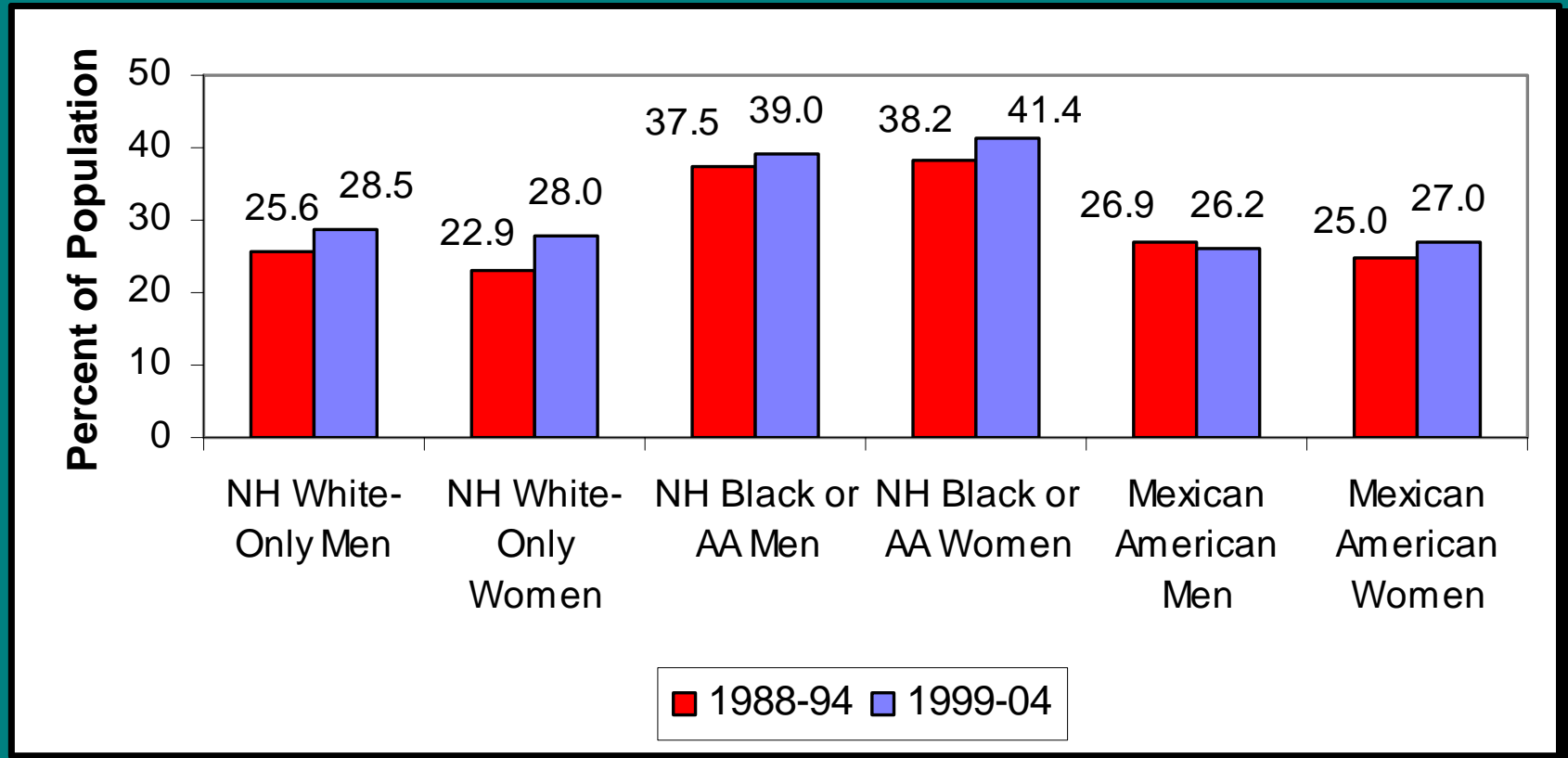
- **Aware: 72%**
- **Treated: 61%**
- **Controlled: 35 %**

Awareness, Treatment and Control of High Blood Pressure by Age

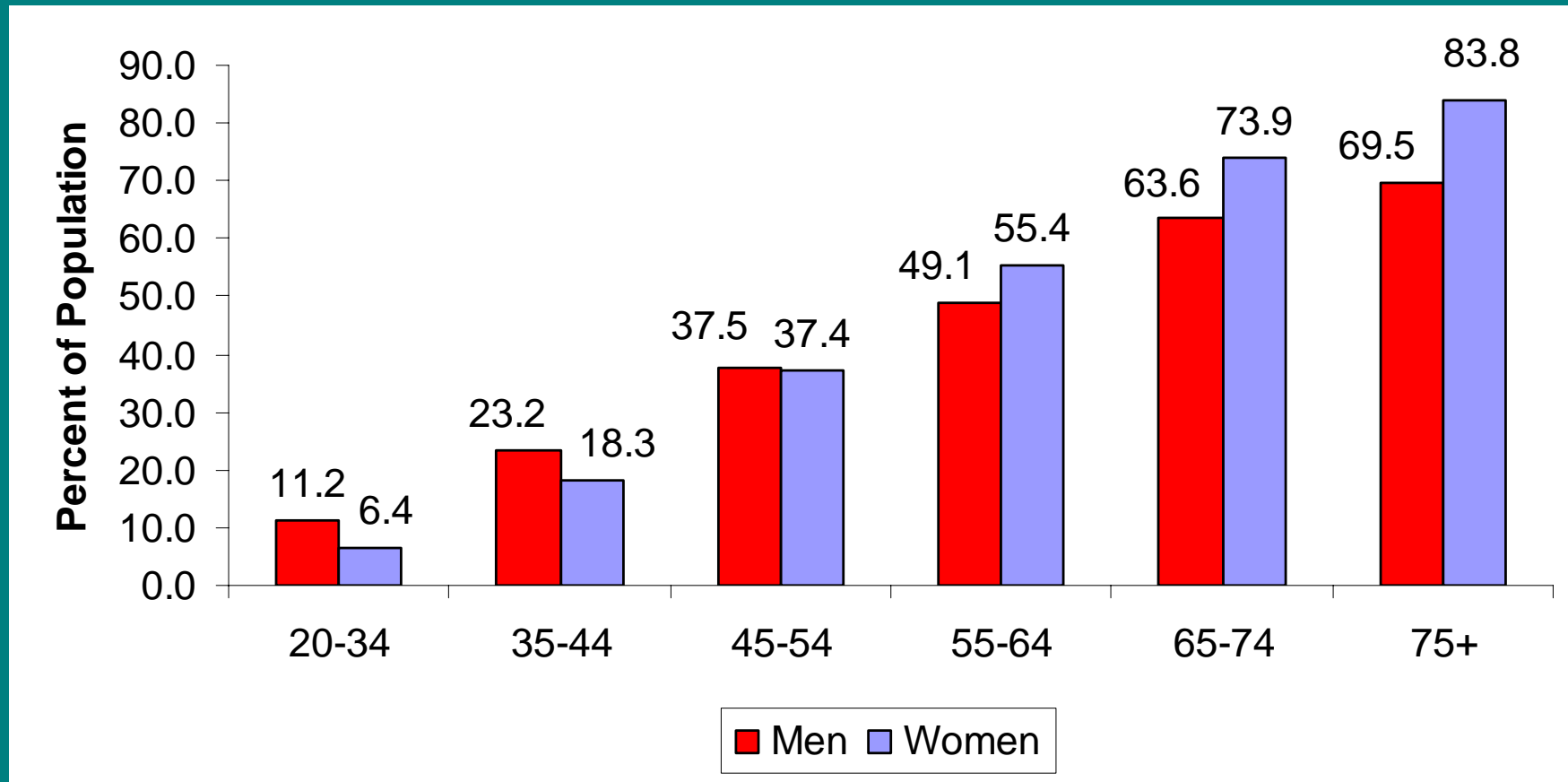
(NHANES : 1999-2004). Source: NCHS and NHLBI.



Age-adjusted Prevalence Trends for HBP in Adults Age 20 and Older by Race/Ethnicity, and Sex



Prevalence of High Blood Pressure in Adults by Age and Sex

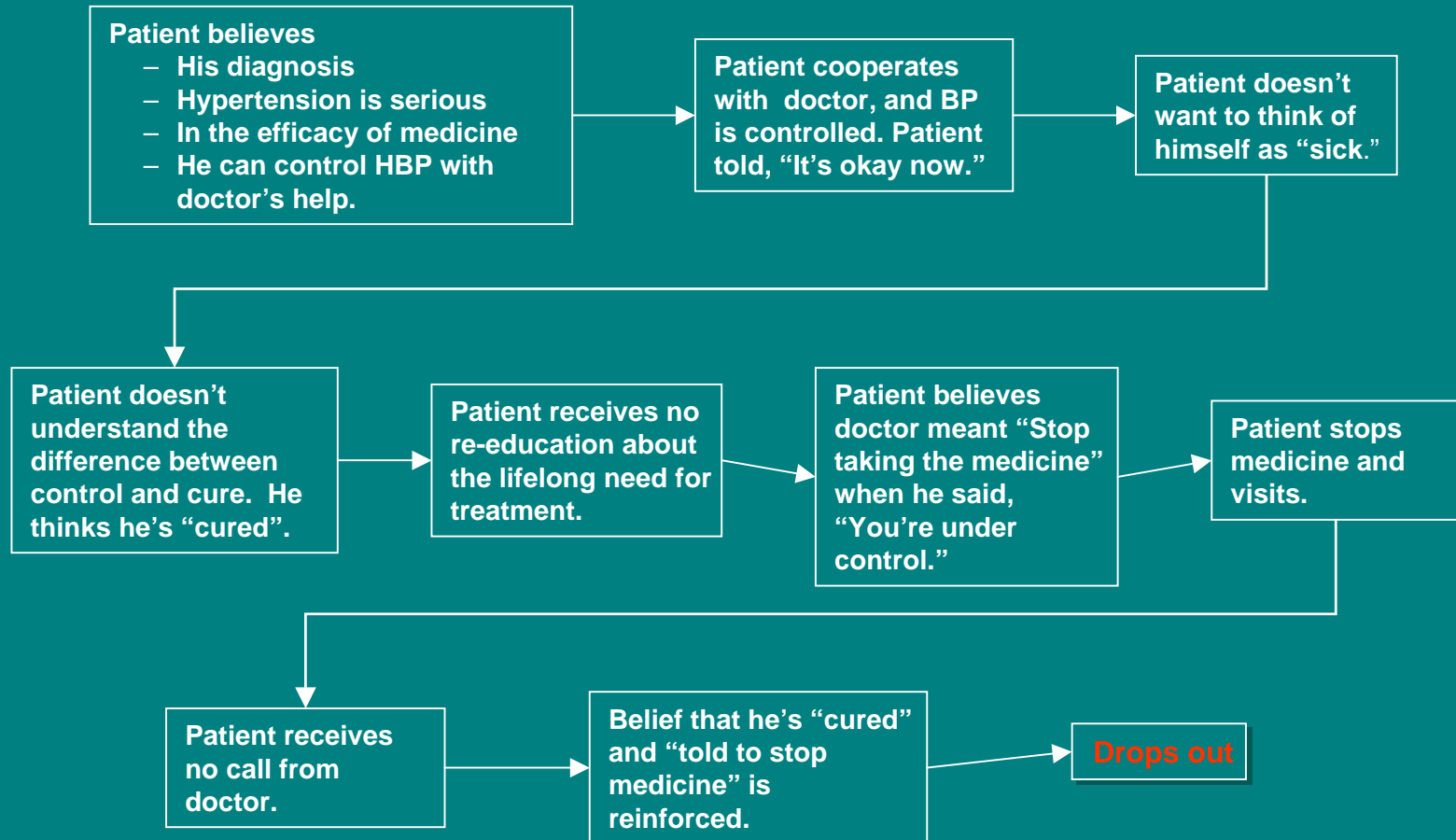


(NHANES: 1999-2004). Source: NCHS and NHLBI.

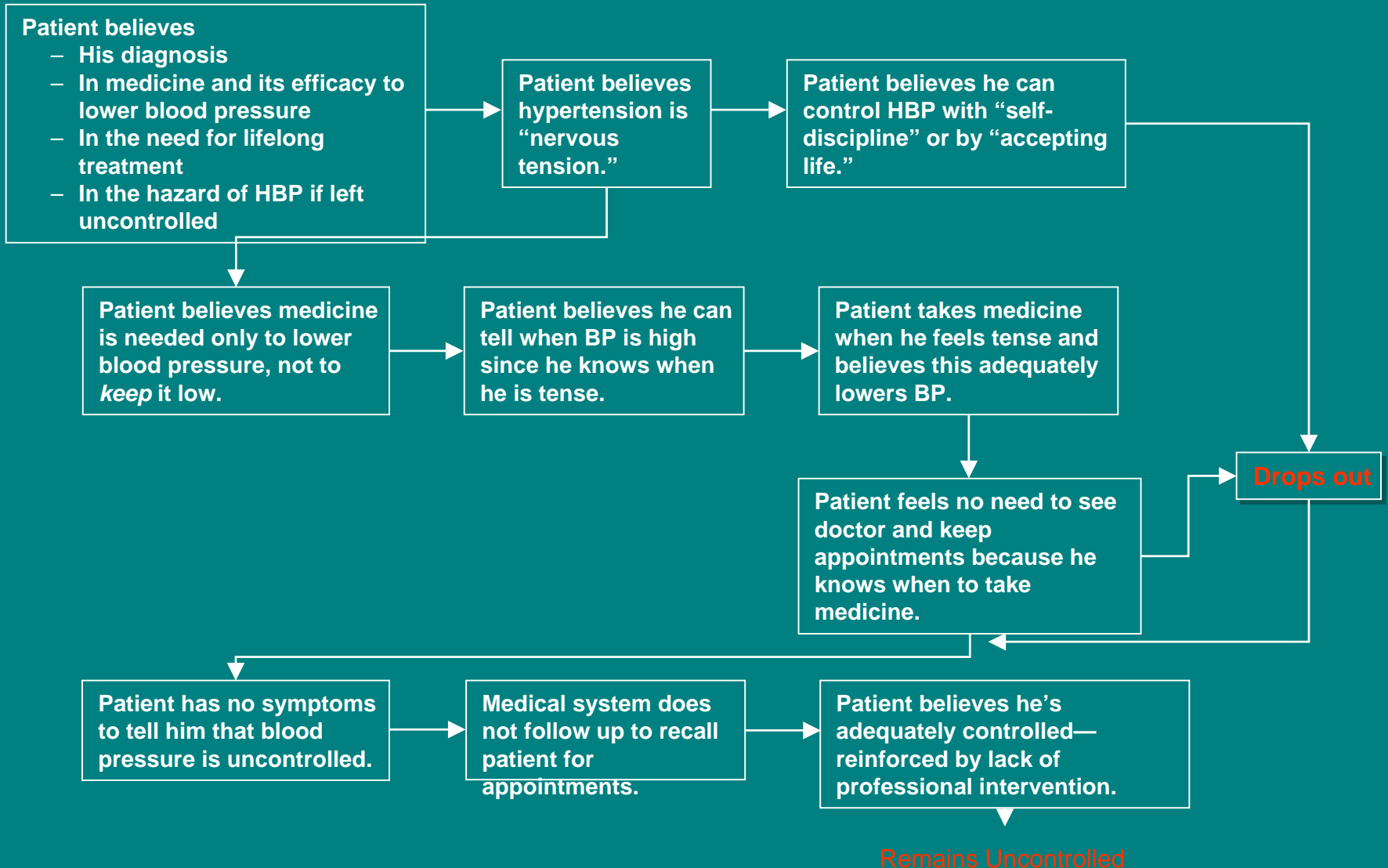
Hypertension

Why is it so hard to control?

“Cured” Model



Nervous Tension Model



Blood Pressure Target Levels

<140/90 mmHg

For general coronary artery disease (CAD) prevention

<130/80 mmHg

Established CAD

Stable and unstable angina

Non-ST and ST-elevation MI

Heart failure secondary to CAD

<130/80mmHg

At risk for CAD

Diabetes

Chronic kidney disease

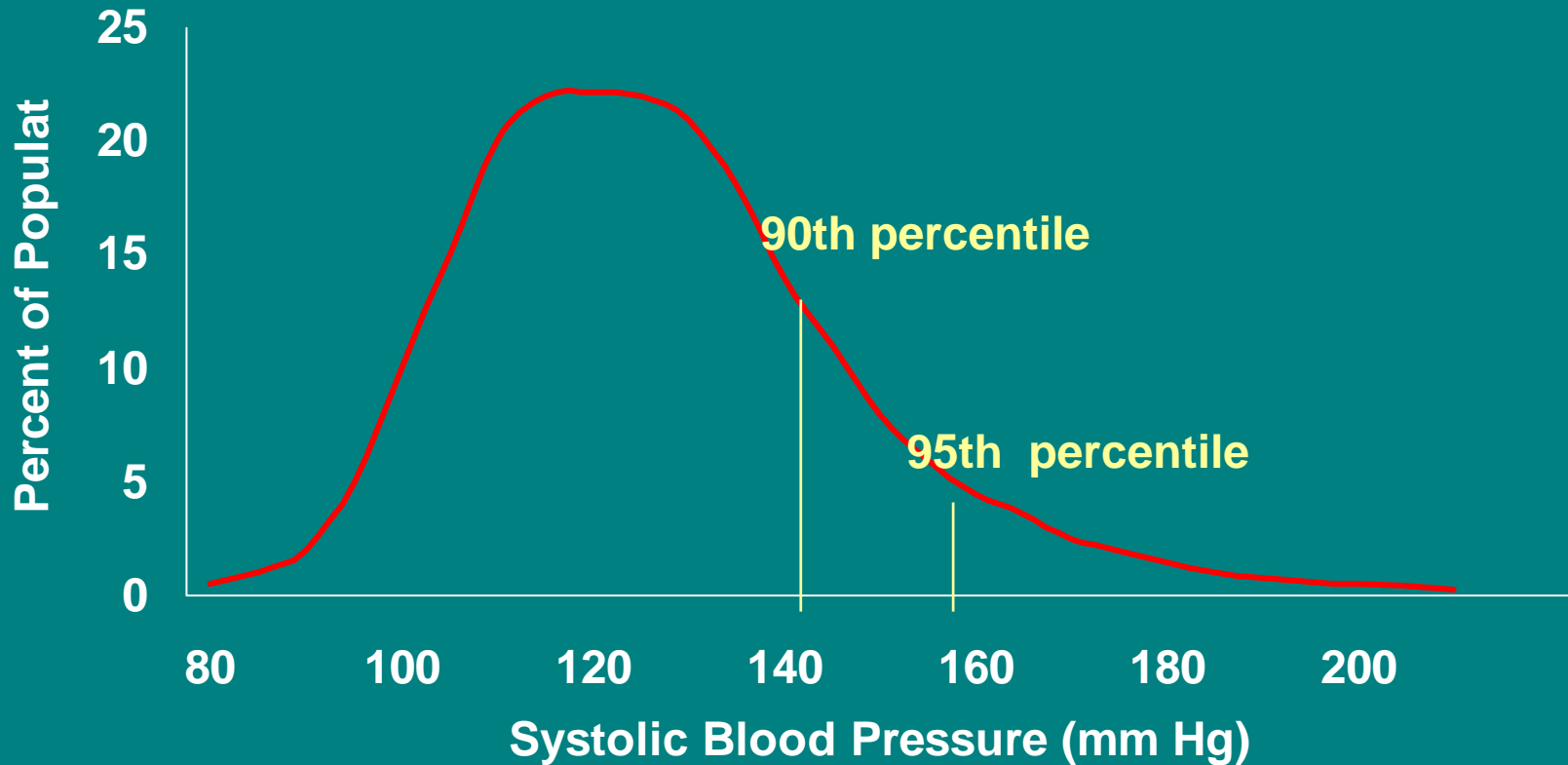
CAD risk equivalent

Risk score $\geq 10\%$

<120/80mmHg

Left-sided ventricular dysfunction (lowering should be slow)

Distribution of Blood Pressures in Adults in the United States



Source: NHANES II

Public Health Approaches to HBP

- Public health approaches, (e.g. reducing calories, saturated fat, and salt in processed foods) can achieve a downward shift in a population's BP.
- Reducing overall BP by only a few mm Hg could affect overall CVD morbidity and mortality by as much or more than treatment alone.
- Public Health approaches provide an attractive opportunity to interrupt and prevent the costly cycle of managing hypertension and its complications.

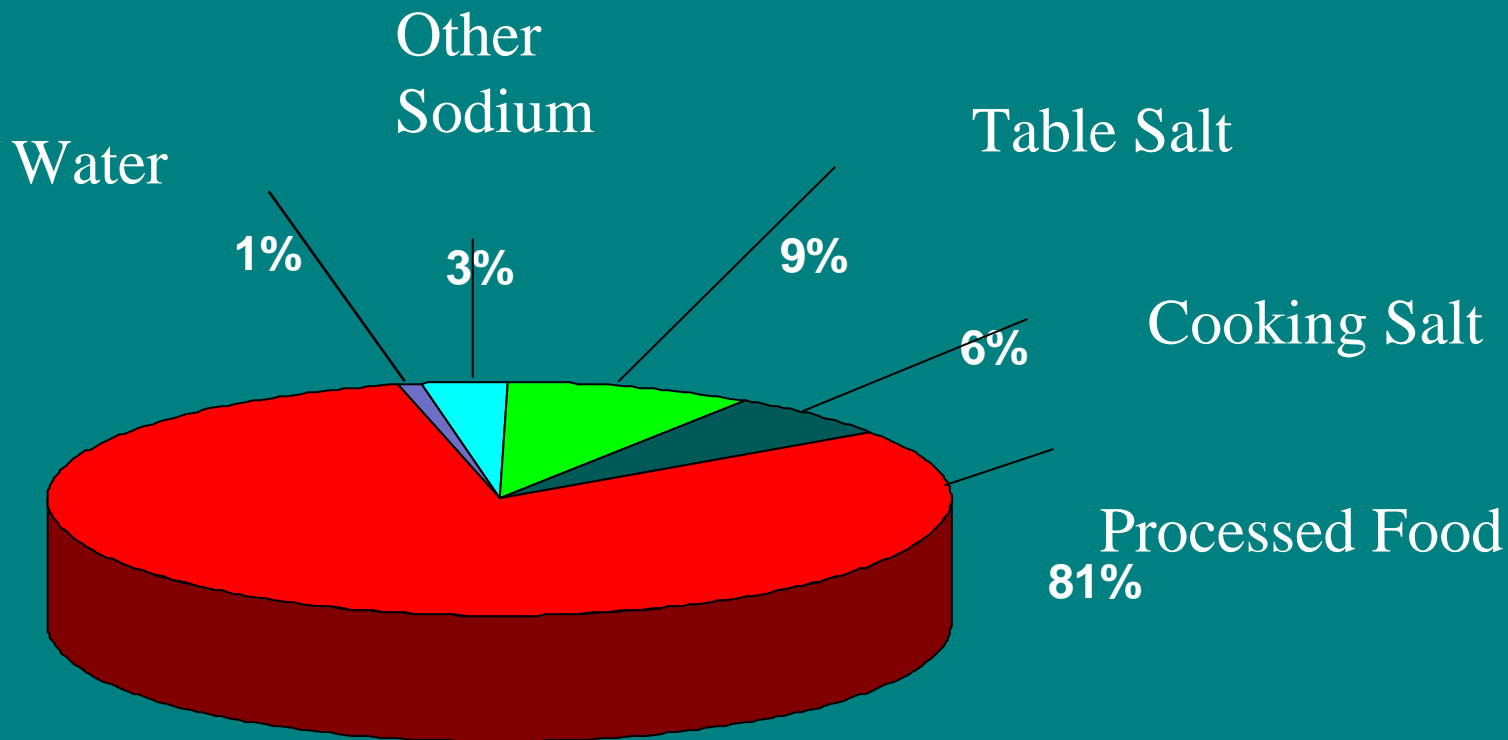
Lifestyle Modifications

Modification	Approximate SBP Reduction (range)
Weight Reduction	5-10 mmHg/10kg
Adopt DASH eating plan	8-14 mmHg
Dietary sodium reduction	2-8 mmHg
Physical activity	4-9 mmHg
Moderation of alcohol consumption	2-4 mmHg

Sodium Intake and BP

- Average American consumes \square ~4000 mgs sodium daily
- Daily decrease in sodium intake of 100 mmol would reduce BP 5.8/2..3 in hypertensives and 2..3/1.4 non-hypertensives
- DASH diet plus sodium reduction reduced BP 11.5/5.7 and 7.1 and 3.7
- APHA, AMA, JNC et.al- 50% reduction of sodium in food supply

SOURCES OF DIETARY SALT



Source: James et al. The dominance of salt in manufactured food in the sodium intake of affluent societies. *Lancet* 1987;8530:426-428.

What If More People Were Controlled?

**If reduced systolic blood pressure
by 12-13 points...**

- **Reduce chance of stroke by 37%**
- **Reduce chance of heart attacks by 38%**
- **Reduce chance of CHF by 55%**

Population-Based Strategy

SBP Distributions

After
Intervention

Before
Intervention

Reduction in
BP

Reduction in SBP
mmHg

% Reduction in Mortality
Stroke CHD Total

2

-6

-4

-3

3

-8

-5

-4

5

-14

-9

-7

Top Seven Recommendations

- **Identify, disseminate and promote utilization of evidence-based guidelines for hypertension, identification, treatment and management**

Top Seven Recommendations

- **Encourage primary care practices to adopt team-based care that move between physicians and non-physicians. This could include nurse case management and pharmacy intervention.**

Top Seven Recommendations

- **Identify and promote simple information system solutions (like registries, reminder systems and identification flags for patients at high risk) to practices that don't have the capital or personnel to deal with electronic health record conversion.**

Top Seven Recommendations

- **Encourage statewide collaboration and coordination with organizations that have succeeded in developing community activities to improve hypertension control (Indian Health Service, HRSA and other federally funded health centers, Medicaid) to find common activities and support for disease management programs.**

Top Seven Recommendations

- **Teach patients to ask provider, “Why is my blood pressure not less than 140/90 mg/hg, and how can we get there?”**

Top Seven Recommendations

- **Obtain the cost benefit data to demonstrate how hypertension prevention and control can reduce health care costs, increase productivity, and showcase worksite benefit programs that have successfully encouraged BP control and a difference in BP control rates.**

Top Seven Recommendations

- **Develop/promote programs that employers can provide without having to hire staff to write and develop.**

References and Sources

- 1-2 **National Center for Health Statistics, USA Today, January 21, 2007**
3. **National High Blood Pressure Education Program, HBP Fact Sheet**
4. **AHA/ASA Heart Disease and Stroke Statistics—2008 Update**
5. **National Ambulatory Medical Care survey, 2004 Summary. Advanced data from vital and health statistics. No. 374. June 23, 2006.**
6. **National Institutes of Health, National Heart, Lung, and Blood Institute, National High Blood Pressure Education Program Working Group Report on HYPERTENSION IN DIABETES. U.S. Department of Health and Human Services, Public Health Service**