

The Economic Impact

of Obesity and

Chronic Disease



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We have engineered obesity into our society



Basic Problem



ENERGY IN

EXCEEDS

>>



ENERGY OUT!!

Not Enough “Energy Out”



- Decreased physical activity
- Increased sedentary lifestyle, changes in “built environment”
- Who walks to school??

We have to drive everywhere!

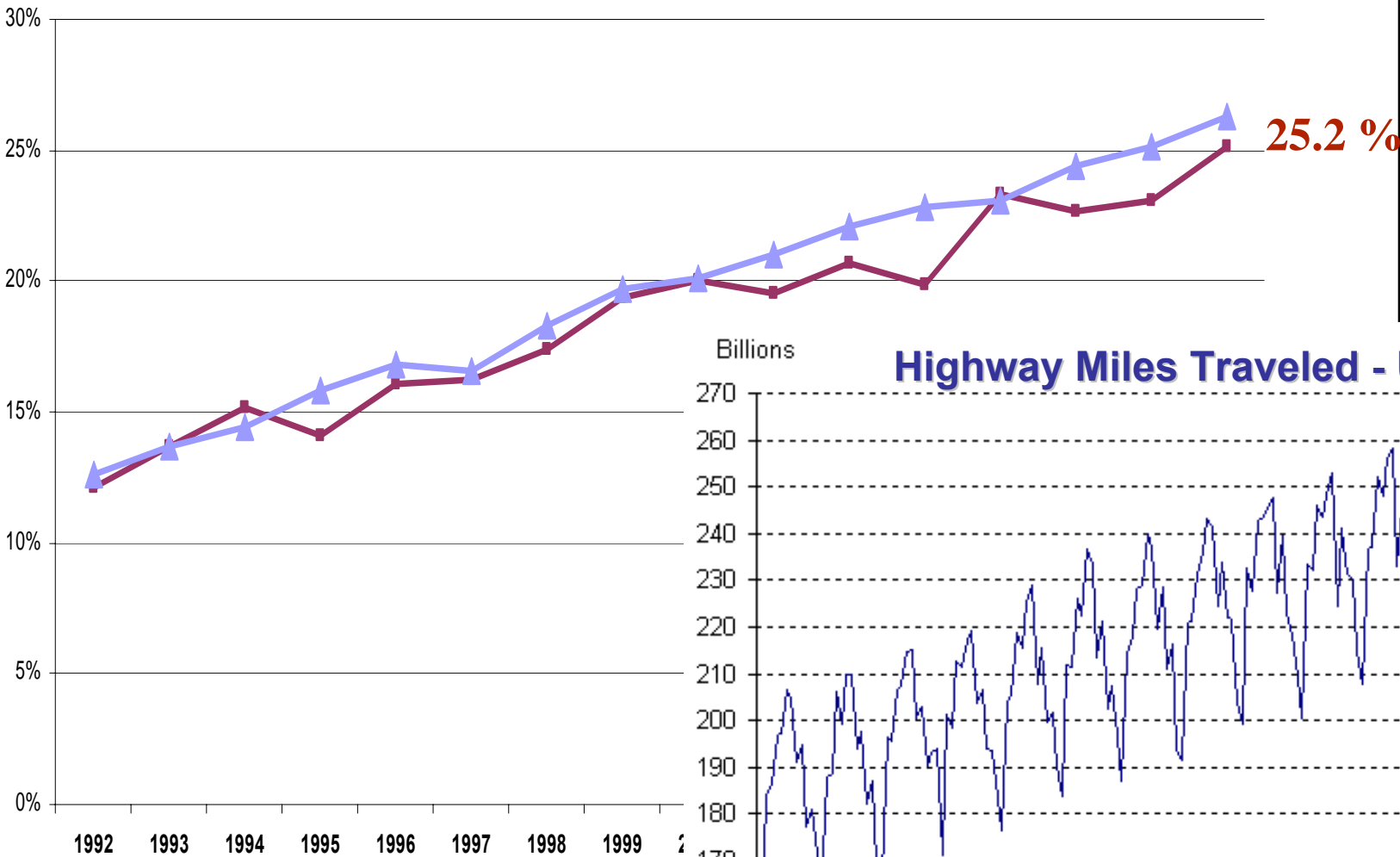
Quote from Bob Chauncey

It's the
economy,
stupid!

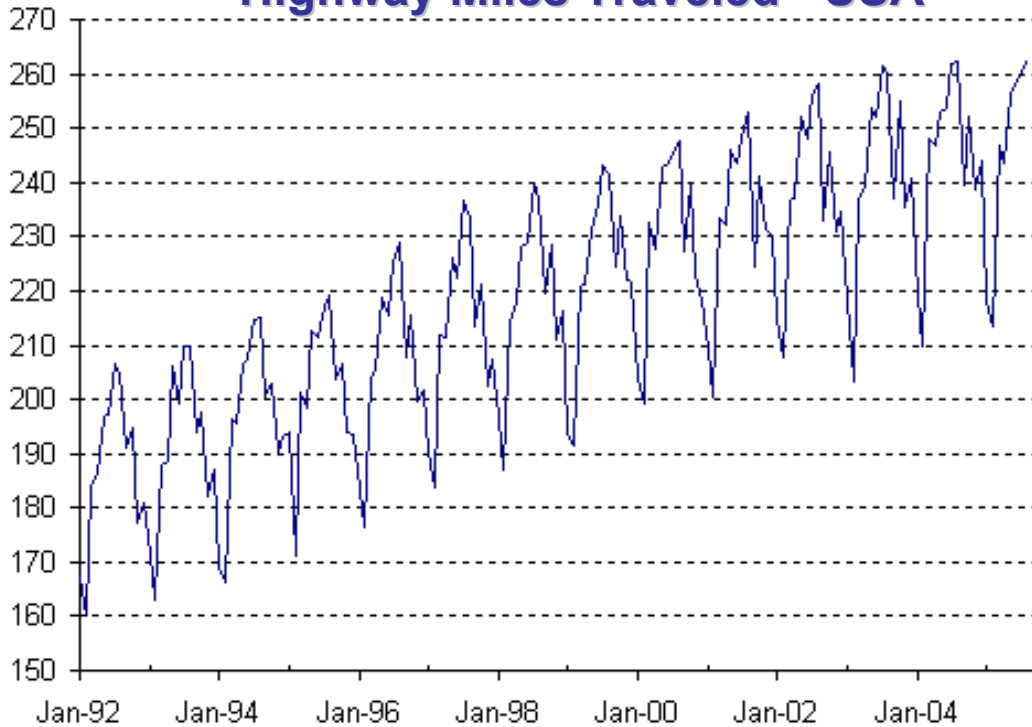
What's that got to do with it?

Prevalence of Obesity (> BMI 30) Maine - US

Percent of Maine Adults Who are Obese (BMI 30 or above)



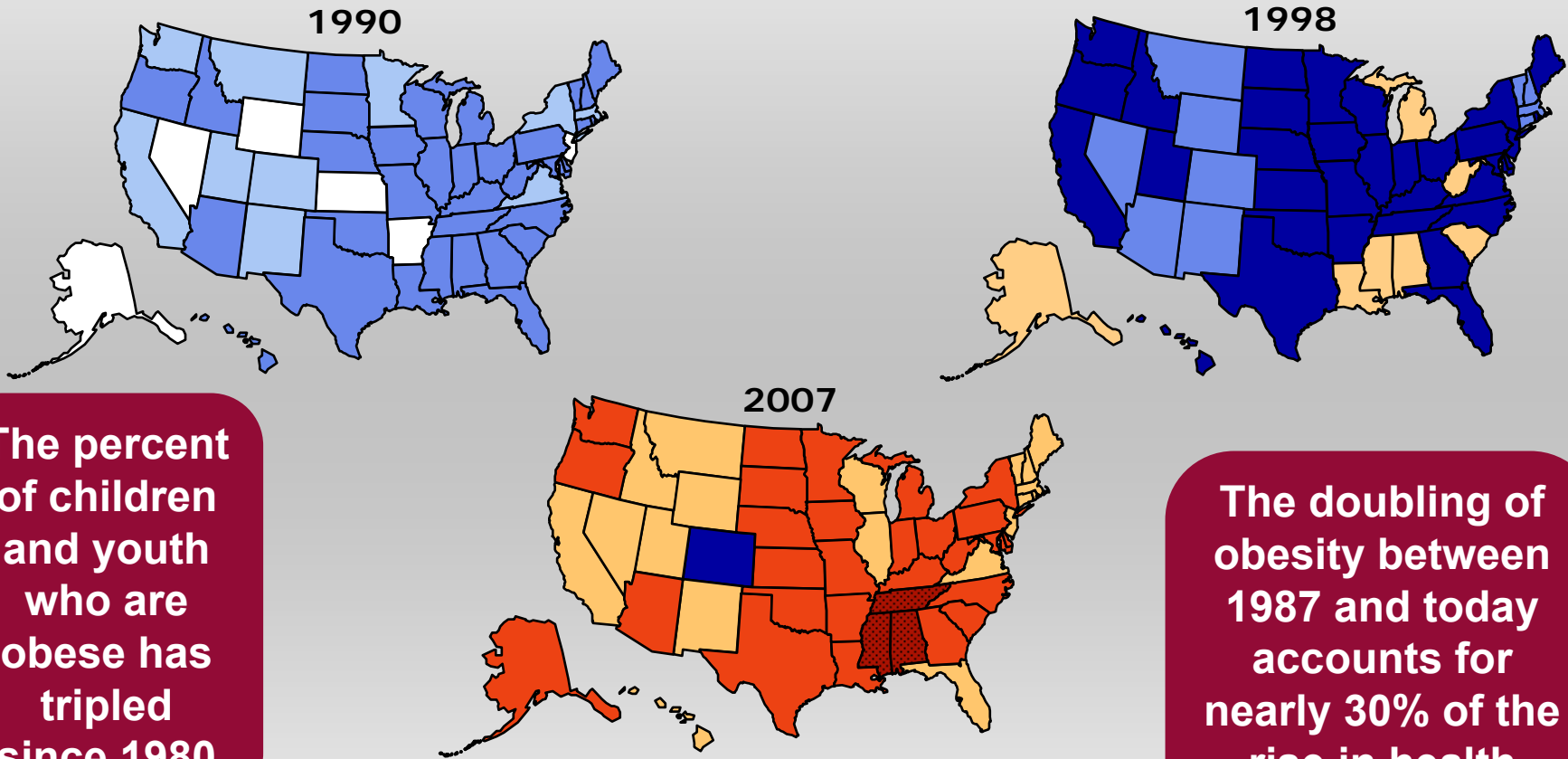
Highway Miles Traveled - USA



Obesity Trends* Among U.S. Adults

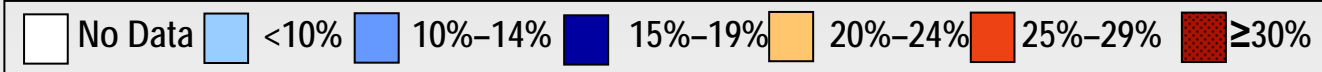
BRFSS, 1990, 1998, 2007

(*BMI ≥ 30 , or about 30 lbs. overweight for 5'4" person)



The percent of children and youth who are obese has tripled since 1980

The doubling of obesity between 1987 and today accounts for nearly 30% of the rise in health care spending



Cost of Overweight/Obesity

- Medical Expenses Maine
 - \$357,000 per year
 - Or, nearly 1 million/day

(Finklestein et al, 2004)

- Other Costs?



Chenoweth Associates, 2006

Total Medical Care and Rx Drug Costs

Combined, the cost of direct medical care and prescription drugs for the three risk factors was more than \$140 million in 2004.

Risk Factor	Medical Costs	Rx Drug Costs	Total Costs
Physical inactivity	\$18.24 million	\$ 39.24 million	\$ 57.48 million
Overweight	8.07 million	20.86 million	28.93 million
Obesity	11.74 million	41.86 million	53.60 million
Total	\$38.05 million	\$101.97 million	\$140.02 million

Chenoweth Associates, 2006

Workers' Compensation Costs per Risk Factor

	Physical Inactivity	Overweight	Obesity	Combined costs
Medical Care	\$ 1,491,282	\$ 436,216	\$ 701,125	\$ 2,628,623
Total Wage Payments	351,548	109,858	263,661	725,067
Total	\$ 1,842,830	\$ 546,074	\$ 964,786	\$3,353,690

Chenoweth Associates, 2006

Productivity Loss Costs by Risk Factor

	Physical Inactivity	Overweight	Obesity
Absenteeism	129,819,475	51,386,876	165,519,831
Presenteeism	2,072,784,287	591,327,710	1,901,855,312
S.T. Disability	126,573,988	79,947,160	257,475,292
On-the-job injury	1,159,289	466,391	1,101,325
Sub-total	2,330,337,039	723,128,137	2,325,951,760
Risk Factor Prevalence	x 0.469	x 0.439	x 0.294
Total Costs	\$1,092,928,071	\$317,453,252	\$683,829,817

Overall Productivity Loss Costs \$2,094,211,140

	Physical Inactivity		Overweight		Obesity	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
Medical Care						
1. Treatments	\$18,244,352	\$41,414,679	\$ 8,076,700	\$18,334,109	\$11,747,927	\$26,667,794
2. Rx Drugs	39,242,531	89,080,545	20,864,983	47,363,511	41,863,148	95,029,346
Subtotal	57,486,883	130,495,224	28,941,683	65,697,620	53,611,075	121,697,140
Workers' Compensation						
1. Medical	\$ 1,491,282	\$ 5,965,128	\$ 436,216	\$ 1,744,864	\$ 701,125	\$ 2,804,500
2. Wages	351,548	0	109,858	0	263,661	0
Subtotal	1,842,830	5,965,128	546,074	1,744,864	964,786	2,804,500
Lost Productivity*						
	\$1,092,928,071	0	\$ 317,453,252	0	\$ 683,829,817	0
Sub-totals	\$1,152,257,784	\$136,460,352	\$346,941,009	\$67,442,484	\$738,405,678	\$124,501,640

* Indirect costs are not applicable in this category, since lost productivity measures, as characterized in the Chenoweth analysis, are considered to be immediate (direct) costs to employers.

Risk Factor	Total Cost
Physical Inactivity	\$1,288,718,136
Overweight	414,383,493
Obesity	862,907,318
Grand Total	\$2,566,008,947

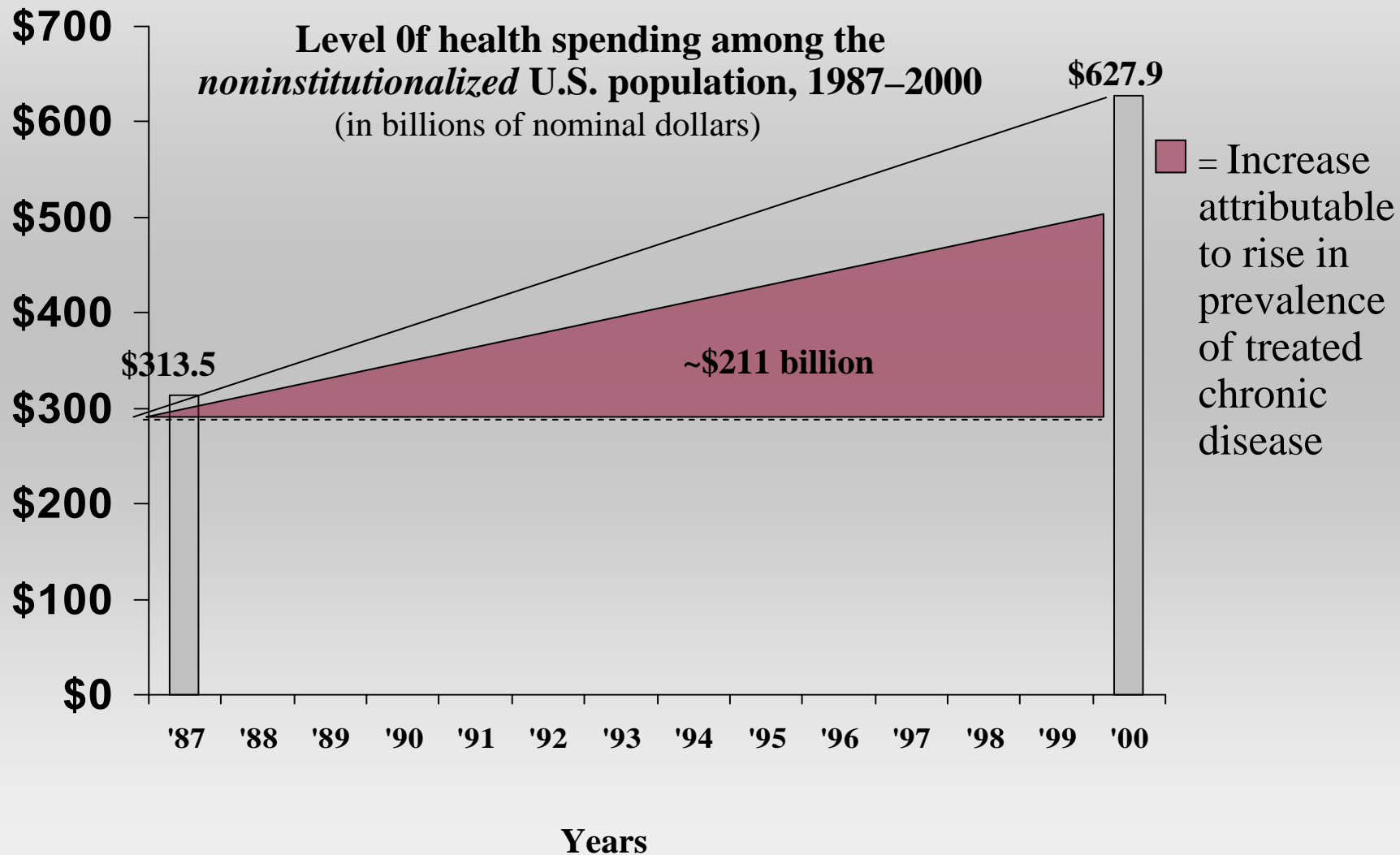
Chronic Disease

- 130 million Americans have at least one chronic disease;
- 7 in 10 deaths;
- 75 cents of every dollar spent on healthcare (\$2.2 trillion nationally)
 - **More than 96 cents in Medicare... and 83 cents in Medicaid**

“The United States cannot effectively address escalating health care costs without addressing the problem of chronic diseases.”

-- Centers for Disease Control and Prevention

Two-thirds of the increase in health care spending due to increased prevalence of treated chronic disease



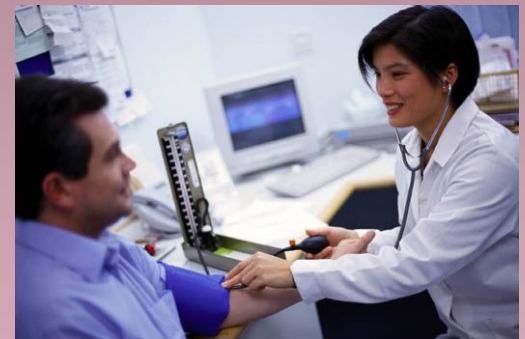
The vast majority of cases of chronic disease could be better prevented or managed

- (CDC) estimates...
 - **80% of heart disease and stroke**
 - **80% of type 2 diabetes**
 - **40% of cancer**

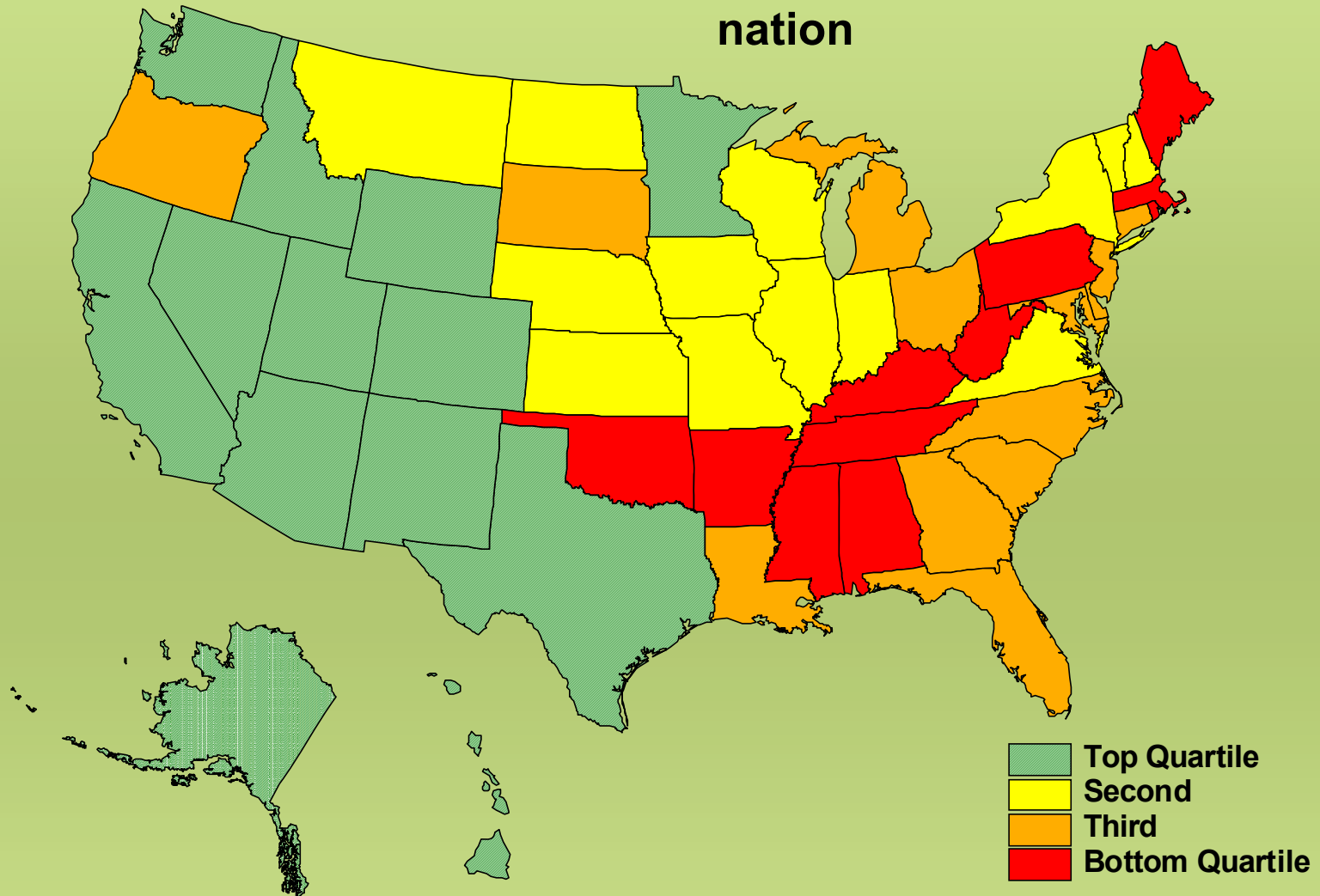
...could be prevented if only Americans were to do three things:

- ✓ **Stop smoking**
- ✓ **Start eating healthy**
- ✓ **Get in shape**

- **Chronically ill patients receive only 56% of the clinically recommended preventive health care services**



Maine has highest rate of asthma in nation



States in the bottom quartile experience the highest rates of seven common chronic diseases



AN UNHEALTHY AMERICA: The Economic Burden of Chronic Disease

Charting a New Course to Save Lives and Increase
Productivity and Economic Growth

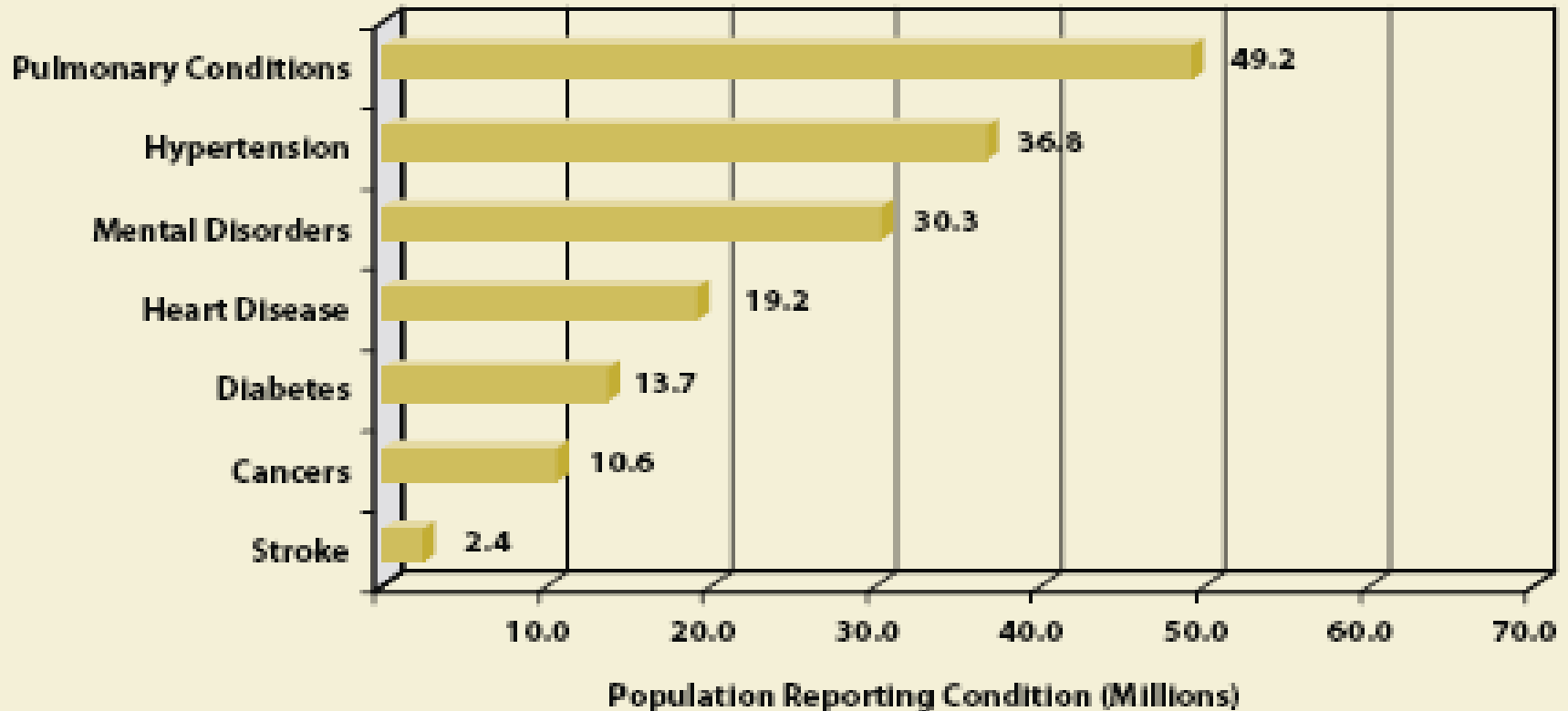


Executive Summary and Research Findings

October 2007



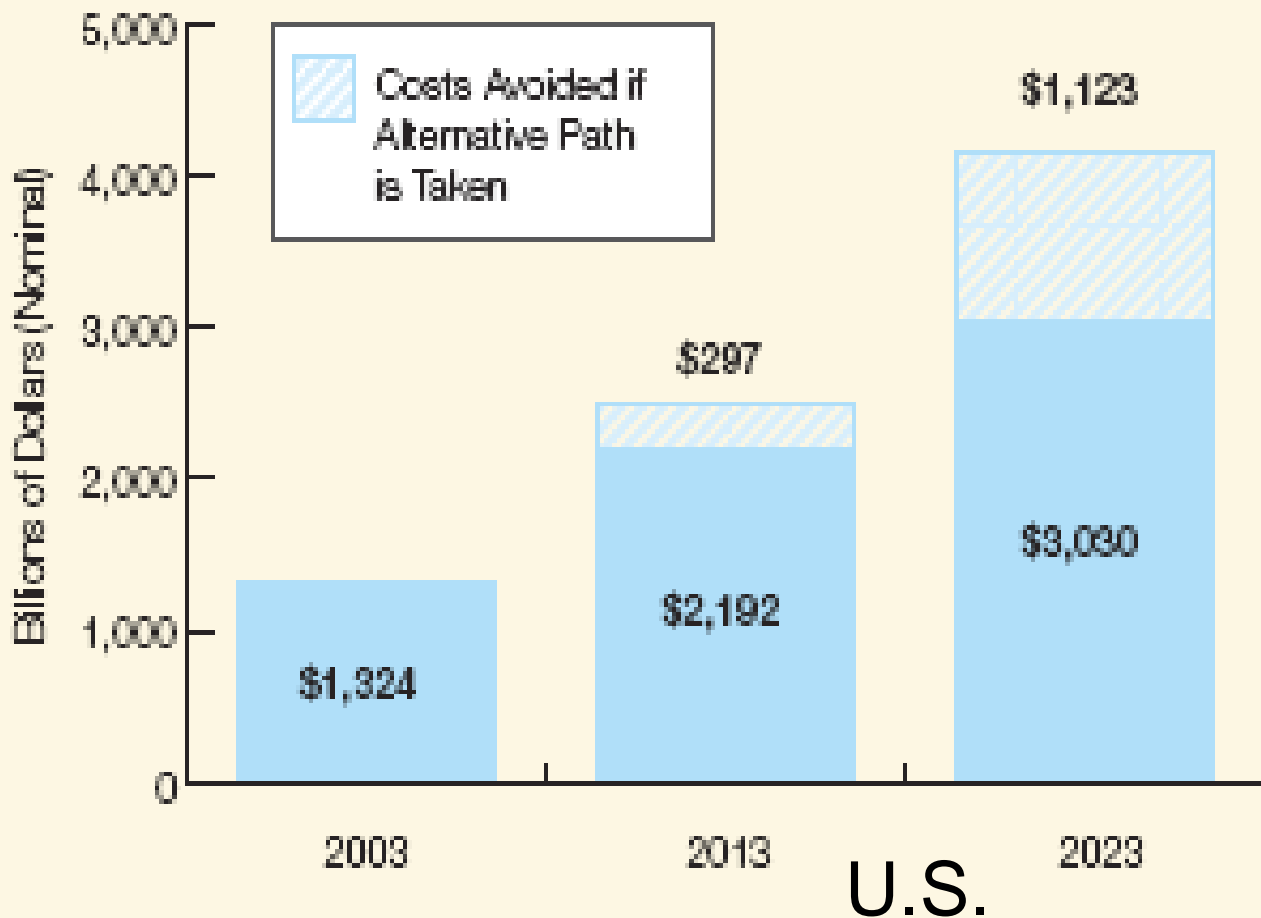
Figure 1 :: Number of People Reporting Selected Chronic Diseases, 2003



Largely associated with tobacco, inactivity and poor diet!

Milken Institute Costs of Chronic Disease

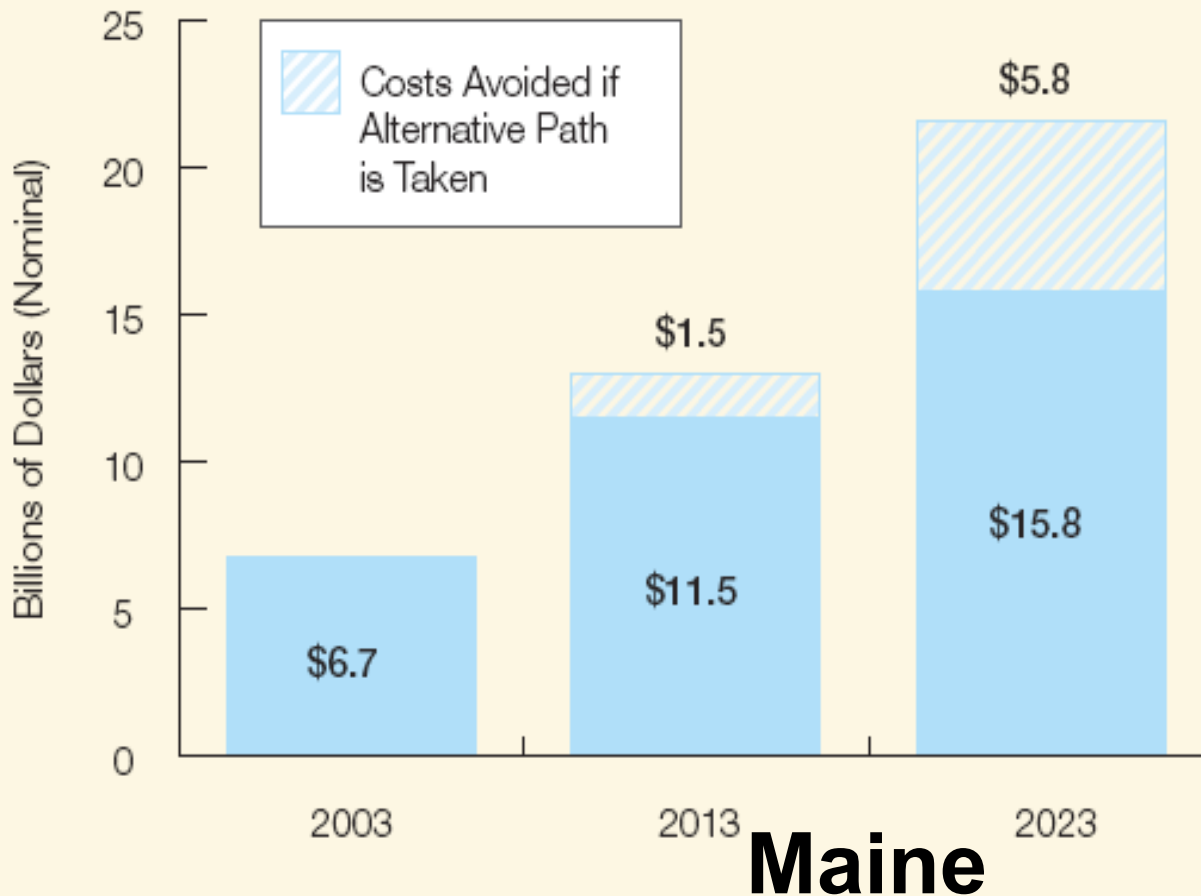
Projected Annual Economic Costs 2003-2023 (Billions)



***\$1.3
trillion to
\$4.2
trillion
over 20
years***

Milken Institute Costs of Chronic Disease

Projected Annual Economic Costs 2003-2023 (Billions)



***\$6.7
billion to
\$21.6
billion
over 20
years***

Glimpse into the Future



Childhood Obesity

New England Journal of Medicine

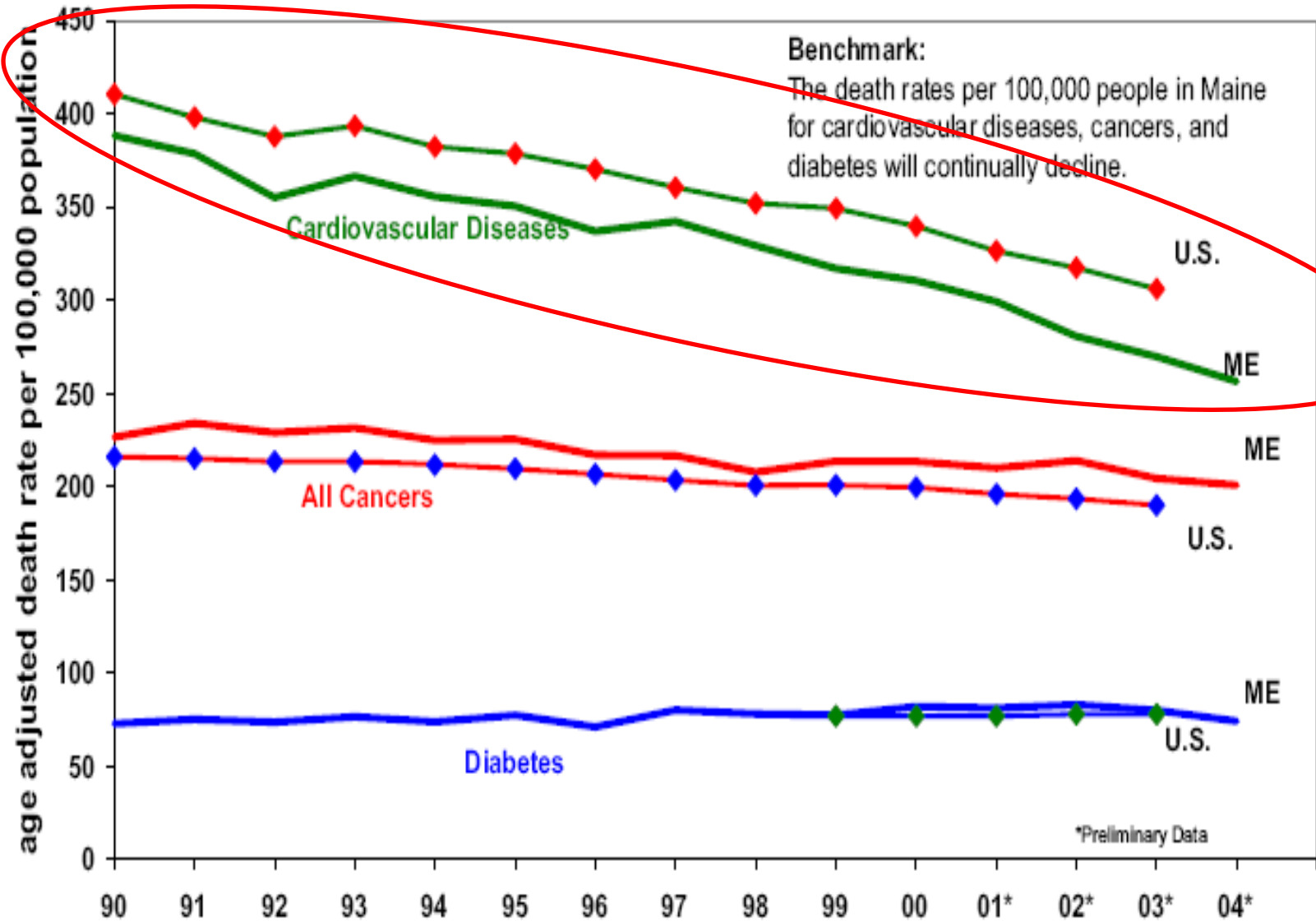
- 2 studies & editorial NEJM 12-6-07
- Childhood obesity – the shape of things to come
 - David Ludwig, MD, Boston Children's Hospital

Adolescent Overweight and Future Adult Coronary Heart Disease

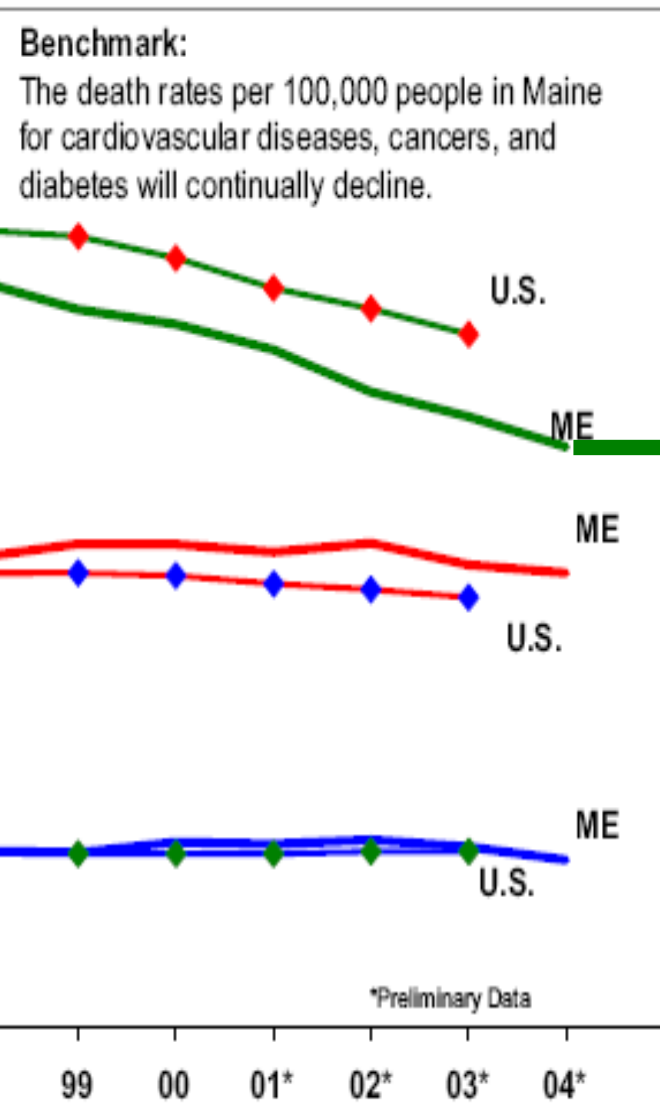
- Estimate obesity in 35 yr- olds in 2020 from historical trends in childhood obesity
- Consequences:
 - increased heart attacks/deaths
 - In **young adulthood**
 - And into middle age
 - In 2035:
 - **5-16% increase** in heart attacks/deaths due to obesity.

Death Rates from Select Chronic Diseases

U.S. and Maine, 1990-2004



Chronic Diseases 1990-2004



2035

Childhood Body-Mass Index and the Risk of Coronary Heart Disease in Adulthood

276,835 Danish children, born 1930-1976
(virtually every school child in
Copenhagen)

- Follow through to adulthood (current)
- **increased BMI = increased risk of heart attack/death**

**Contemporary
children are
heavier than
counterparts
from past**

**More children than
ever before facing
increased risks of
heart attack/death
in adulthood**

Ludwig and Childhood Obesity – The Shape of Things to Come

- **Phase IV epidemic**
 - Acceleration of obesity through “transgenerational” mechanisms
 - Obese children tend to be obese adults
 - Leads to increased risk of obesity and complications in offspring
 - Obese offspring leads to more obese adults, etc.etc.etc.etc

Childhood Obesity – The Shape of Things to Come

- **Economic costs could become catastrophic**
 - Diminished worker productivity
 - Bankruptcy of Medicare
 - Shrinking health care coverage
 - Neglect of social structure

Childhood Obesity – The Shape of Things to Come

- tip of the iceberg re: consequences of obesity epidemic

“Like global warming, obesity epidemic is a looming crisis requiring action before all the scientific evidence is in”

*“With exercise of both personal and **social responsibility**, we have the power to choose the shape of things to come”*

Leading Causes of Preventable Deaths

	U.S	Maine est.
smoking	467,000	1,557
High blood pressure	395,000	1,317
Overweight/obesity	216,000	720
physical inactivity	191,000	637
High blood sugar	190,000	633
High LDL cholesterol	113,000	377
High dietary salt	102,000	340
Low omega-3s	84,000	280
High trans-fats	82,000	273
Alcohol	64,000	213

Key Lifestyle Factors Combined

Dietary factors combined
= 341,000

Diet + physical inactivity (PAN)
= 532,000

Dietary, physical inactivity
and obesity
= 748,000

PAN, obesity + tobacco
= 1,215,000

2,500,000 died in 2005



If we were meant to be sedentary, we would have been designed to look like this!

We need to design physical activity back into our environment!