Salt and the Public's Health—A Call to Action

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Shasta County Health and Human Service Agency

Salt should be regulated as food additive, group says

THE salt in processed food and restaurant meals is causing 150,000 premature deaths each year, according to an advocacy group that is suing the U.S. Food and Drug Administration to declare sodium a food additive that would be subject to regulation.

The Center for Science in the Public Interest released a report in late February that calls salt "the forgotten killer" for its links to hypertension, heart attack and stroke. The 2005 Dietary Guidelines for Americans recommend consuming less than 2,300 mg of sodium daily. Yet U.S. sodium intake has increased steadily since the 1970s.

An APHA policy adopted in 2002 calls on the food industry to reduce the amount of sodium in the U.S. food supply.

Photo by Niilo Tippler, courtesy iStockphoto

Because of its potential health effects, sodium should be more tightly regulated, advocates said.

"What's new about the (Center for Science in the Public Interest) report is that it takes the APHA resolution one step forward, noting that the food industry has not lowered sodium in processed and restaurant foods, with rare exceptions, and that consumption is going up," Stephen Havas, MD, MPH, MS, told *The Nation's Health.* Havas is an APHA member and one of the lead authors of the 2002 sodium resolution.

"Many other countries such as the (United Kingdom) have been taking action, and it's time we do something too to end the needless death and disability attributable to all this sodium put in our food without our consent," he said.

Havas and colleagues wrote in a January 2004 *American Journal of Public Health* commentary that a 50 percent reduction in sodium in the nation's food supply over the next 10 years would save 150,000 lives annually.

The center's lawsuit against FDA, filed in the U.S. Court of Appeals for the District of Columbia, contends that as salt content in food hasn't declined, the court should order FDA to finalize a decision on salt's regulatory status. If FDA were to declare sodium a food additive, the agency would then have the authority to set limits for salt in foods.

Consumers often are unaware of the salt overload in packaged foods and restaurant meals, according to the Center for Science in the Public Interest report. For example, a can of vegetable soup can contain almost 1,000 mg of sodium and a typical order of General Tso's chicken with rice has 3,150 mg of sodium.

The report, "Salt: The Forgotten Killer," is at <www.cspinet.org/salt>. ■

— *Donya C. Arias*

Outline

Too much salt…

is making us sick

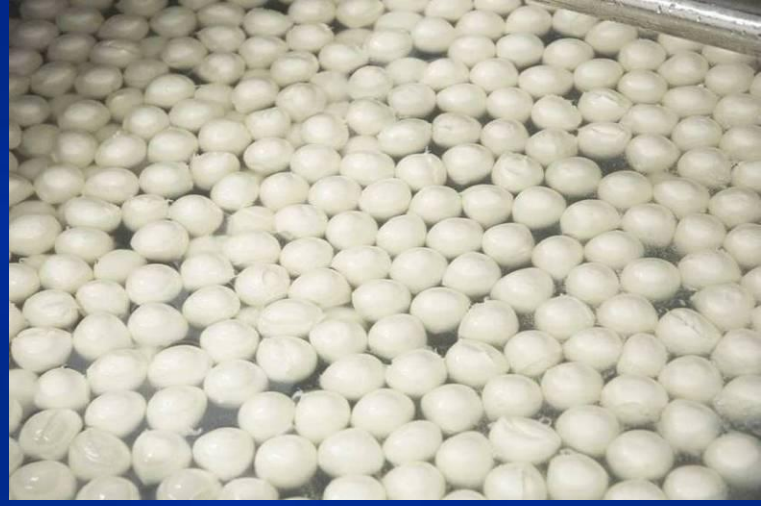
Reducing salt saves lives and money

Food supply is key:

Let’s do this!

Too much salt…

is making us sick



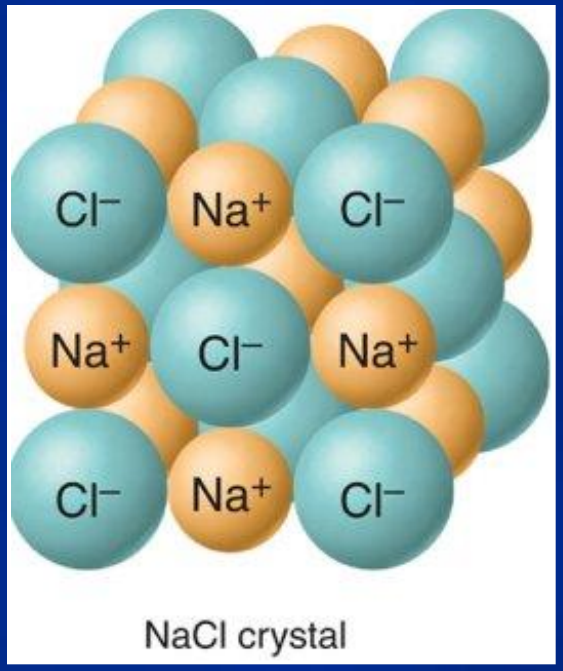
Reducing salt saves lives and money

Food supply is key: Let’s do this!

Salt or Sodium?

“table salt” = sodium (Na) chloride (Cl)
(40%) (60%)

- 90% of the sodium we consume in the form of salt
- sodium the problem
- communication testing—use “salt”



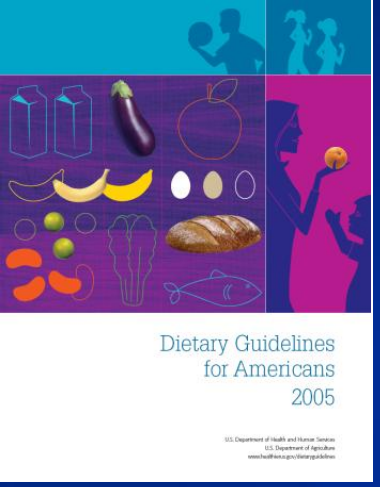
NaCl crystal

- one tsp of salt = 6 g of salt = 2400 mg of sodium (Na) = more than all Americans should eat per day contained in all foods and beverages combined

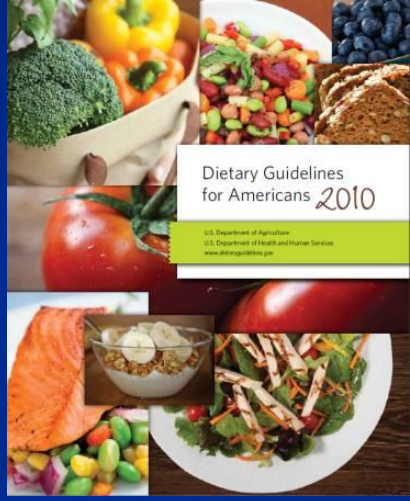
Sodium intake exceeds recommendations:

Recommended intake	1500 mg/d (or 2300 mg/d)
Average U.S. intake	3466 mg/d

Source: Mattes RD, Donnelly, D. Relative contributions of dietary-sodium sources. *J Am Coll Nutr.* 1991 Aug;10(4):383–93.



2005 and 2010 Dietary Guideline Recommendations for Sodium

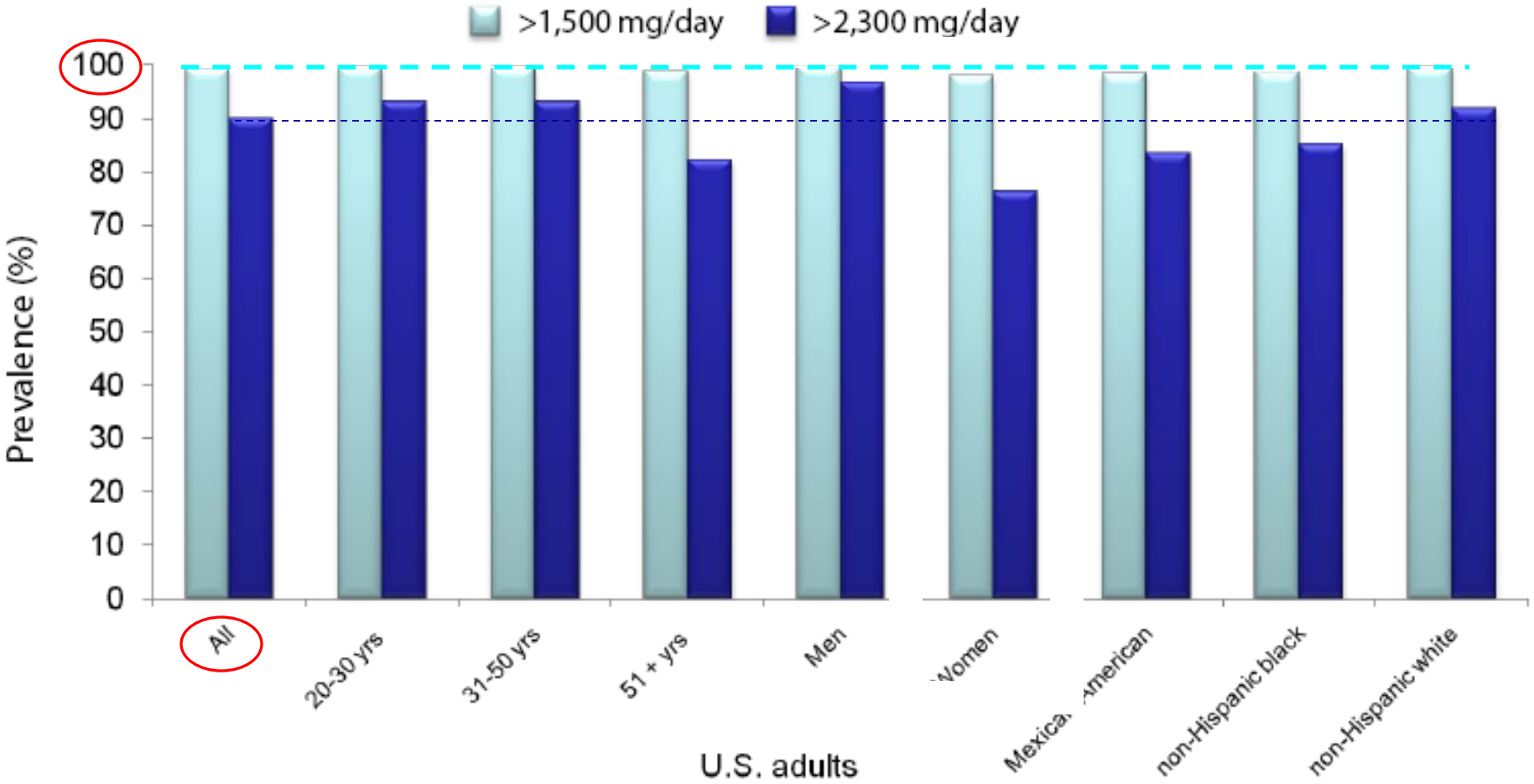


- Maximum of 1,500 mg/d for high risk groups
  - **middle- and older-aged persons**
  - **Blacks/African-Americans**
  - **persons with hypertension, diabetes or chronic kidney disease**
  - **Children** (<18 yrs old)

- (Maximum for most healthy young adults: < 2,300 mg/d)

www.DietaryGuidelines.gov

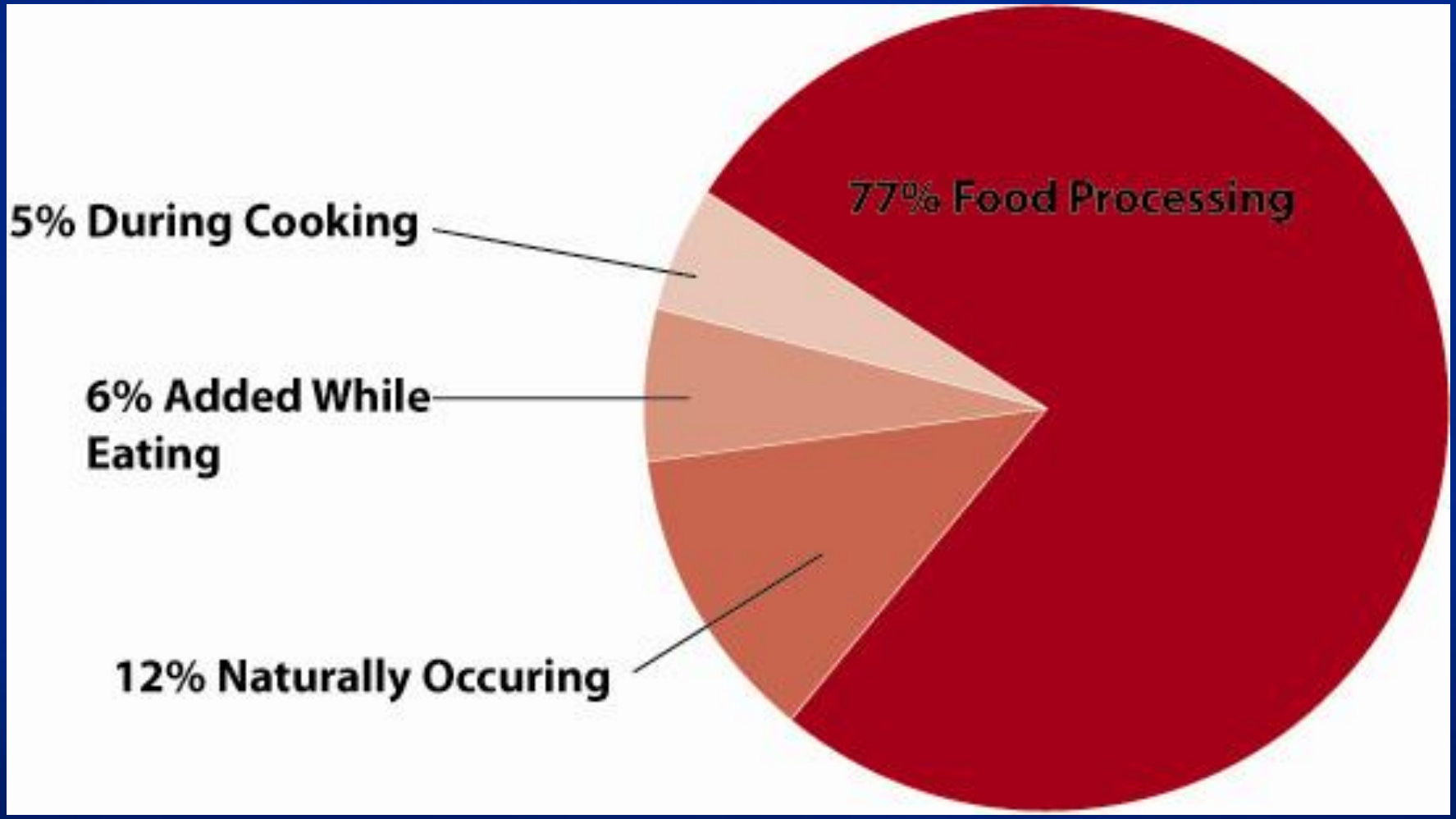
U.S. Adults ≥20 Years Who Consume More Sodium than Recommended



Cogswell M, et al. [unpublished data] NHANES 2003-2008

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Sources of Sodium



Source: Mattes RD, Donnelly D. Relative contributions of dietary sodium sources. *JAM Coll Nutr. 1991 Aug, 10(4) 383-93*

Burger King Chicken Whopper

1,420 mg sodium

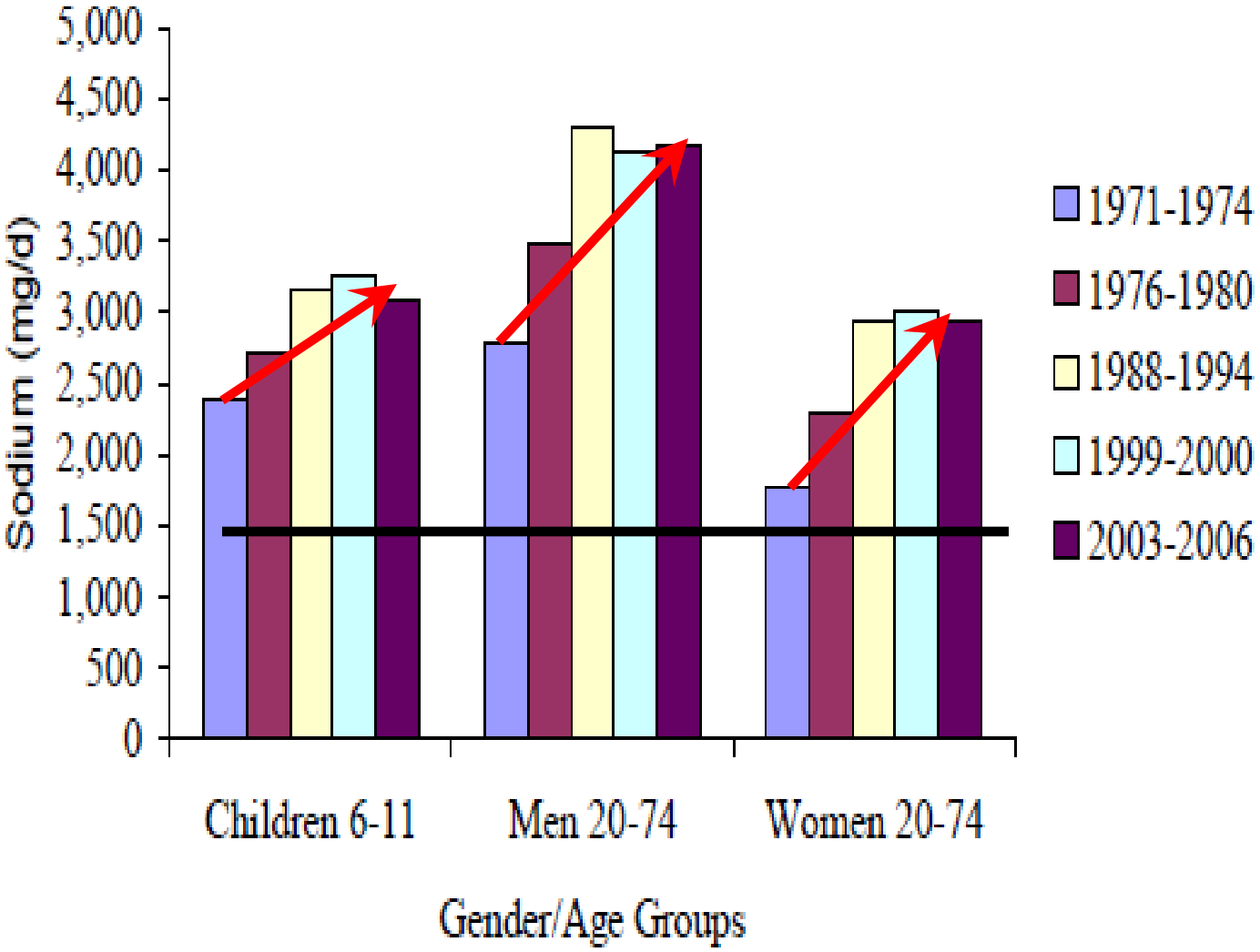
Center for Science in the Public Interest

Chicken Caesar Salad

1,490 mg sodium

Center for Science in the Public Interest

Sharp ↑ in salt consumption:



Over last 3 decades, salt intake has increased by 50%

Source: Briefel and Johnson (2004) for 1971-2000 data; NHANES for 2003-2006 data.

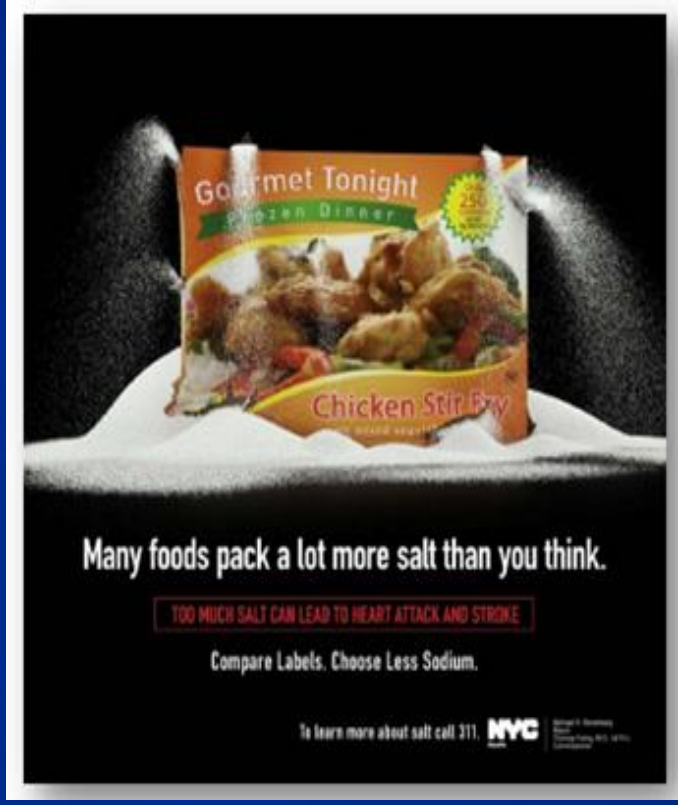
Why is our salt intake so high?

- Busy lifestyle!
- Want convenience
- Less home-cooked meals

Why has salt consumption been rising?

- Major increased use in processed foods
- Bigger portion sizes
- Physician and other counseling often focused on added salt or low salt products
- Society hasn’t grappled with most salt in the food supply…without our consent

Why do food manufacturers use so much salt?



- Preservative
- Taste
  - Inexpensive way to add flavor
  - Many people habituated to very salty food
  - Can be unlearned (6 wk down regulation of salt taste receptors)
- Weight of food (can affect profit)

Too much salt…

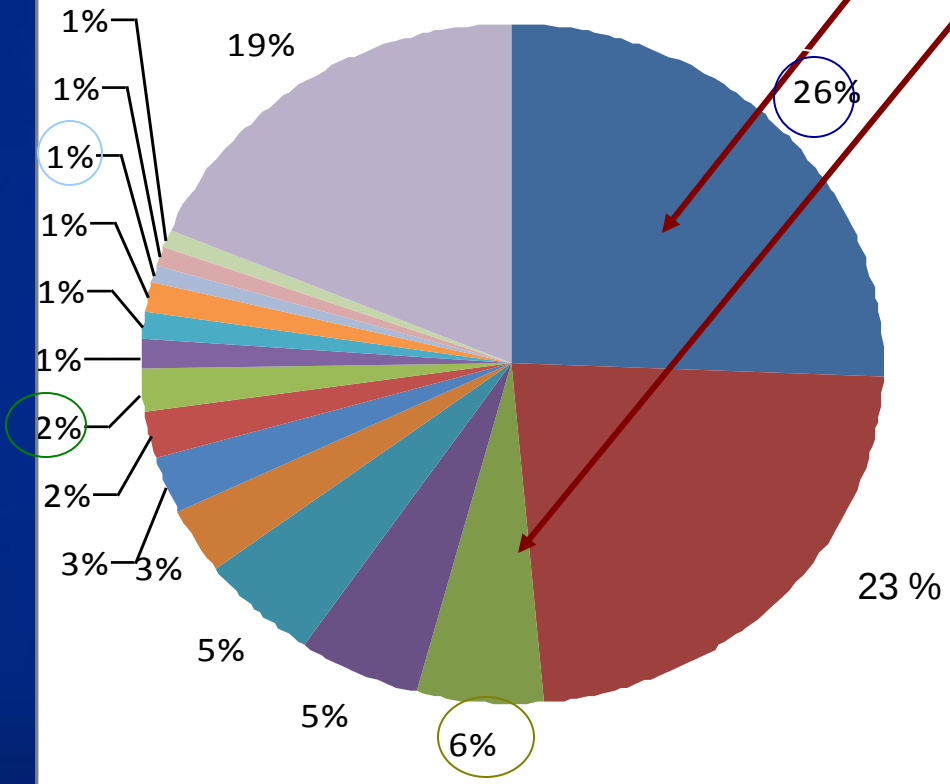
is making us sick

Reducing salt saves lives and money

Food supply is key:

Let’s do this!

Causes of death U.S.



- Heart Disease n=616,067
- Malignant Neoplasms
- Cerebrovascular Disease (stroke) n=135,952
- Chronic Lower Respiratory Disease
- Unintentional Injuries
- Alzheimer's
- Diabetes
- Flu & Pneumonia
- Nephritis, Nephrotic Syndrome & Nephrosis
- Septicemia
- Suicide
- Chronic Liver Disease & Cirrhosis
- Essential Hypertension & Hypertensive Renal Disease
- Parkinson's
- Homicide
- Other

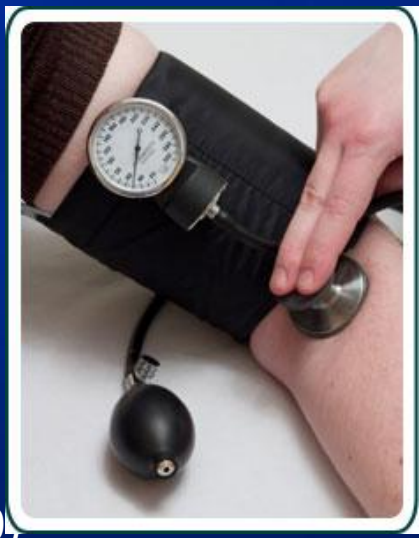
Source: CDC www.cdc.gov/nchs/fastats/lcod.htm

Hospitalizations U.S.—selected causes
2007

- Heart disease = 4,000,000
- Stroke = 829,000
- Kidney disease = 1,646,000 (2005)

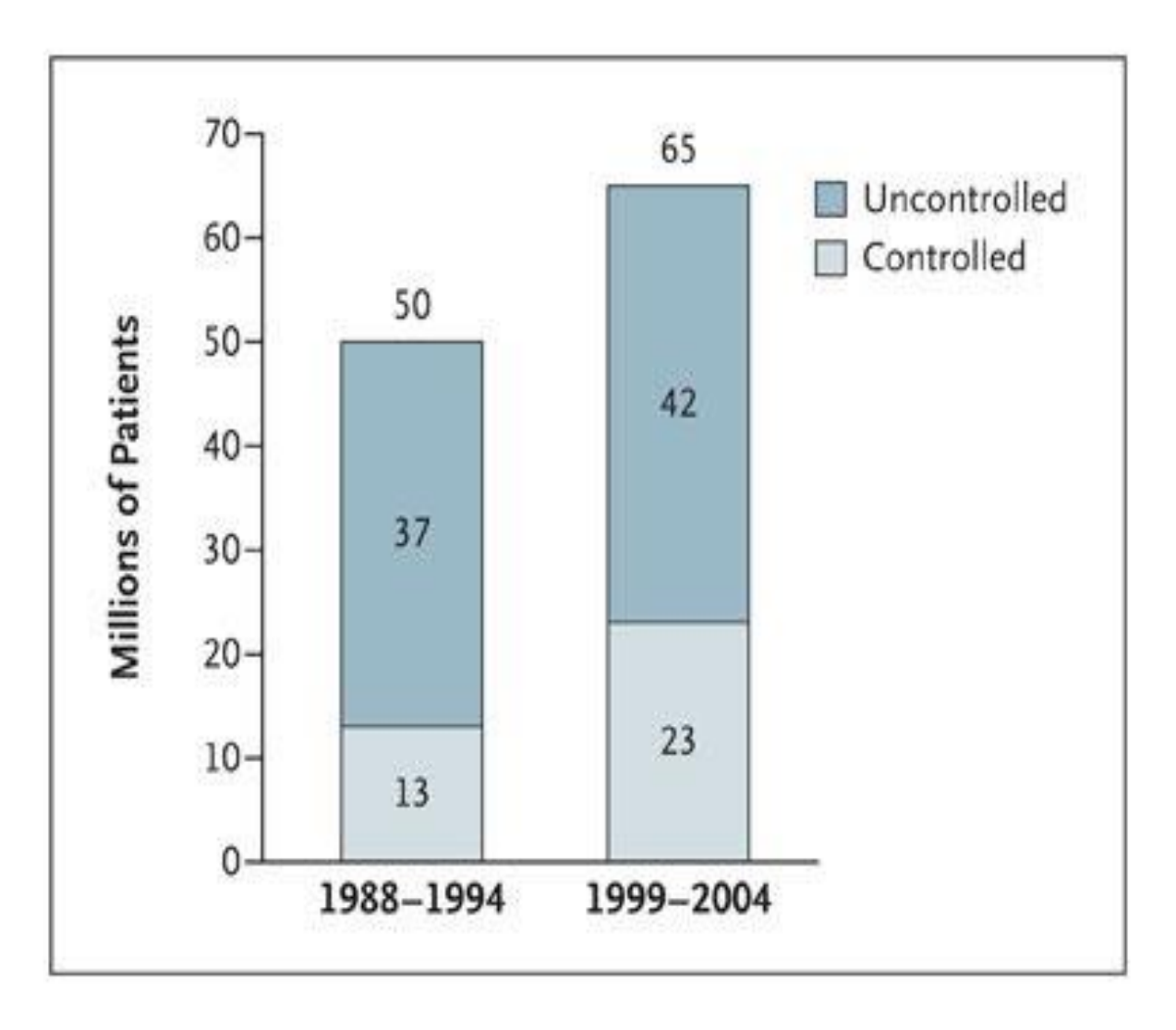
Hypertension (HTN) huge risk factor

- Proportion of heart disease attributable to HTN: 50%
- Proportion of strokes attributable to HTN: > 60%
- HTN second largest contributor to total burden of disease in much of the world
- Significant cause congestive heart failure



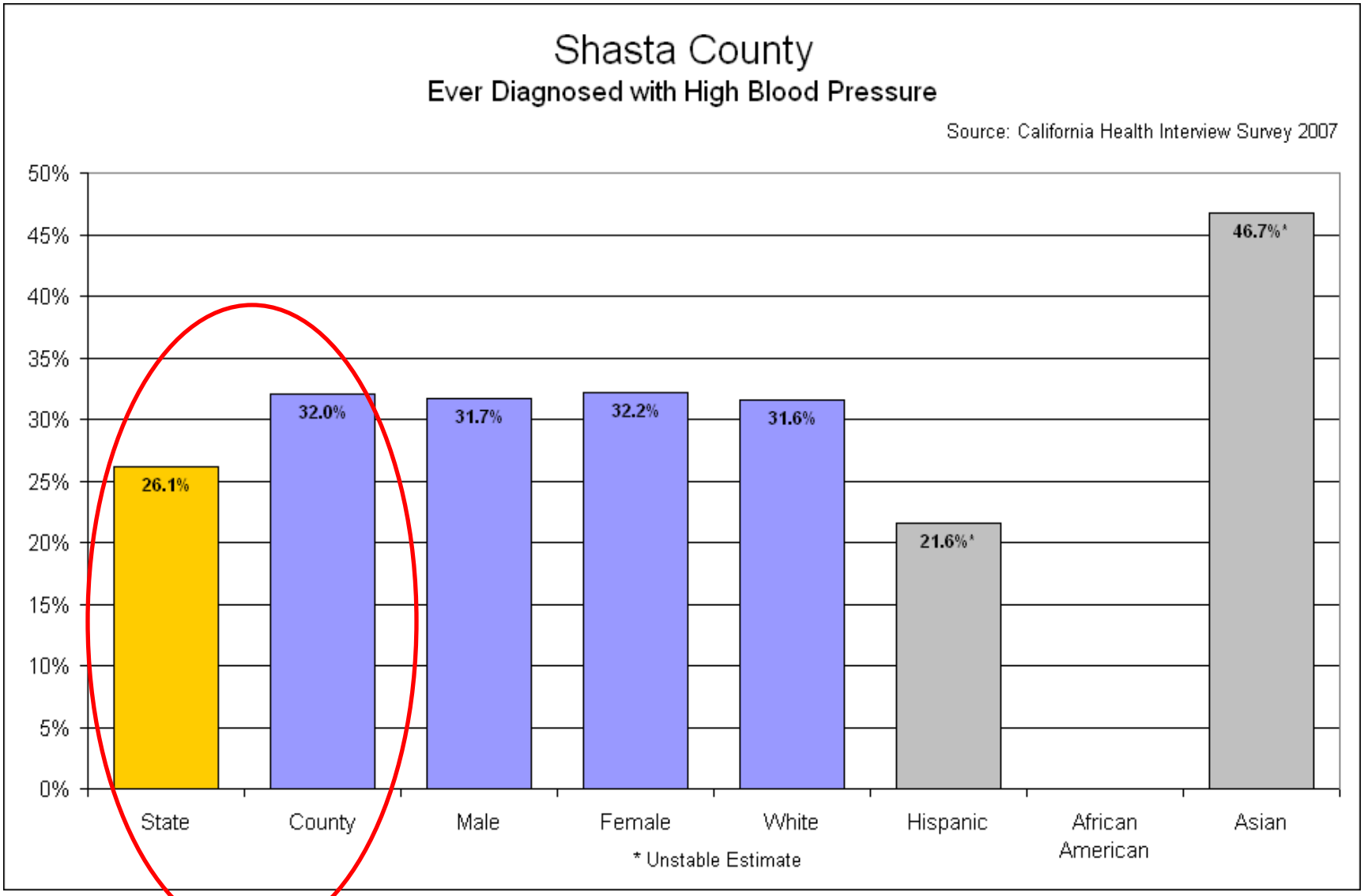
(Source: WHO 2002-- www.who.int/whr/2002/en/whr02_en.pdf pg 69)

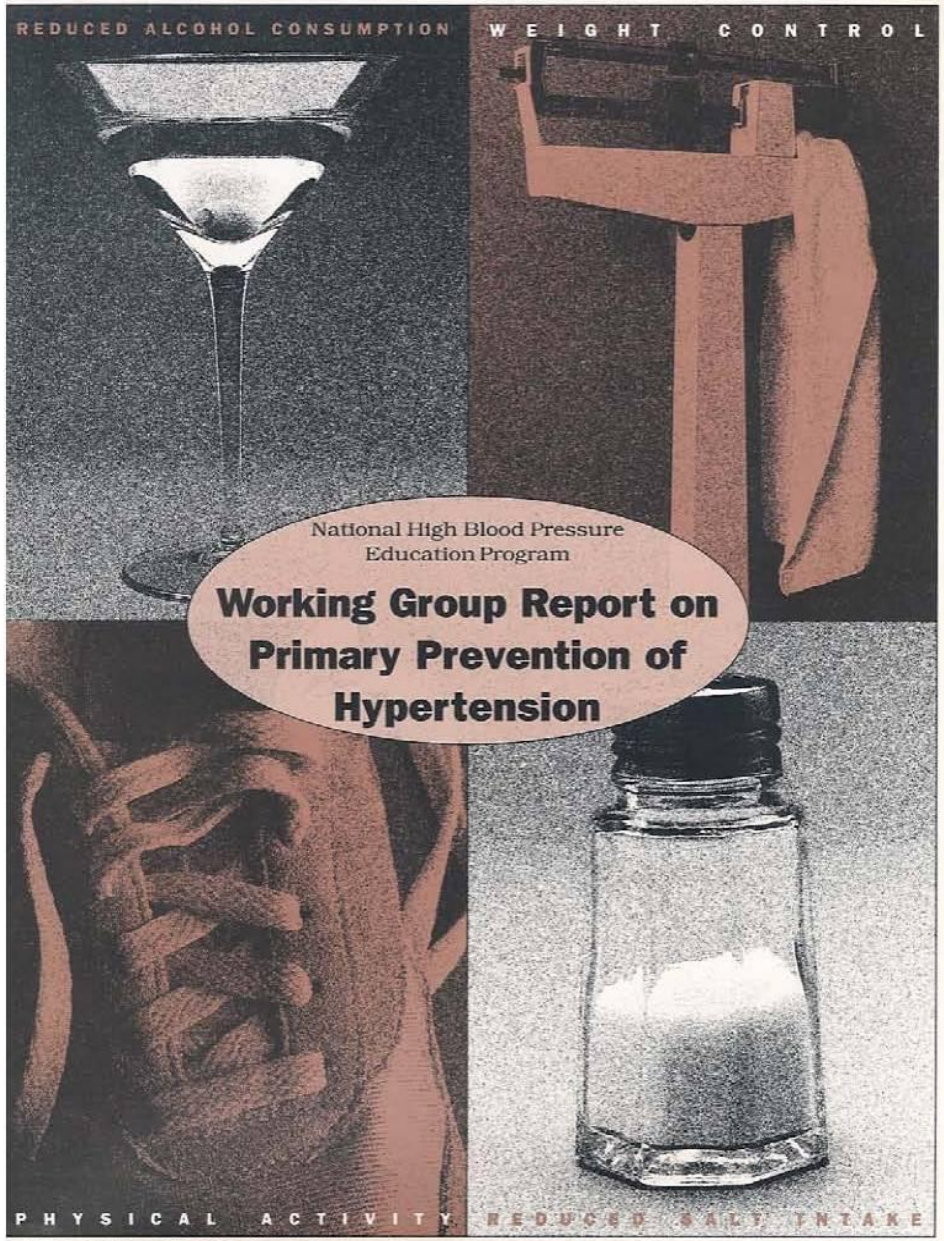
Prevalence and control of hypertension in the United States



Source: Chobanian A. N Engl J Med 2009;361:878-887

High Blood Pressure in Shasta County





Arch Int Med 1993; 153:186-208.

How salt ↑ BP?

Lowering dietary salt lowers blood pressure

Decades of evidence

- Randomized controlled trials
- Community-based trials
- Ecological natural experiments

Even small reductions in dietary salt will lower blood pressure

Everyone's blood pressure goes down when they reduce salt in their diet

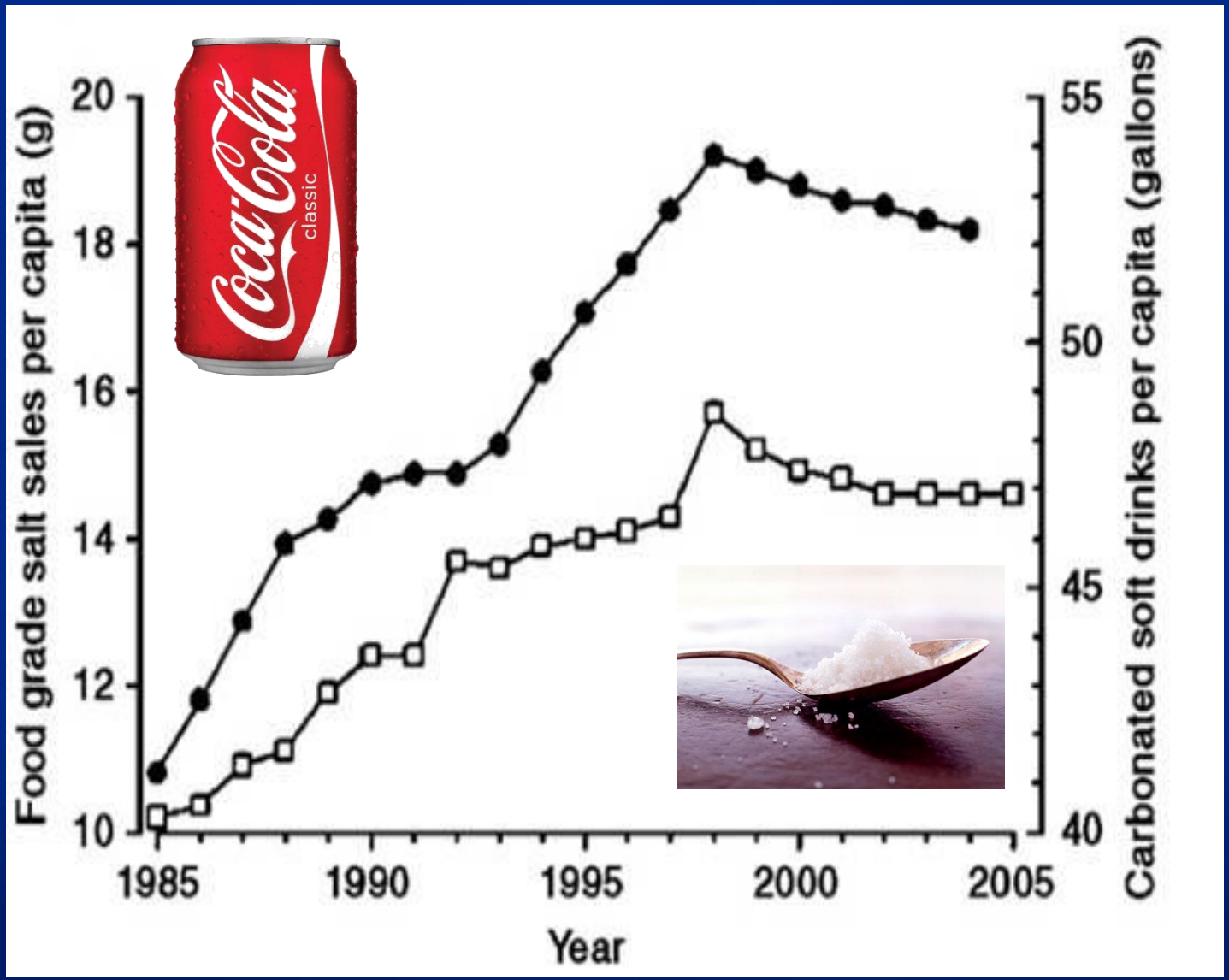
The degree of BP reduction is greater in some groups:

- Hypertension
- African Americans
- Elderly (>40)

The NEW ENGLAND JOURNAL of MEDICINE

Source: Sacks F et al. N Engl J Med 2001; 344:3-10

Link between salt intake and obesity?



Source: Karppanen H and Mervaala E. Prog Cardiovasc Dis 2006; 49:59-75.

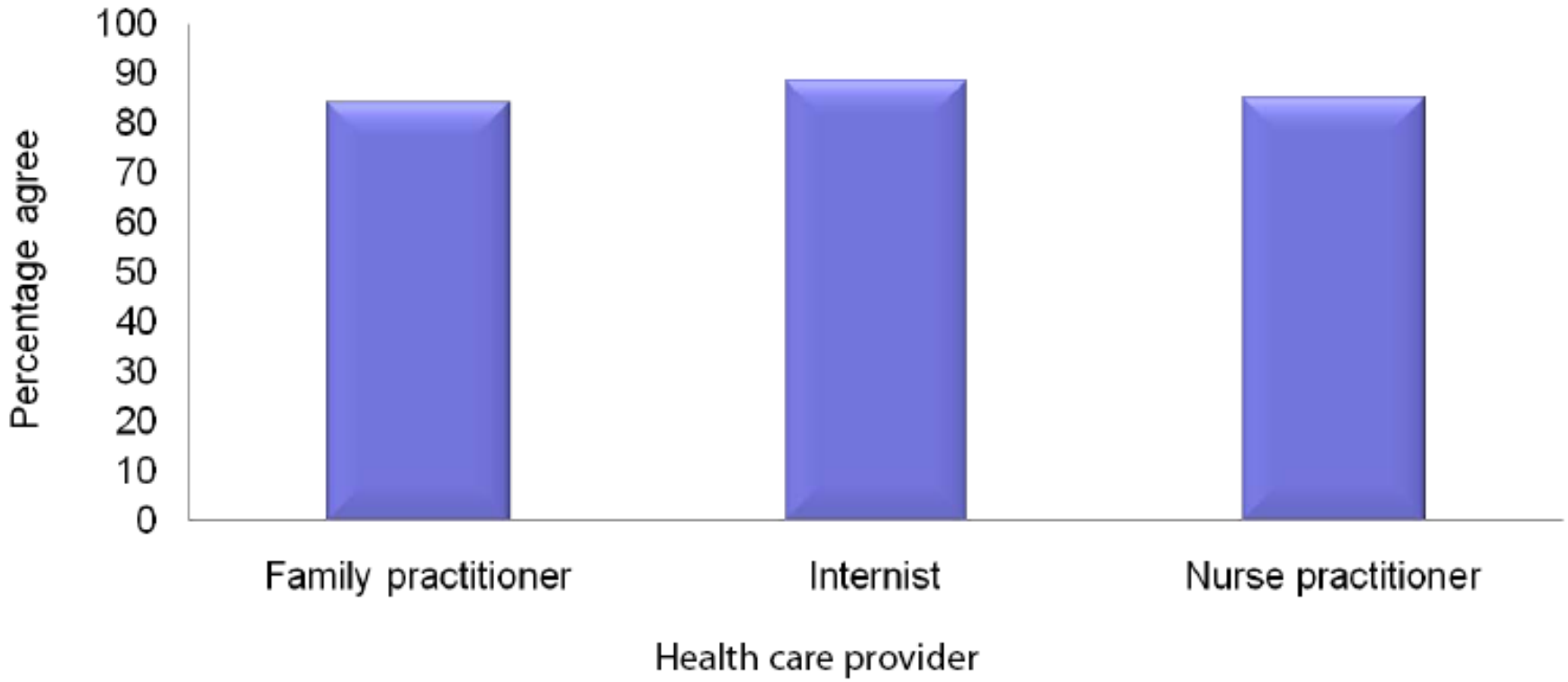
Too much salt…
is making us sick

Reducing salt saves lives
and money

Food supply is key:
Let’s do this!

Health Care Providers Who Agree with Importance of Sodium Reduction for their Patients

Statement: "Most of my patients should reduce their sodium intake"



Fang J, et al. DocStyles [unpublished data]. 2010

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Physicians Advise Patients to Consume Less Salt

Disease Category	
Prehypertension	77.7%
**Hypertension*	*86.8%*
Chronic kidney disease	74.4%
Diabetes	49.3%

Age	
Over 40 years	*22.3%*
All adults	31.4%

n = 1,250

Source: DocStyles, 2009.

People receive and act on low-salt advice:

Source: Behavioral Risk Factor Surveillance System

Reducing salt =↓ blood pressure and saved lives

- **By ↓ average intake of sodium from 3,500mg to 1,500mg/day would result in ~30% decrease in people with hypertension (millions)**
  (CJC 2007 23:437)

- **Reducing sodium levels in packaged foods and restaurant foods by half would save ~<u>150,000 American lives per year</u> from heart attacks and strokes** (AJPH 2004;1:19-22).

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Reducing salt → reducing costs

- WHO estimates $1 per person to reduce salt through regulatory means, public campaigns, monitoring.
  - More cost effective than treating all hypertensives
  - Actually cost savings-- even if only modest reductions in salt achieved.
    - Gradual reduction over the decade to 1 gm/day reduction -> 7 dollars saved in healthcare for 1 dollar spent.

Estimated Effects of Sodium Reduction in the U.S.

- Reducing average intake from 3500 mg to 2300 mg Na per day would…
  - **save $18 billion health care dollars**
  - **reduce # of people with hypertension by 11 million**
  - **gain 312,000 Quality Adjusted Life Years (QALYs)**
- 30% fewer cases of hypertension and many more $ billions saved if intake ↓ to 1500 mg per day

American Journal of Health Promotion. 2009;24:49-57.

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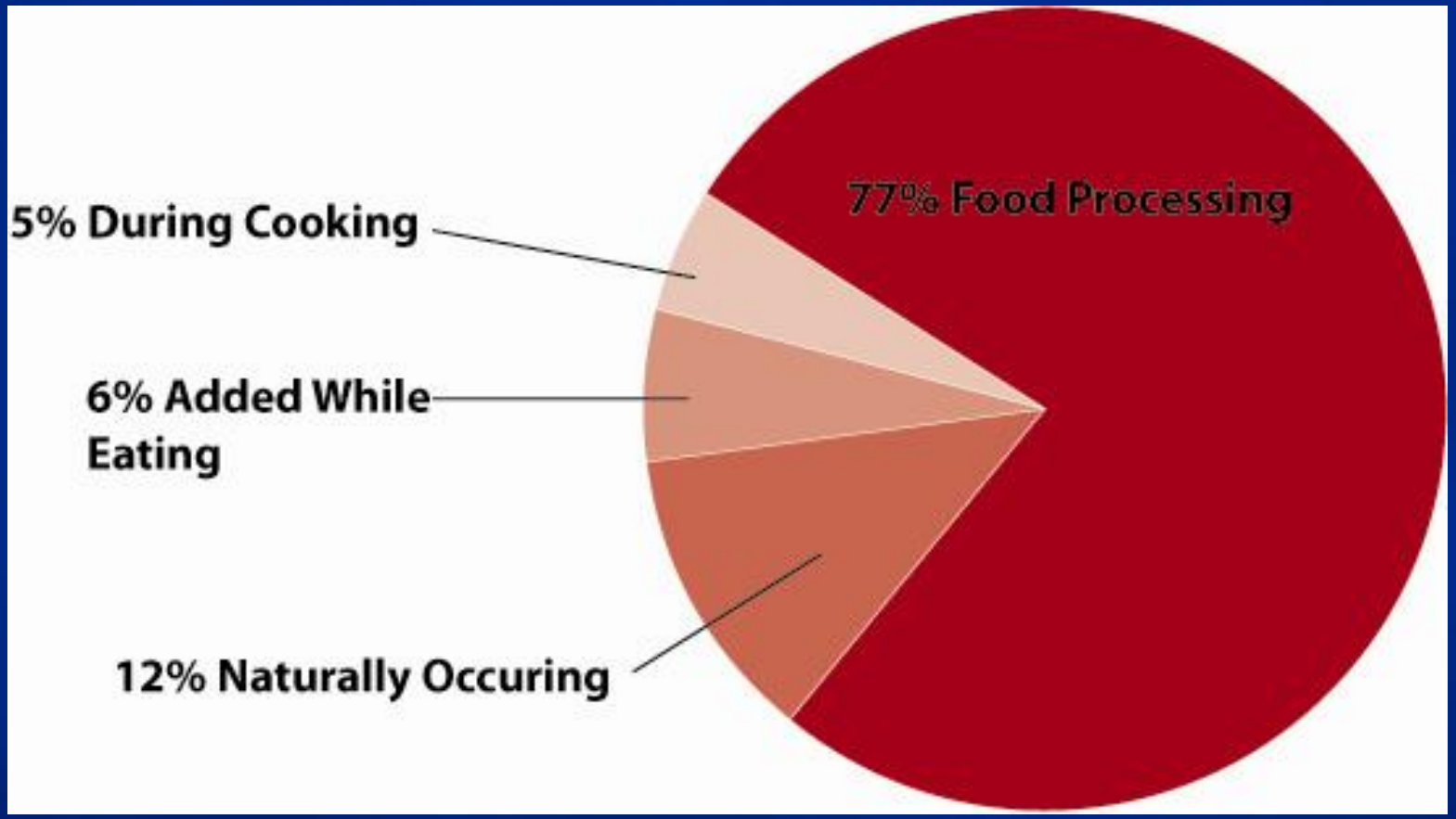

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Most people don't often add salt

82.4% / 64.5%

	Frequency of Use				
	Never	Rarely	Occasionally	Very Often	Don't Know
Table salt use	28.2%	30.6%	23.6%	17.5%	0.1%
Salt use in food preparation	9.6%	19.1%	35.8%	34.6%	0.9%

(*n* = 5,005)
Source: CDC NHANES unpublished data.

People increasingly read the Nutrition Facts Panel:

%DV Na per serving

Aspectos nutricionales

Tamaño de la porción 1 lata (163 mL)
Porciones por recipiente 3.5

Cantidad por porción	
Calorías 30 Calorías por grasa 0	
Total grasa 0g	0%
Grasa saturada 0g	0%
Colesterol 0mg	0%
Sodio 520mg	22%
Total carbohidratos 6g	2%
Fibra dietética 1g	4%
Azúcares 5g	
Proteína 1g	

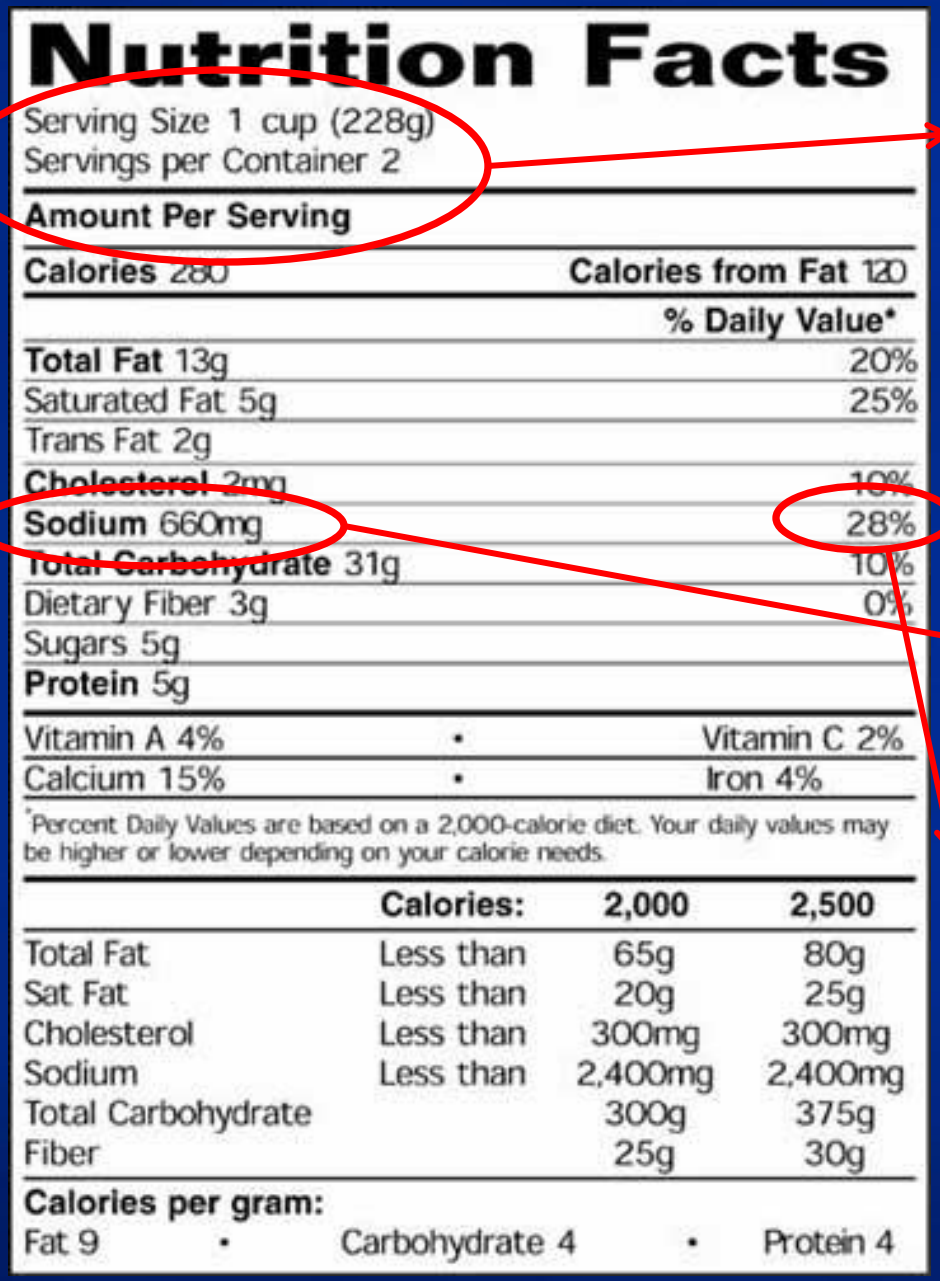
Nutrition Facts

Serving Size 1 ripe tomato (149 g)

Amount Per Serving	
Calories 27	Calories from Fat 2
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat	
Cholesterol 0mg	0%
Sodium 7mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Sugars 4g	
Protein 1g	

Vitamin A	25%	• Vitamin C	32%
Calcium	1%	• Iron	2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.



Nutrition Facts

Serving Size 1 cup (228g)
Servings per Container 2

Amount Per Serving

Calories 280	**Calories from Fat** 120
	% Daily Value*
Total Fat 13g	20%
Saturated Fat 5g	25%
Trans Fat 2g	
Cholesterol 2mg	1%
Sodium 660mg	28%
Total Carbohydrate 31g	10%
Dietary Fiber 3g	0%
Sugars 5g	
Protein 5g	

Vitamin A 4%	•	Vitamin C 2%
Calcium 15%	•	Iron 4%

*Percent Daily Values are based on a 2,000-calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Check the serving sizes!

Target is
- 2300 mg sodium/day OR
- 1500 mg sodium/day (< 18 yrs, >50 yrs, HTN etc, AfrAm)

Low Sodium is <140 mg/serving

% of Daily Value (%DV) is misleading if you are a child or in the majority of adults who have a lower target, as %DV based on 2300 mg Na/day instead of 1500 mg

Many purchasers do buy “Low Salt”:

47.3% of all shoppers

	Frequency of Buying “Low Salt” Items by Gender					
	Always	Often	Sometimes	Rarely	Never	Don’t Shop for Food
All	11.7%	12.8%	22.8%	17.3%	27.0%	8.4%
Male	10.5%	11.4%	19.9%	16.0%	27.8%	14.4%
Female	12.8%	14.0%	25.4%	18.5%	26.3%	2.9%

SOURCE: NHIS unpublished data.

Give People Real Choice!

- Hard to guess how much sodium is in a given food
- Difficult to find truly low-sodium products or menu items
- Once sodium has been added to your food, you cannot take it out
- You can always add more yourself if wish

Is population-wide salt reduction feasible?

- UK launched campaign to encourage food manufacturers to lower salt in their products in 2003
- Goal: ↓ salt intake by 1/3 from 2005-2010
- Raised awareness via ad campaigns
- Set targets with food industry (75 products)
- Labeling – Traffic Light model (red, yellow, green)

- The results:
  - salt ↓ in restaurant and processed foods
  - ↑ awareness re daily salt intake from 3% to 34%
  - ↓ salt intake by 10% over the first 3 years

National Salt Reduction Initiative (NSRI)

GOAL

Reduce population sodium intake by 20% in 5 years
by
decreasing sodium content in foods by 25% over 5 years

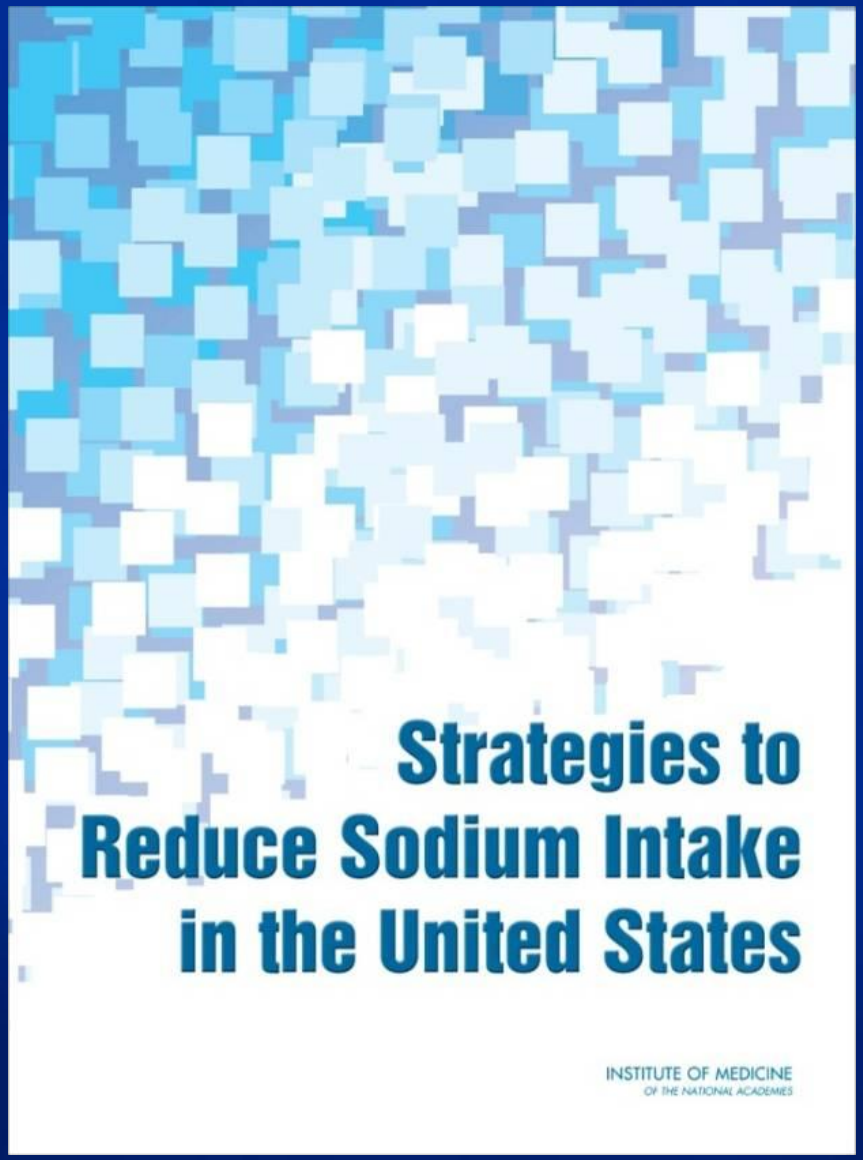
http://www.nyc.gov/html/doh/downloads/pdf/cardio/cardio-salt-factsheet.pdf

NYC Health

CDC

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Institute of Medicine Report and Recommendations - 2010



Findings – 1: Adverse health effects

"excess sodium intake is strongly associated with elevated blood pressure, a serious public health concern related to increased risk of heart disease, stroke, congestive heart failure, and renal disease."

Findings – 2: Excess dietary intake

"The current level of sodium added to the food supply—by food manufacturers, foodservice operators, and restaurants—is simply too high to be "safe" for consumers."

IOM Recommendations

- **Primary Strategy**
  - **FDA should expeditiously set mandatory national standards for the sodium content of foods**
    - **change generally recognized as safe (GRAS) status of salt**
- **Interim Strategy**
  - **Food industry voluntarily act to ↓ the sodium content of foods**

International Product Variability

Kellogg's Special K

	mg Na/ portion	mg Na/ 100 gm
Canada	270	931
Mexico	260	867
US	220	710
France	200	450
Italy	200	450
UK	100	450
Turkey	200	400

Source: World Action on Salt and Health

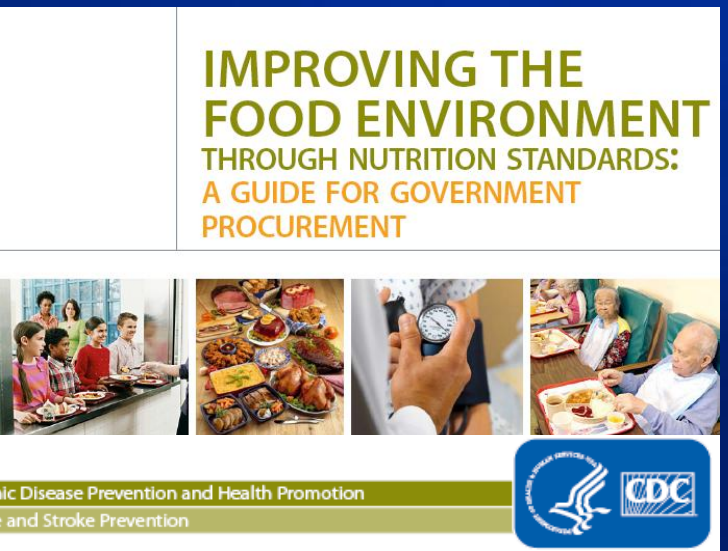
Lessons Learned Abroad

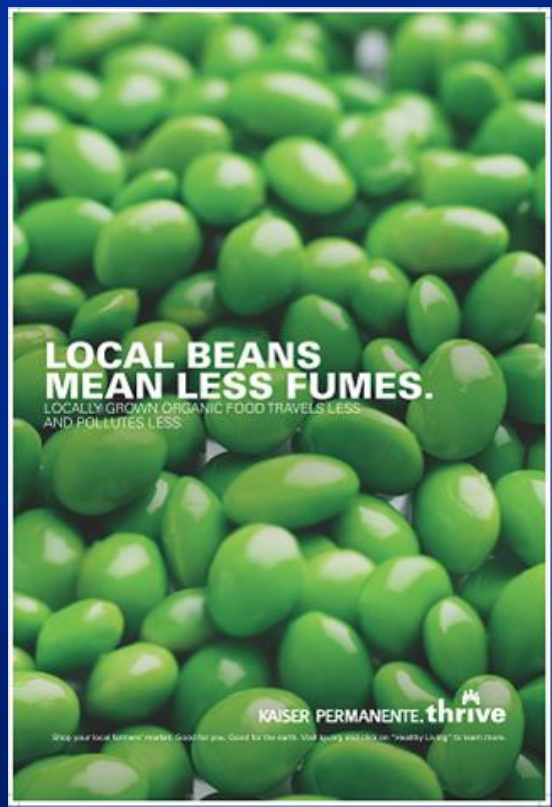
- **UK**
  - Clear and consistent mechanisms to monitor salt levels in foods
- **Iceland**
  - Mandatory salt limits in foods
  - Clear definitions of low, very low, and salt free
- **Finland**
  - Mandatory labeling of high salt foods
  - Clear labeling of low salt items
- **Argentina & Portugal**
  - Mandatory reformulation programs
- **Overall**
  - Effective
  - Consumer education not sufficient

Webster et al, J HTN 29: 2011

Selected Community Salt Reduction Strategies

- procurement—eg Kaiser
- Standards—eg school lunch
- labeling and monitoring—eg My Plate
- price—eg equity issues
- venue—eg restaurant
- counter-advertising—media





USDA Proposed Na Reduction in School Meals

- Establish calorie limits for school meals

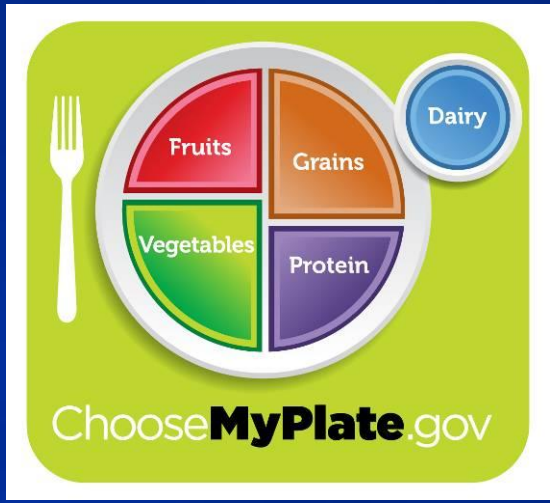
- Increase servings of fruits and vegetables

TURKEY BURGER ON WHOLE-WHEAT BUN, PORTLAND

- Gradually ↓ sodium in school meals over 10 yrs
  - avg sodium content of school lunches (for all U.S. schools) is now >1400 mg/lunch
  - recall recommended max Na/day for kids = 1500 mg, so one school lunch on average has nearly full day max worth salt for our kids.
  - proposed goal 10 years: < 500 mg sodium for breakfast and < 740 mg sodium for lunch meals for 9 – 12 grades

Opportunities for state and local action

- **Labeling--**particularly health claims
  - **Organic, low fat, "healthy" foods are often high in salt.**



- **Purchasing lower salt items**
  - **Schools, prisons, other government agencies**
    - **vending machine guidelines/contracts, procurement**
  - **change relative prices of healthy vs. unhealthy sodium items**

- **Restaurant food**
  - **30-40% of salt intake from food eaten away from home**

Words have power.

The New York Times

The Hard Sell on Salt

By MICHAEL MOSS

With salt under attack for its ill effects on the nation's health, the food giant Cargill kicked off a

"Salt is a pretty amazing compound," Alton Brown, a Food Network star, gushes in a Cargill vi

The campaign by Cargill, which both produces and uses salt, promotes salt as "life enhancing" "You might be surprised," Mr. Brown says, "by what foods are enhanced by its briny kiss."

By all appearances, this is a moment of reckoning for salt. High blood pressure is rising among 150,000 lives a year.

Since processed foods account for most of the salt in the American diet, national health officials reduce their use of salt. Last month, the Institute of Medicine went further, urging the govern

But the industry is working overtly and behind the scenes to fend off these attacks, using a sh insiders call the strategy "delay and divert" and say companies have a powerful incentive to fi customers, and replacing it with more expensive ingredients risks losing profits.

When health advocates first petitioned the federal government to regulate salt in 1978, food c decades later, when federal officials tried to cut the salt in products labeled "healthy," compan

Now, the industry is blaming consumers for resisting efforts to reduce salt in all foods, pointin

Salt Institute™

"not enough data"

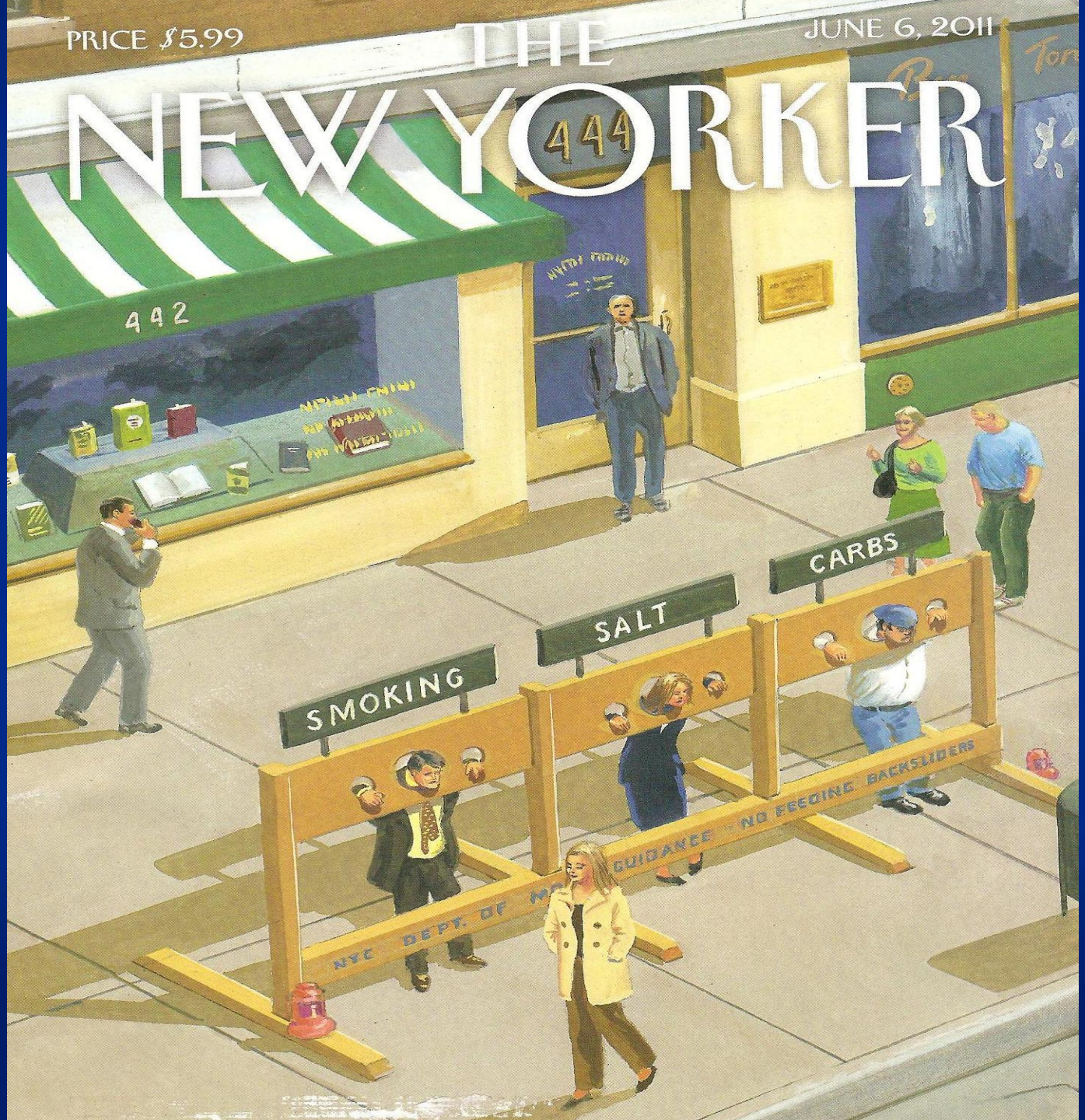
"raise food prices"

"overly aggressive"

"the virtually intractable nature of the appetite for salt"

"incompatible with a palatable diet"

"unintended consequences"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GUIDANCE - NO FEEDING BACKSLIDERS

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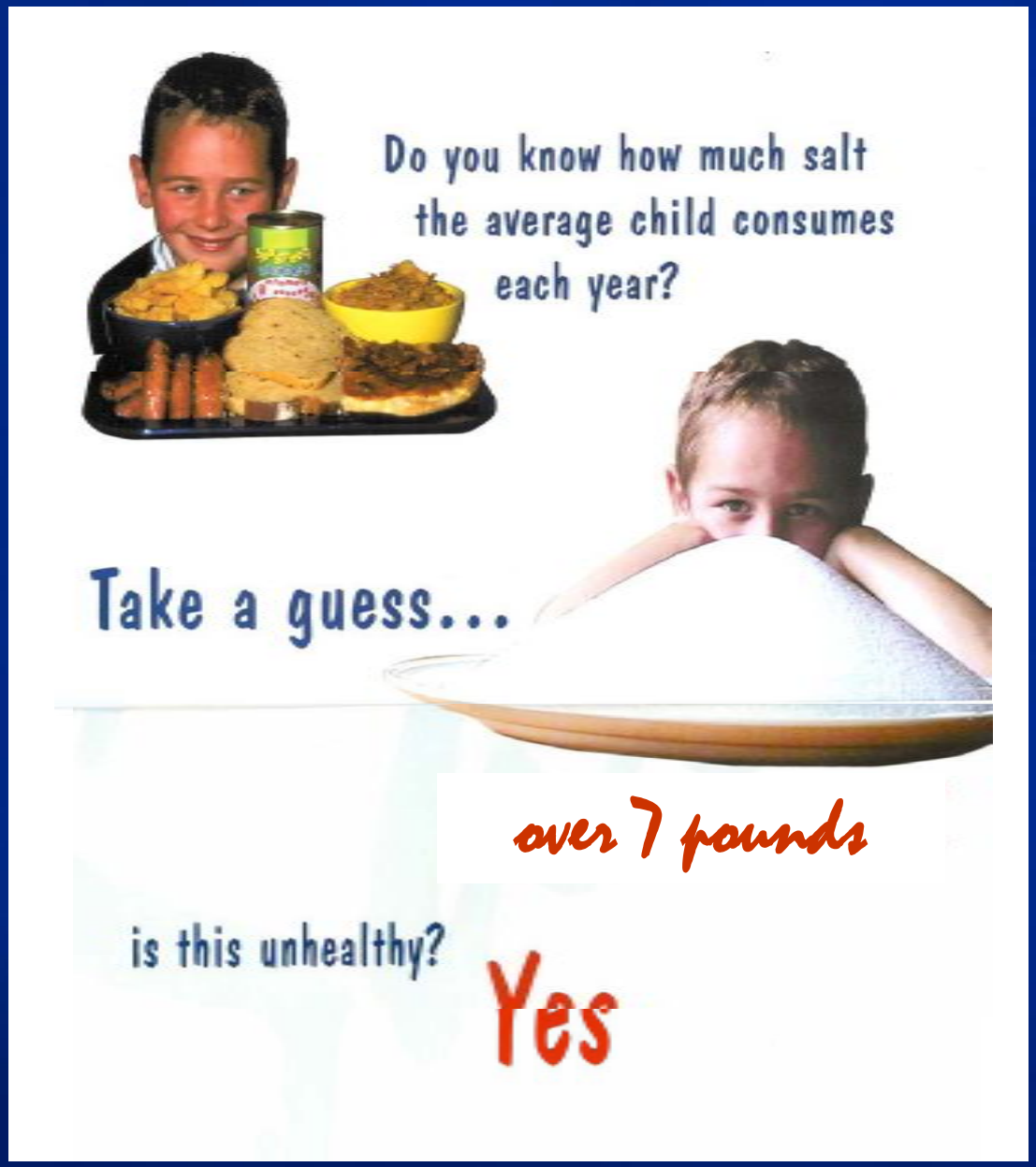
Media Messaging

- No overreliance on “message”
  - The catchiest phrase can’t replace **strategy**
  - More data is not the answer; tapping core values can help
- Values:
  - freedom—restore choice
  - children
- Be specific:
  - Consumers are willing to act but want concrete examples from other communities.



- Children are now eating as much salt as adults, although a healthy intake for children should be less than half of this.
- Most of this salt comes <u>hidden</u> in processed foods.

CDC Sodium Grant Deliverables in Shasta County by 9/2013

Restaurants

- 5 restaurants with reduced sodium guidelines
- 1 city to require healthy restaurant toolkit for new restaurants/renewals

Local Government

- 1 local government policy with sodium guideline on food sold in government facilities

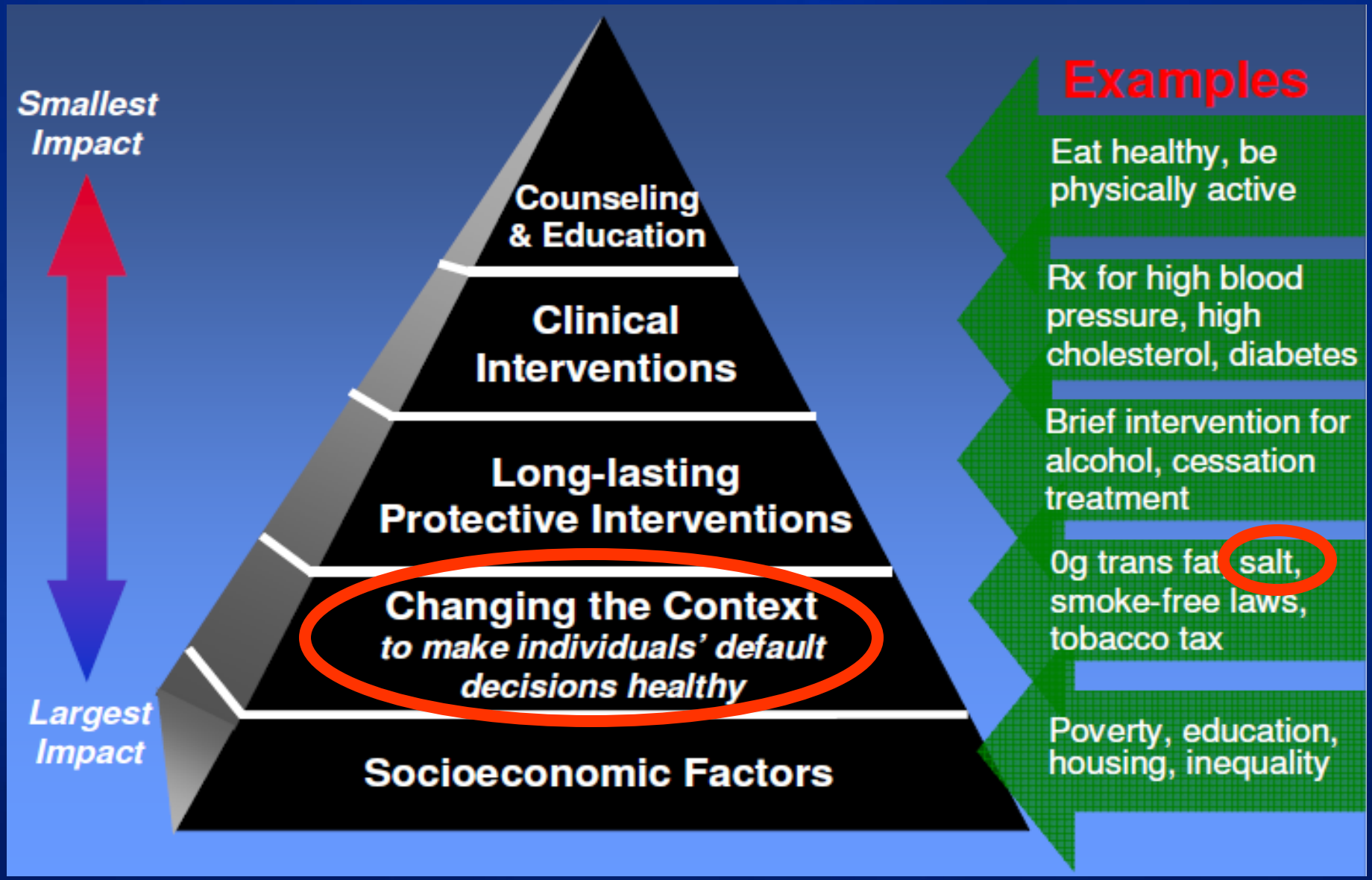
School

- 1 school district with reduced sodium language in school wellness

Media

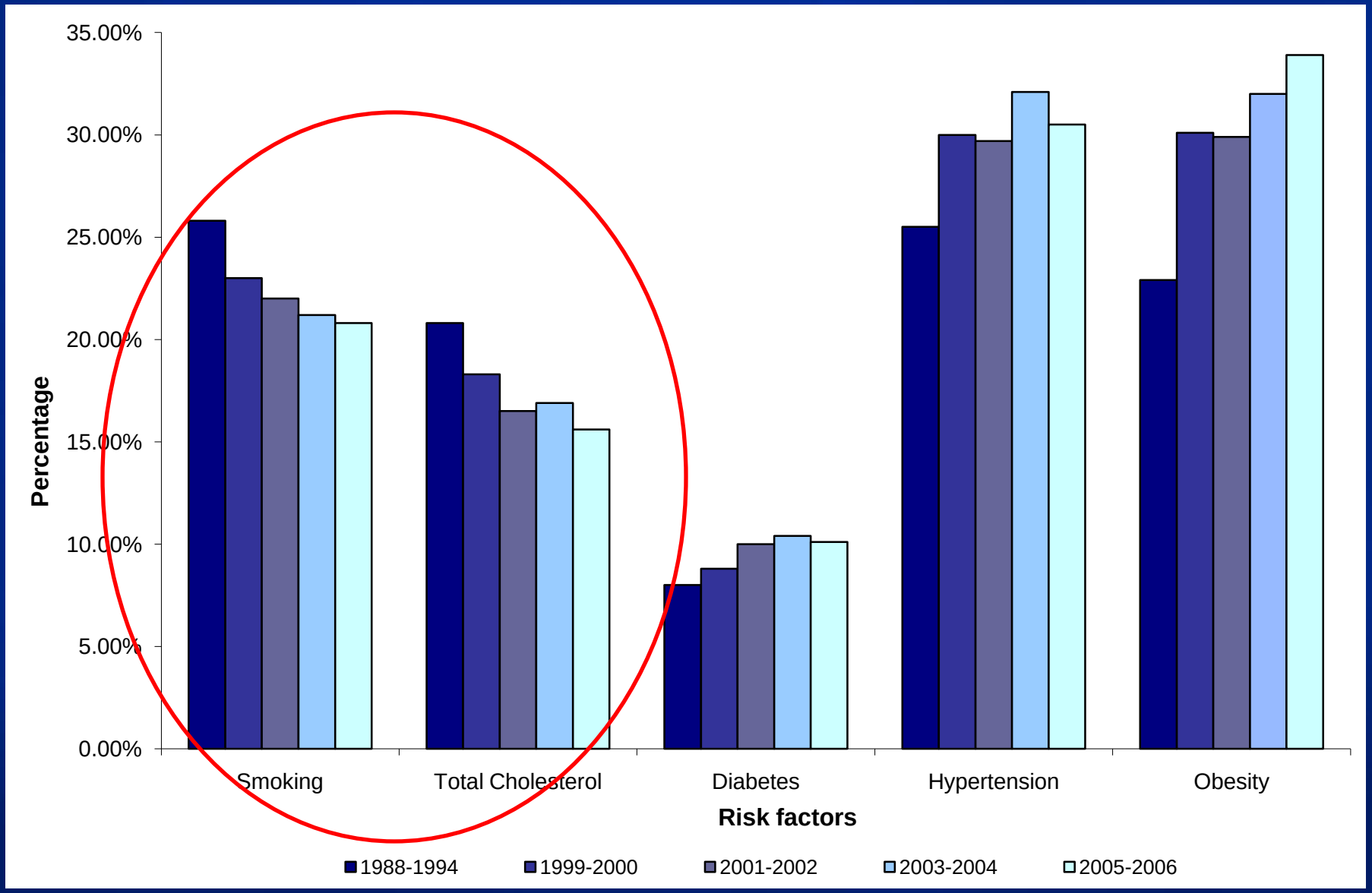
- Media campaign regarding salt reduction, and promoting participating restaurants

Factors That Affect Health



Our Vision – Healthy Kansans living in safe and sustainable environments

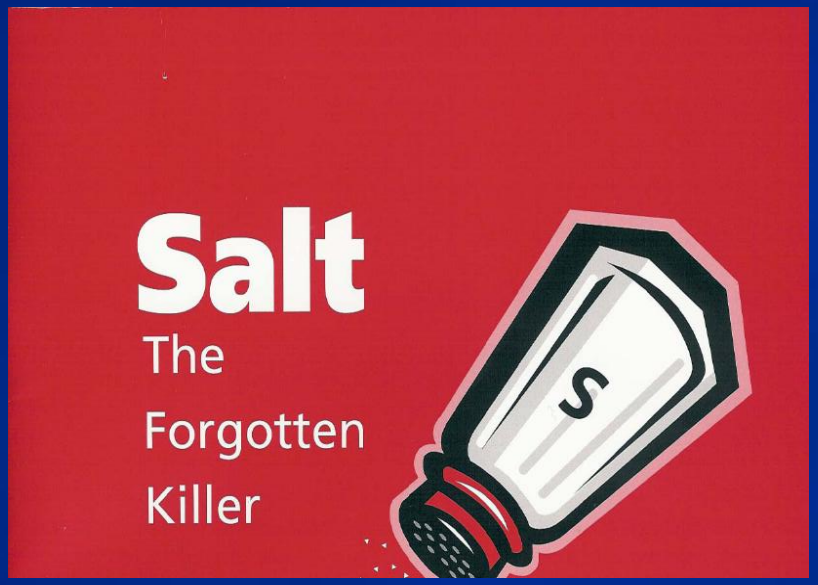
Age-adjusted cardiovascular disease risk factor trends in US adults, 1988-2006



Source: National Center for Health Statistics, Health US 2008 (2009).

Conclusions

- Salt levels in our food supply are not safe or necessary.
- Both regulation and public-private partnership are necessary to achieve sustained, gradual salt reduction.
- The good news is that our habit of excessive salt intake from our food supply can be unlearned.
- The health and economic benefits of reducing salt in our diet, on a community level, are huge.
- Salt, through hypertension, is a major contributor to death, disability, disparities-- and costs.



vs

building a healthier community
Shasta County Public Health

Thank You's

- **Darwin Labarthe, MD, MPH, PhD**, Director, Division for Heart Disease and Stroke Prevention, National Center For Chronic, Disease Prevention and Health Promotion, CDC (Centers for Disease Control and Prevention)
- **Kirsten Bibbins-Domingo, PhD, MD, MAS**
  University of California, San Francisco, Center for Vulnerable Populations at San Francisco General Hospital
- and many others from around the country and Shasta County!

For More Information:

CDC Sodium Web Page: www.cdc.gov/dhdsp/library/sodium.htm