



# Obesity in Maine

Dora Anne Mills, MD, MPH

May, 2007

[www.mainepublichealth.gov](http://www.mainepublichealth.gov)



Maine CDC/DHHS



**We have built obesity into our society.**





- 1. Problem**
- 2. Impact**
- 3. Causes**
- 4. Approach**



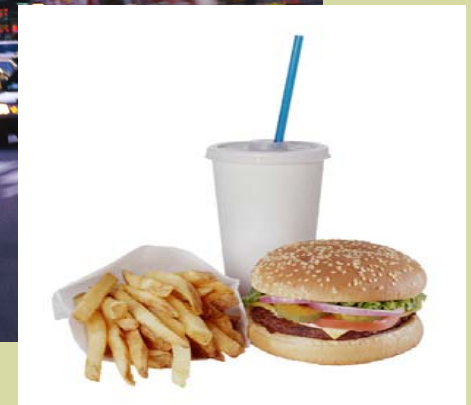
# 1. The Problem

Obesity is the fastest rising health problem in the country.



# Centers for Disease Control and Prevention (CDC):

“In the United States, obesity has risen at an epidemic rate during the past 20 years.”







## **Body Mass Index (BMI):**

Weight (in pounds) divided by the square of height (in inches) times 704.5. Also may be calculated by weight (in kilograms) divided by the square of height (in meters).

**Overweight:** BMI 25 – 29.9

**Obese:** BMI  $\geq 30$





## Other Measures

**Waist Circumference:** the presence of excess body fat in the abdomen, especially when out of proportion to total body fat, is considered an independent predictor of risk factors associated with obesity. Highest risks are:

Men with waist circumference >40 inches;

Women with waist circumference >35 inches.





**Waist-to-Hip Ratio (WHR)** is the ratio of the waist circumference to the hip circumference. Carrying extra weight around the middle increases health risks more than carrying extra weight around the hips or thighs. A WHR or 1.0 or higher is considered at risk.

However, **overall obesity (BMI)** is more risky than body fat locations or ratios.







# Overweight/Obesity in Youth:

- CDC's growth charts provide BMI-for-age gender-specific charts ([cdc.gov](http://cdc.gov), National Center for Health Statistics).
- Overweight/At risk for Overweight = 85<sup>th</sup>-95<sup>th</sup> percentile BMI for age and gender.
- Obese/Overweight = >95<sup>th</sup> percentile BMI for age and gender.
- BMI-for-age compares well to laboratory measures of body fat.
- BMI-for-age above 95<sup>th</sup> percentile are more likely to have factors for cardiovascular disease and become overweight adults.





## In the U.S.:

- Obesity has risen 75% in 10 years.
- Obesity has risen nearly 100% in 20 years.
- Rates have doubled in children in 20 years.
- Rates have tripled in teens in 20 years.
- Self-reported data indicate that 61% of adults are overweight or obese.
- Data based on direct measurements indicate that **two-thirds** of adults are overweight or obese.





# Prevalence (%) of Overweight Among U.S. Children and Adolescents

<u>Age</u>	<u>1960s</u>	<u>1976-80</u>	<u>1988-94</u>	<u>1999-2000</u>	<u>2001-02</u>	<u>2003-04</u>
6-11	4	7	11	15	16	19
12-19	6	5	11	15	17	17

Source: CDC, National Health and Nutrition Examination Survey (NHANES)





# NHANES III (National Health and Nutrition Examination Survey, 1999

Children most likely to have a high BMI share at least some of the following:

- Either parent or both overweight or obese
- They live in smaller families
- They are poor
- They consume a high proportion of calories from fat
- They are avid TV watchers



(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)





(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

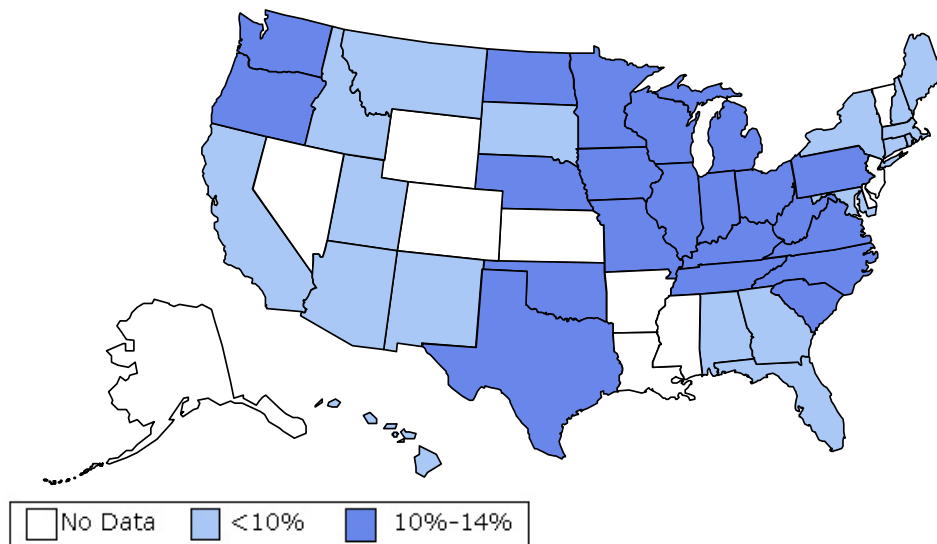




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1989**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

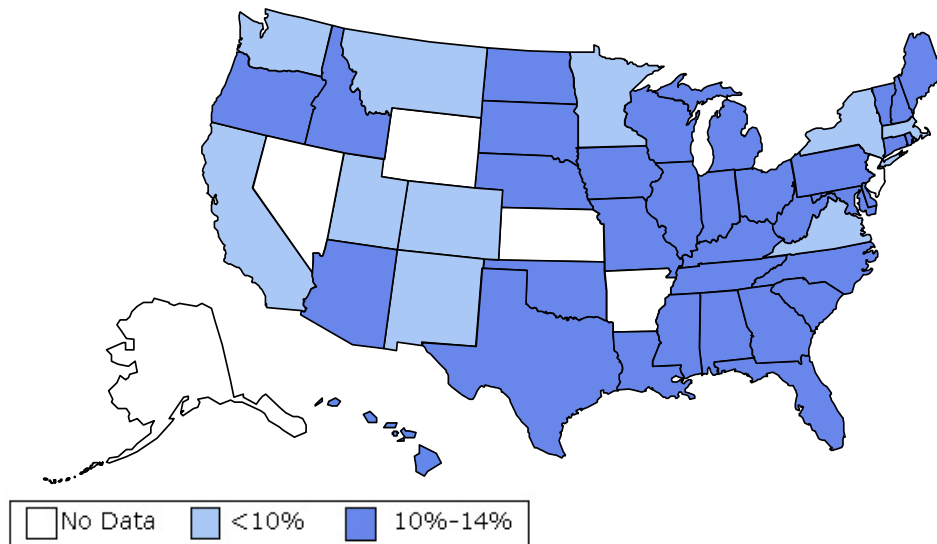




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1990**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

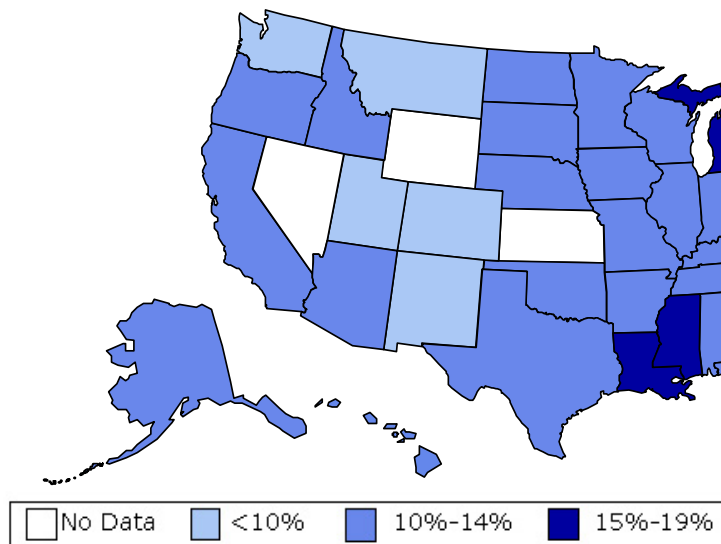




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1991**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

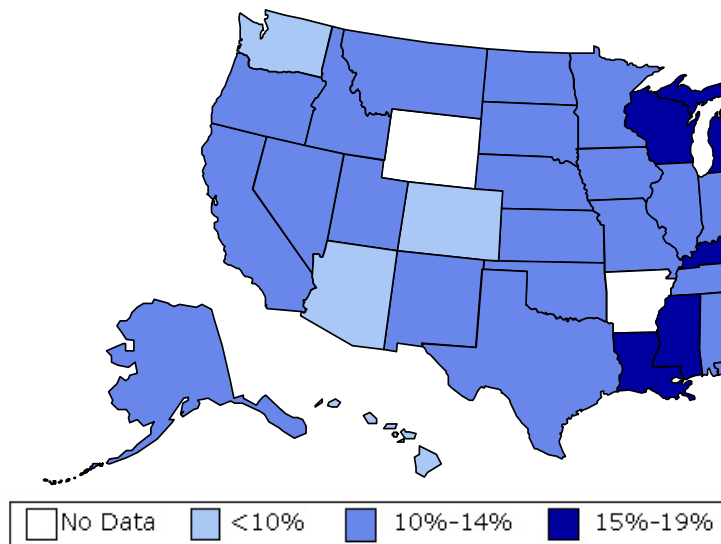




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1992**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)



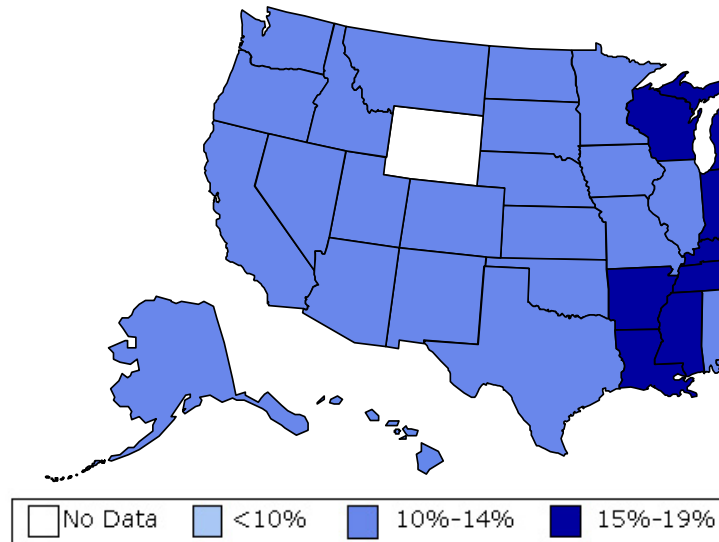




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1993**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

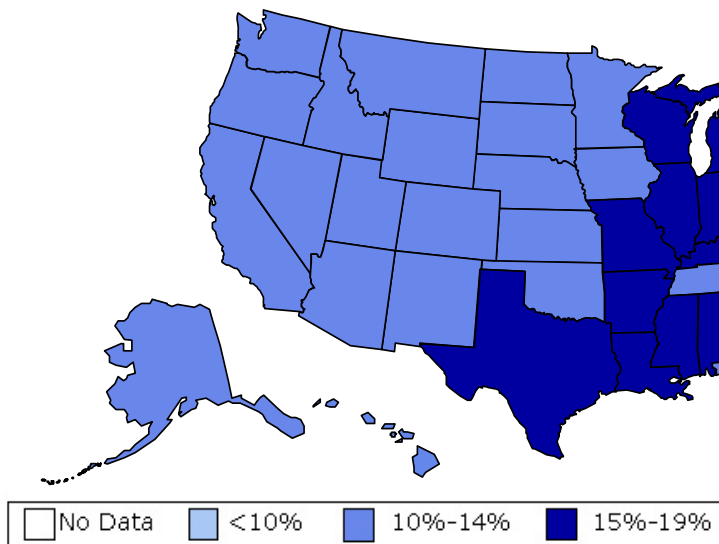




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1994**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

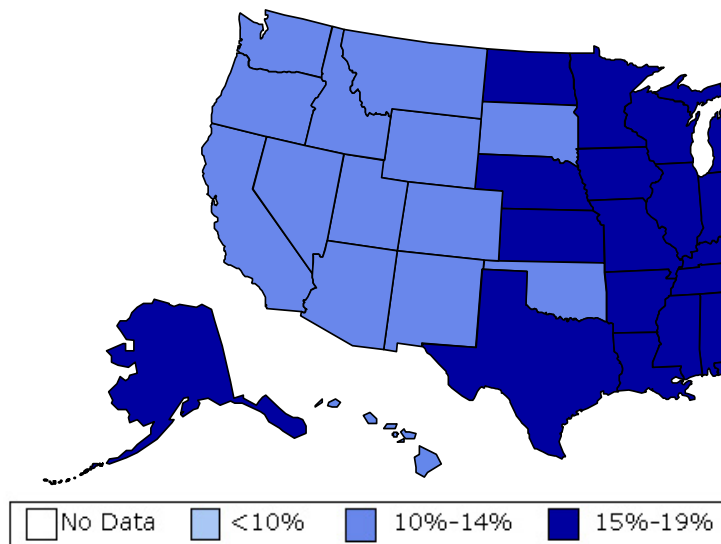




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1995**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

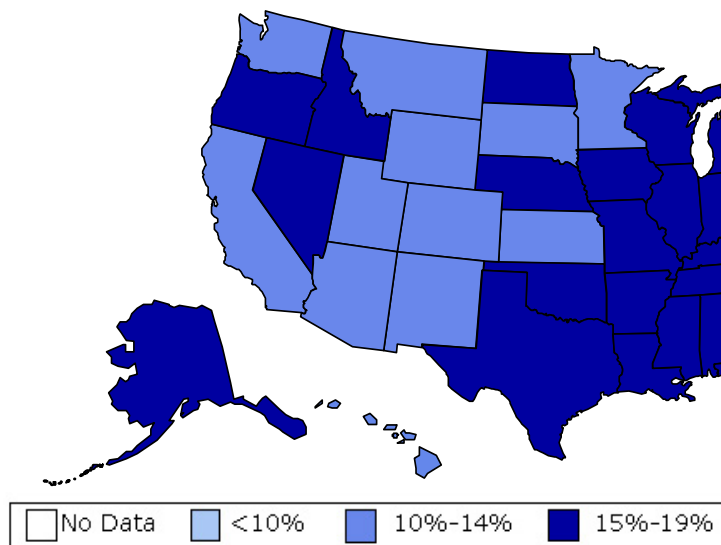




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1996**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

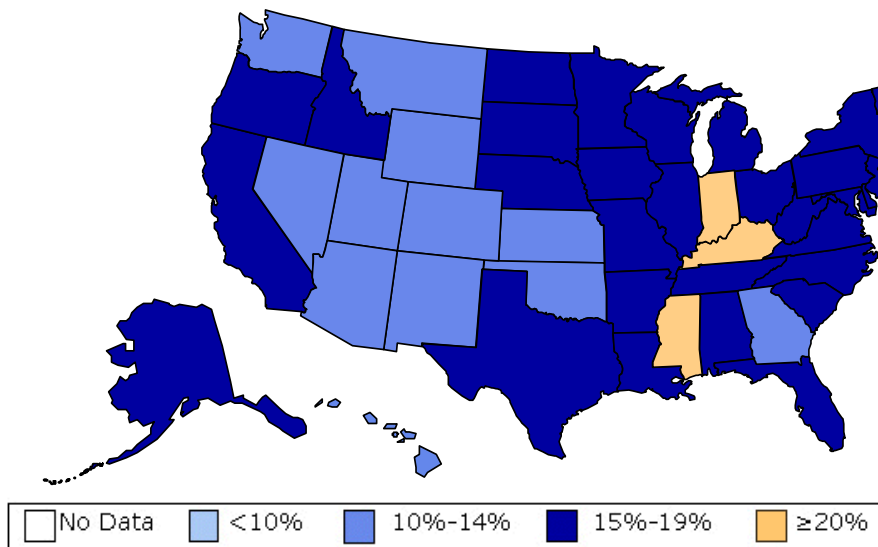




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1997**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)





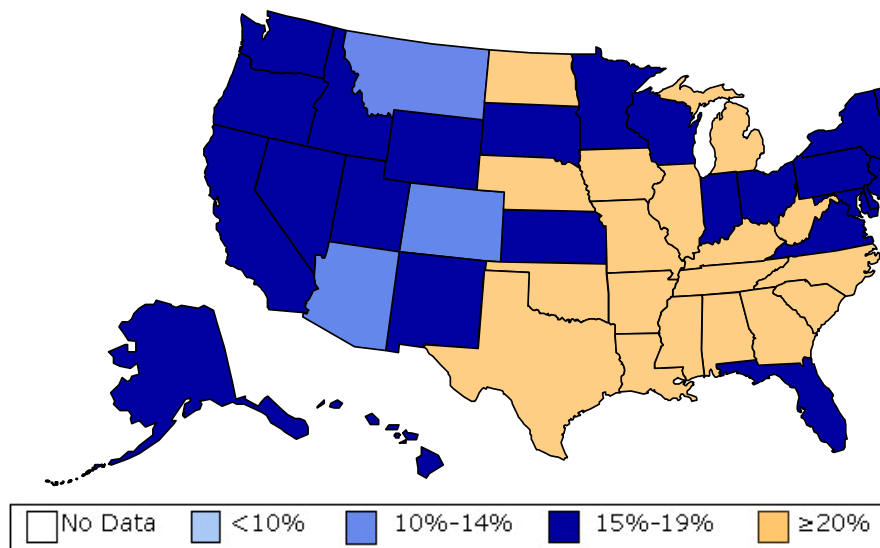




## Obesity Trends\* Among U.S. Adults

**BRFSS, 1999**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

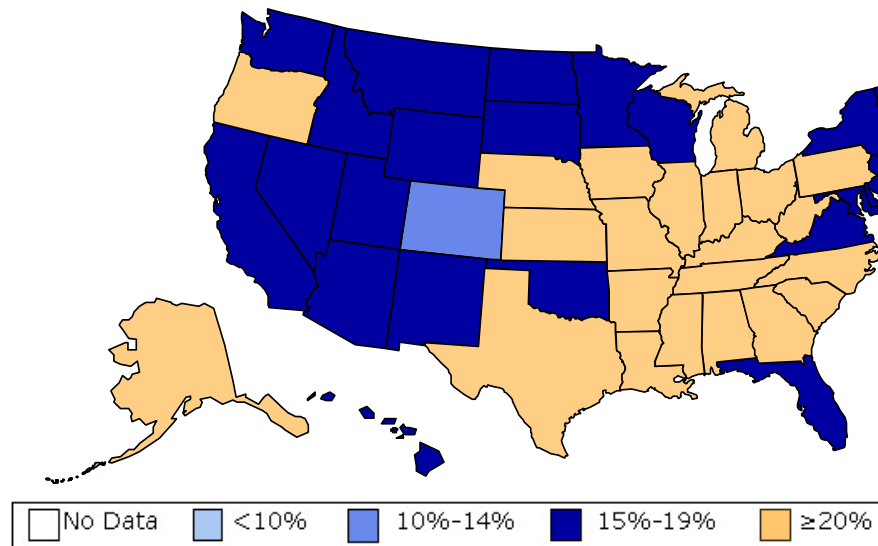




## Obesity Trends\* Among U.S. Adults

**BRFSS, 2000**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)

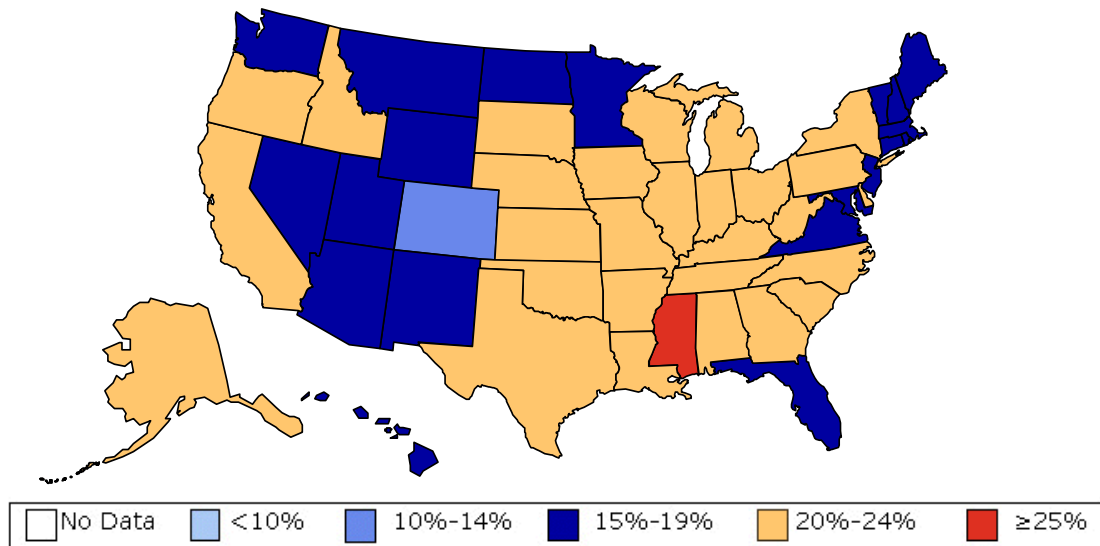




## Obesity Trends\* Among U.S. Adults

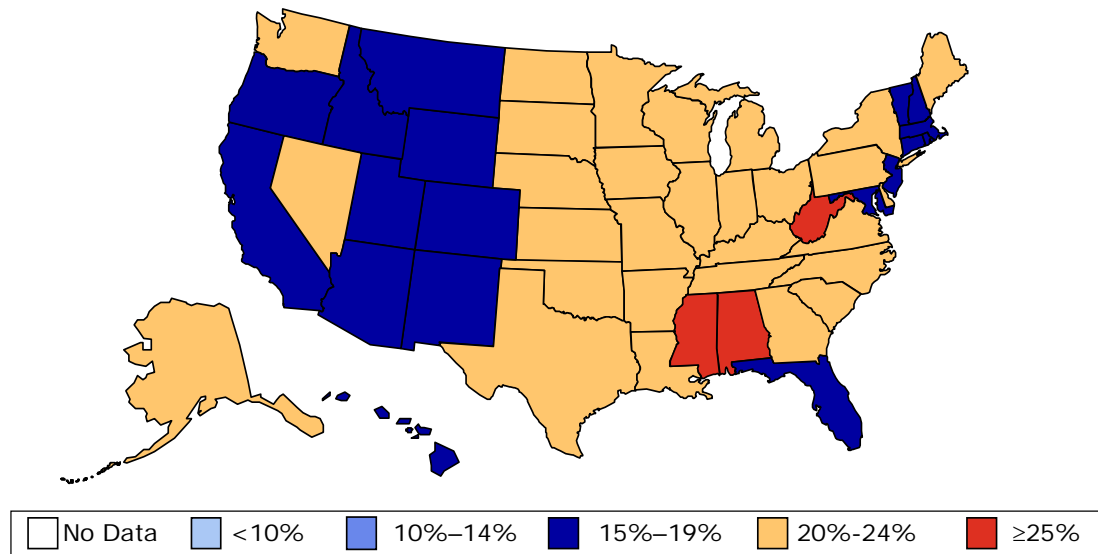
**BRFSS, 2001**

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)





## Obesity\* Trends Among U.S. Adults BRFSS, 2002



Source: Behavioral Risk Factor Surveillance System, CDC



Maine CDC/DHHS

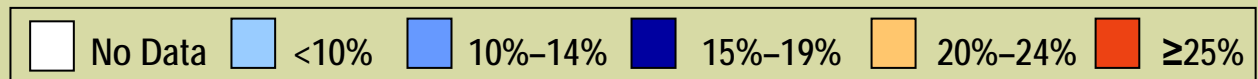
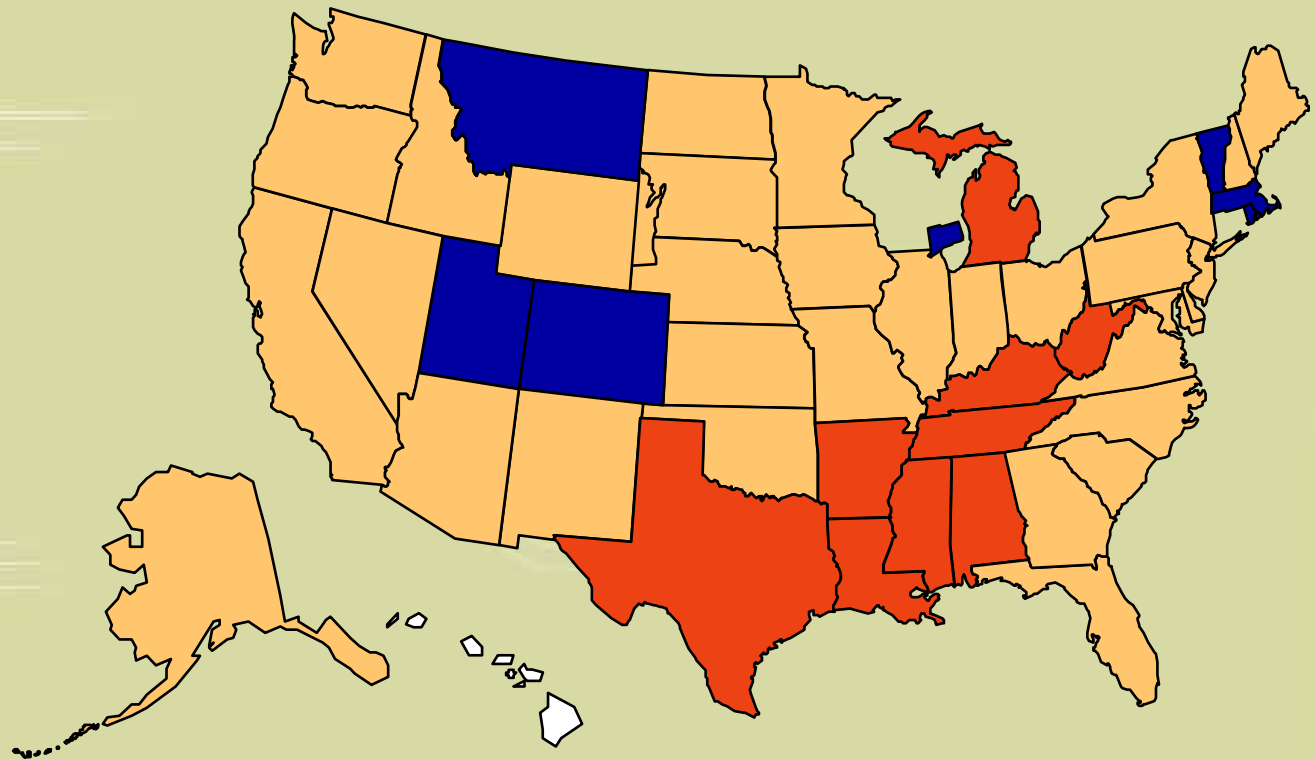




# Obesity Trends\* Among U.S. Adults

## BRFSS, 2004

(\*BMI  $\geq 30$ , or ~ 30 lbs overweight for 5' 4" person)



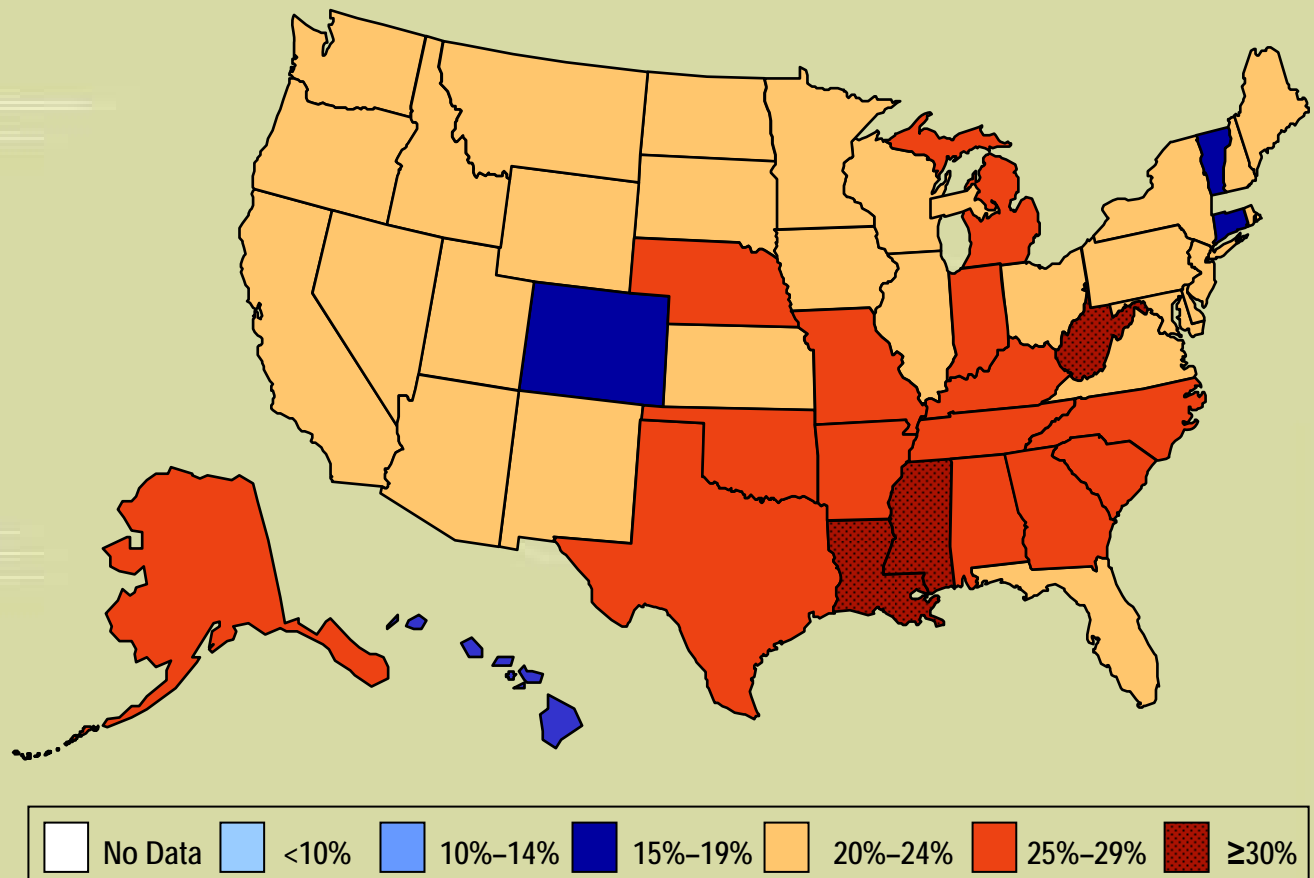
Maine CDC/DHHS



# Obesity Trends\* Among U.S. Adults

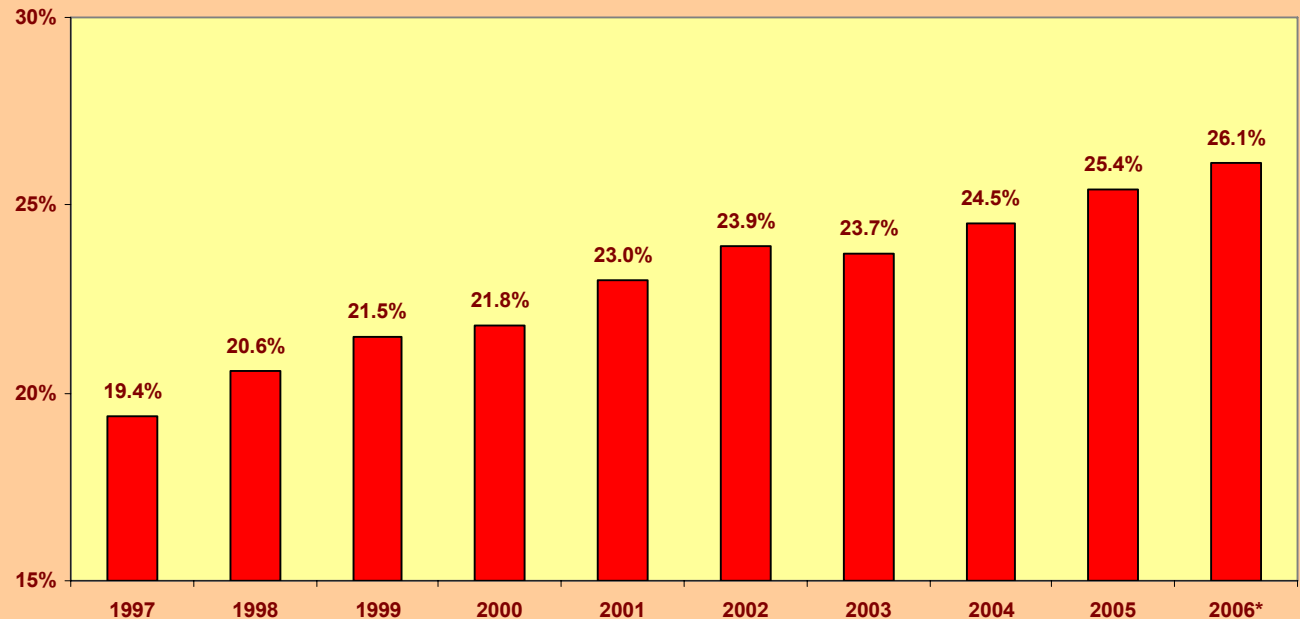
## BRFSS, 2005

(\*BMI  $\geq 30$ , or ~ 30 lbs overweight for 5' 4" person)





## U.S. Obesity Rates Among Adults BRFSS 2000-2006



\* January-September, 2007

Source: National Health Interview Surveys, CDC

**Obesity rates have risen 34.5% among  
U.S. adults in only 10 years**



Maine CDC/DHHS



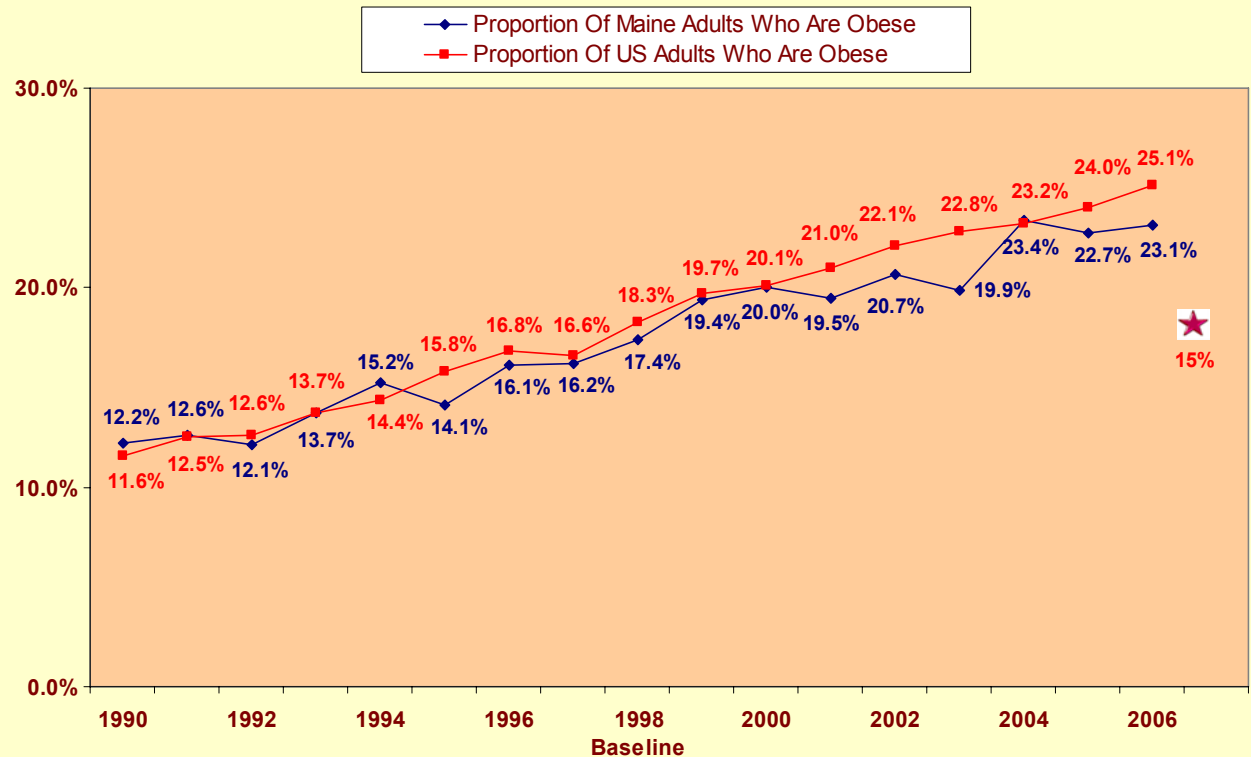
## In Maine:

- Obesity rates have risen 100% in only 17 years (from 12% of Mainers in 1990 to 26% in 2006).
- Currently, one in five Mainers is obese.
- Overweight rates are also rising in Maine.
- Together, 59% of Maine people are either overweight or obese. This is similar to national self-reported data. Therefore, this is analogous to two-thirds of Mainers probably being overweight and obese.
- About 25% of Maine high school students are overweight.
- 36% of Maine kindergartners have BMI  $\geq$  85<sup>th</sup> percentile.





## Proportion Of Maine Adults Who Are Obese 1990-2006



Source: Maine Behavioral Risk Factor Surveillance System 1990-2006, Bureau of Health, Maine Department of Human Services. National data: Behavioral Risk Factor Surveillance System, 1990-2006, Centers for Disease Control & Prevention.

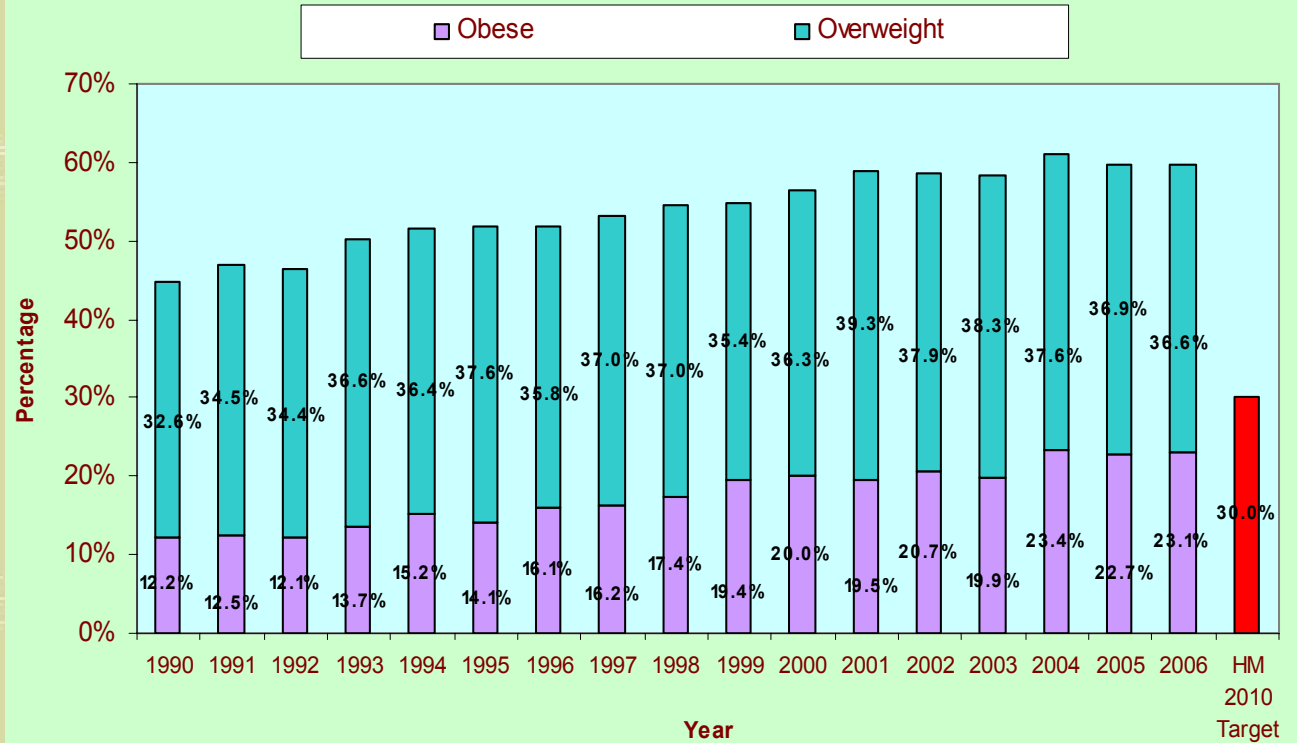
**Obesity rates have risen 100% in only  
17 years – from 12% of Mainers to 26%.**



Maine CDC/DHHS



## Proportion Of Maine Adults Age 18 And Older Who Are Obese Or Overweight 1990-2006



Source: Behavioral Risk Factor Surveillance System 1990-2006, Bureau of Health, Maine Department of Human Services.



Maine CDC/DHHS



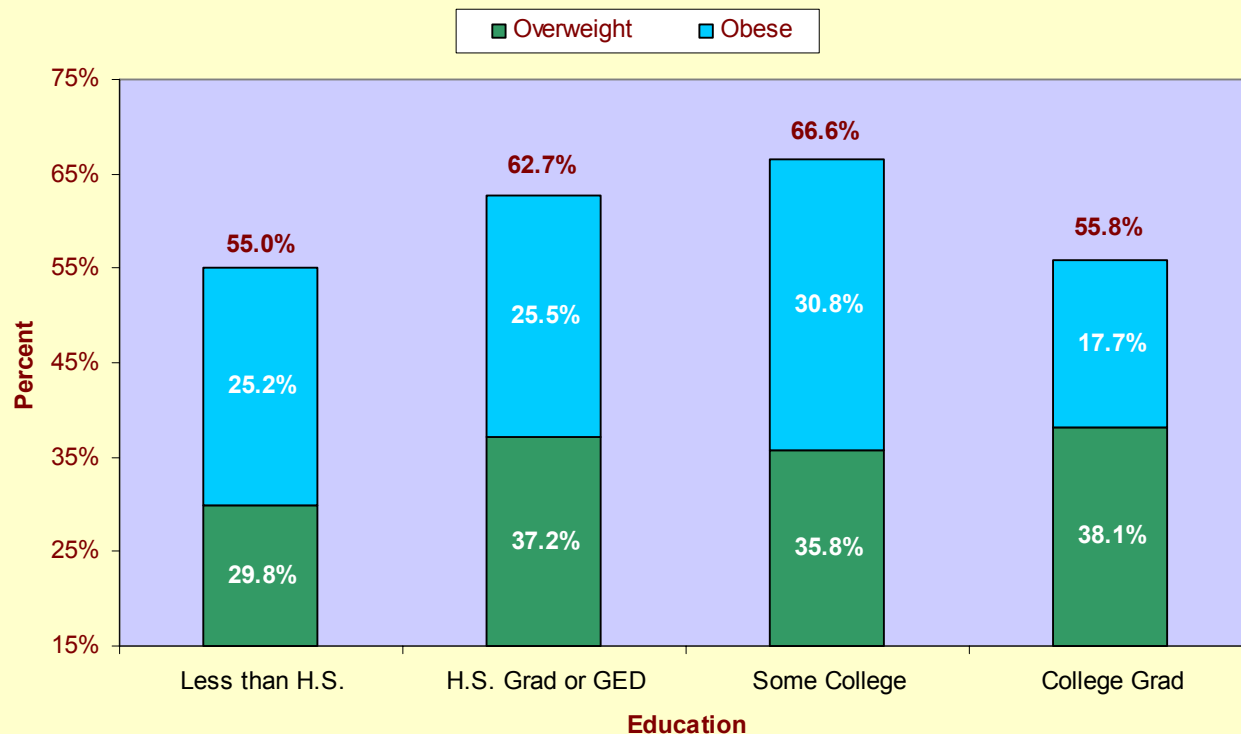
# Who in Maine is Overweight and Obese?

With about two-thirds of us overweight or obese, nearly everyone is considered at risk. Indeed, Maine data indicate this.



# Income and Education Levels:

**Maine Adults Who Are Overweight or Obese  
By Education (BRFSS 2006)**

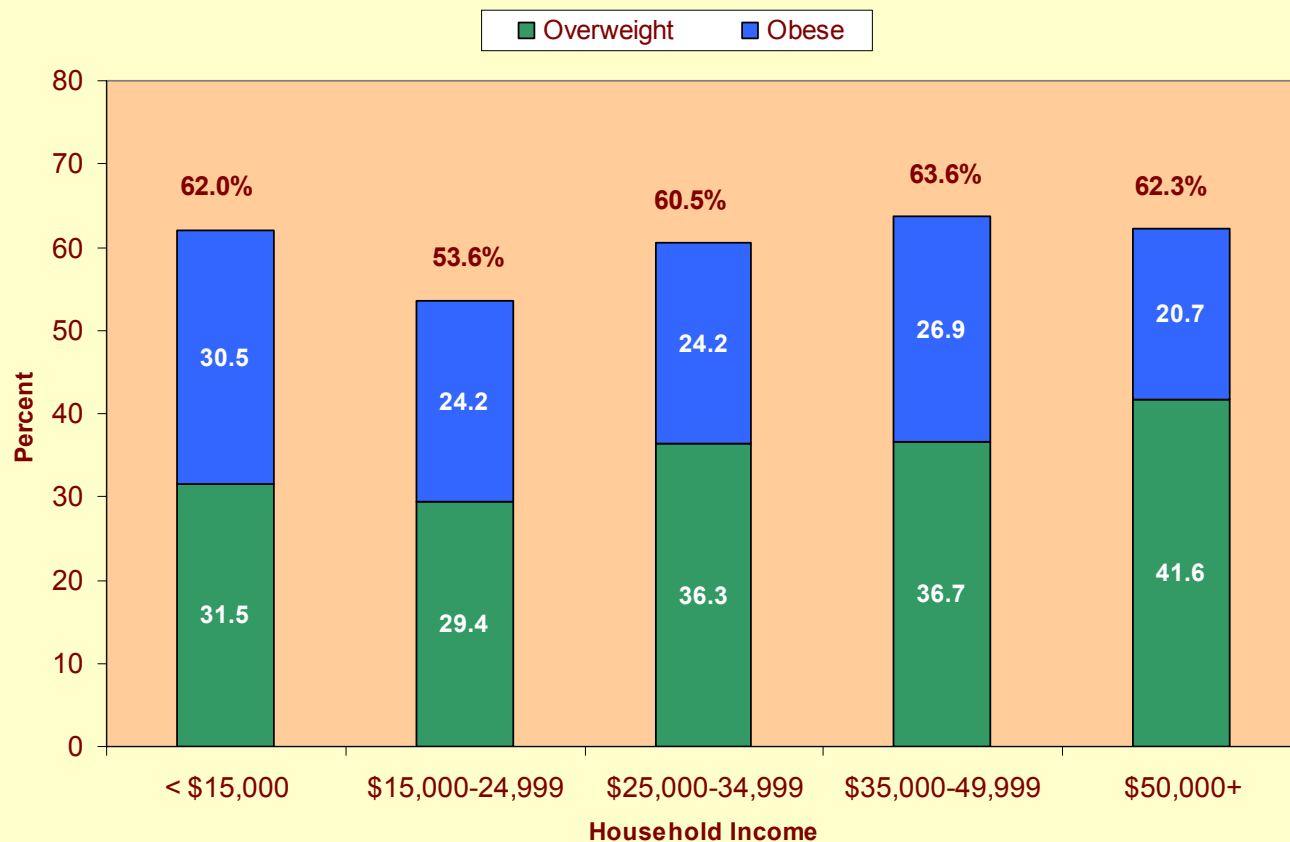


**Maine overweight and obesity rates show some variability across income and education levels.**





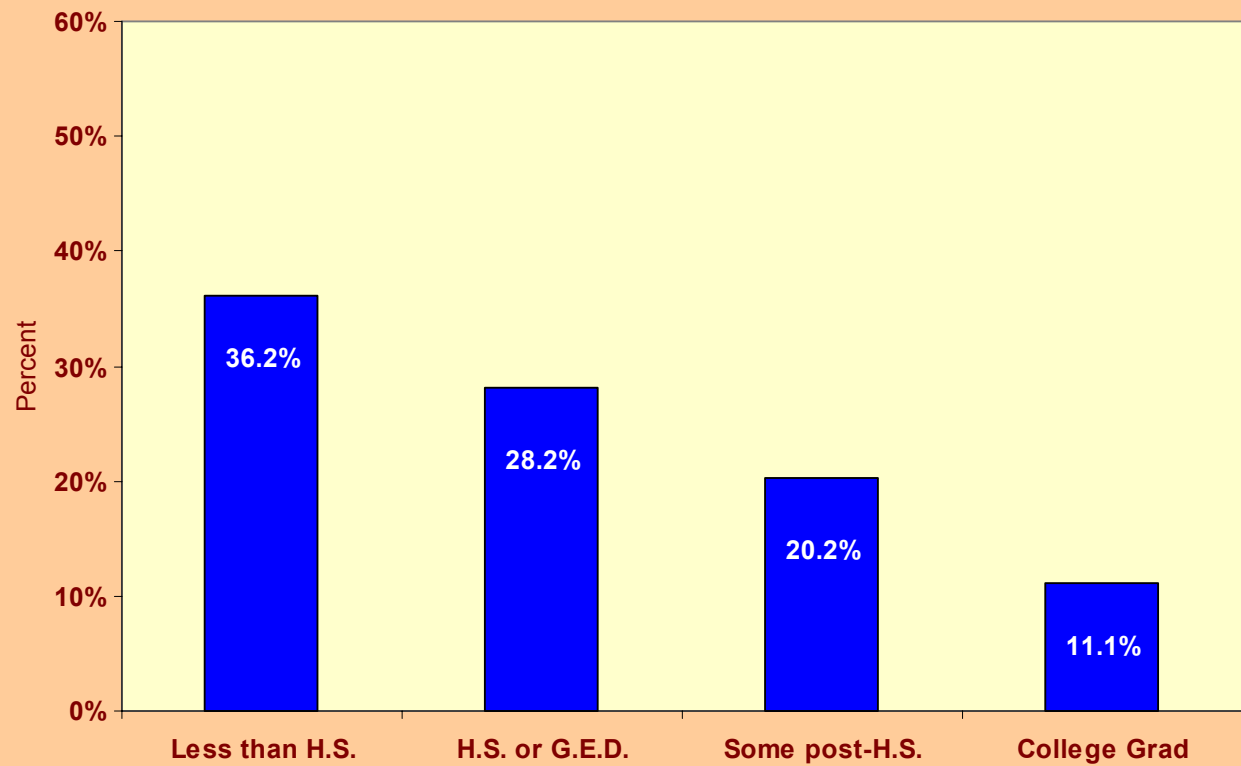
## Maine Adults Overweight Or Obese By Household Income (BRFSS 2006)





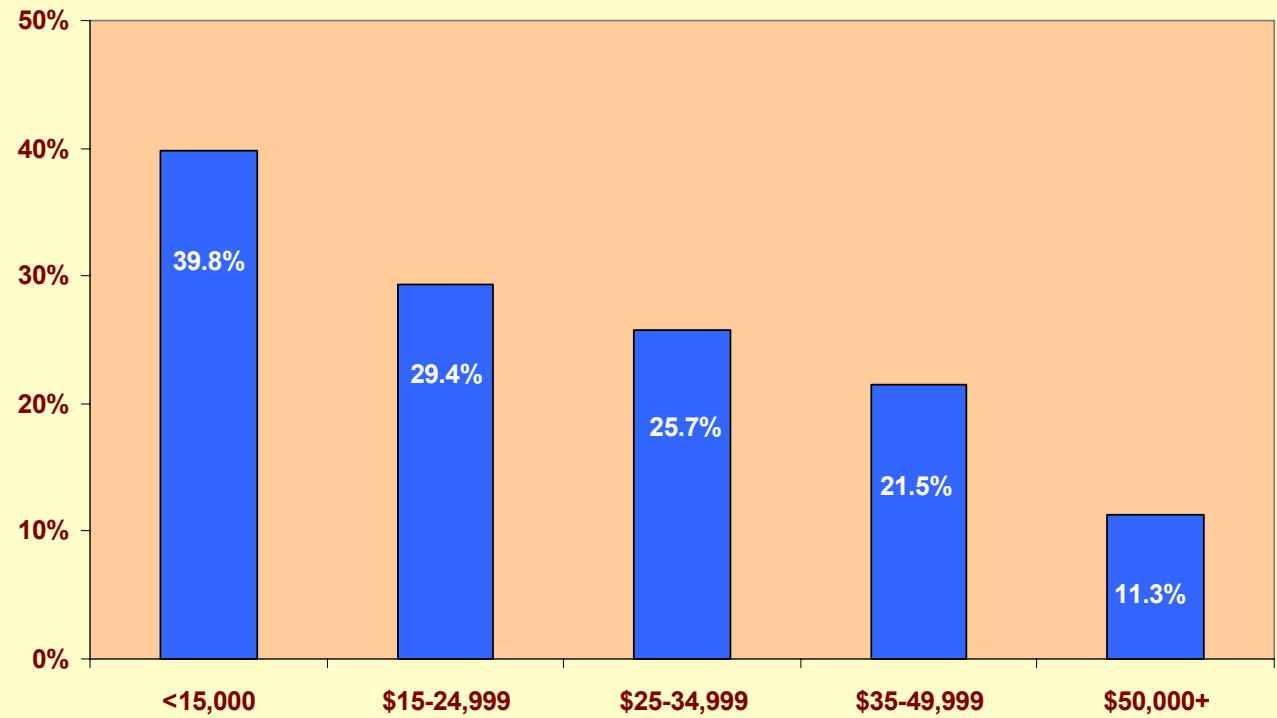


## Maine Adults Reporting No Leisure-Time Physical Activity By Education (BRFSS 2006)



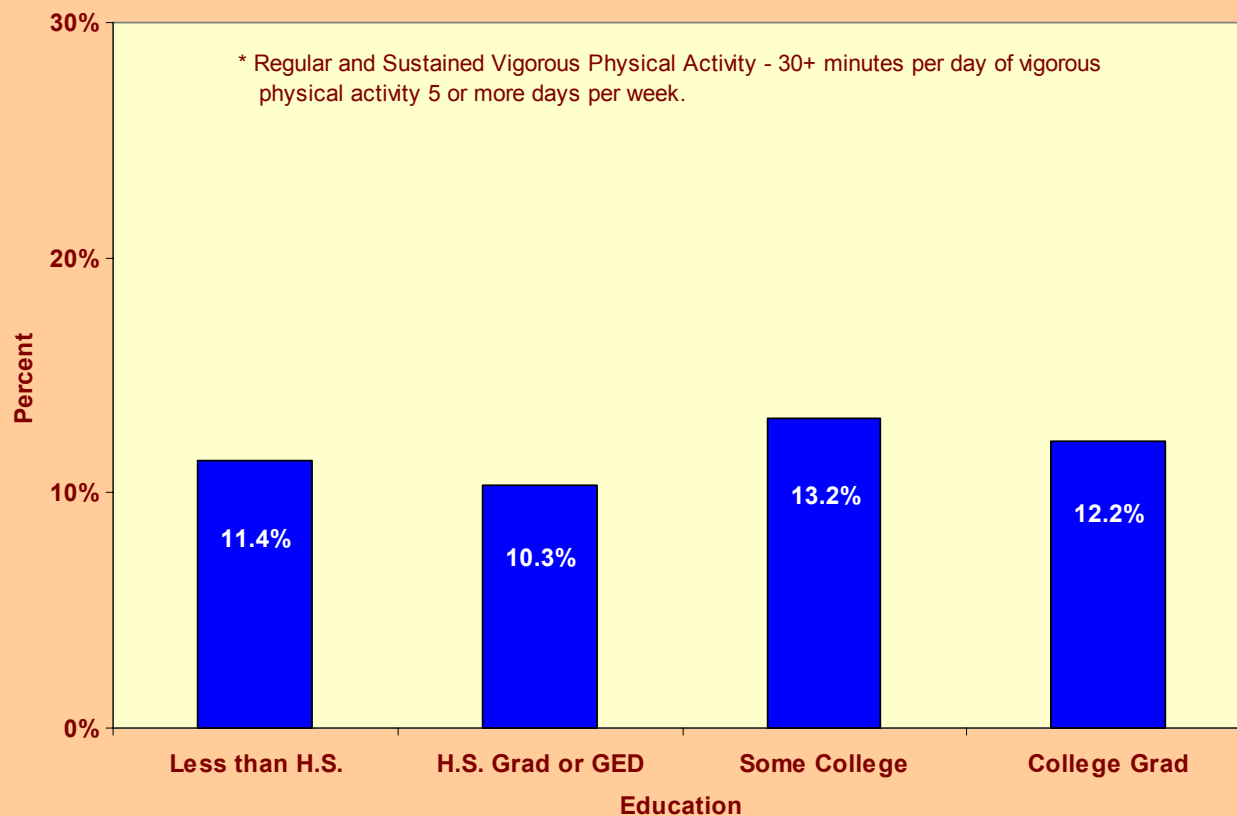


## Maine Adults Reporting No Leisure-Time Physical Activity By Household Income (BRFSS 2006)



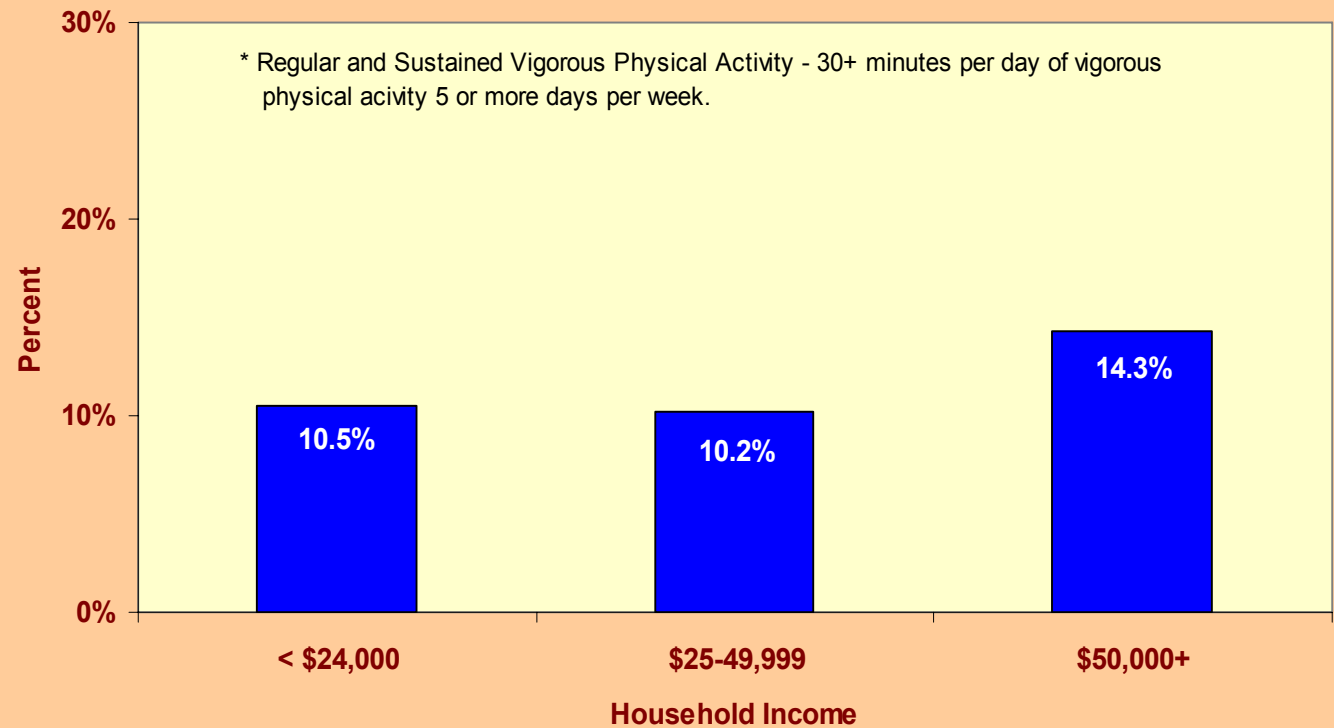


## Maine Adults Reporting Regular and Sustained Vigorous Physical Activity\* By Education (BRFSS 2005)



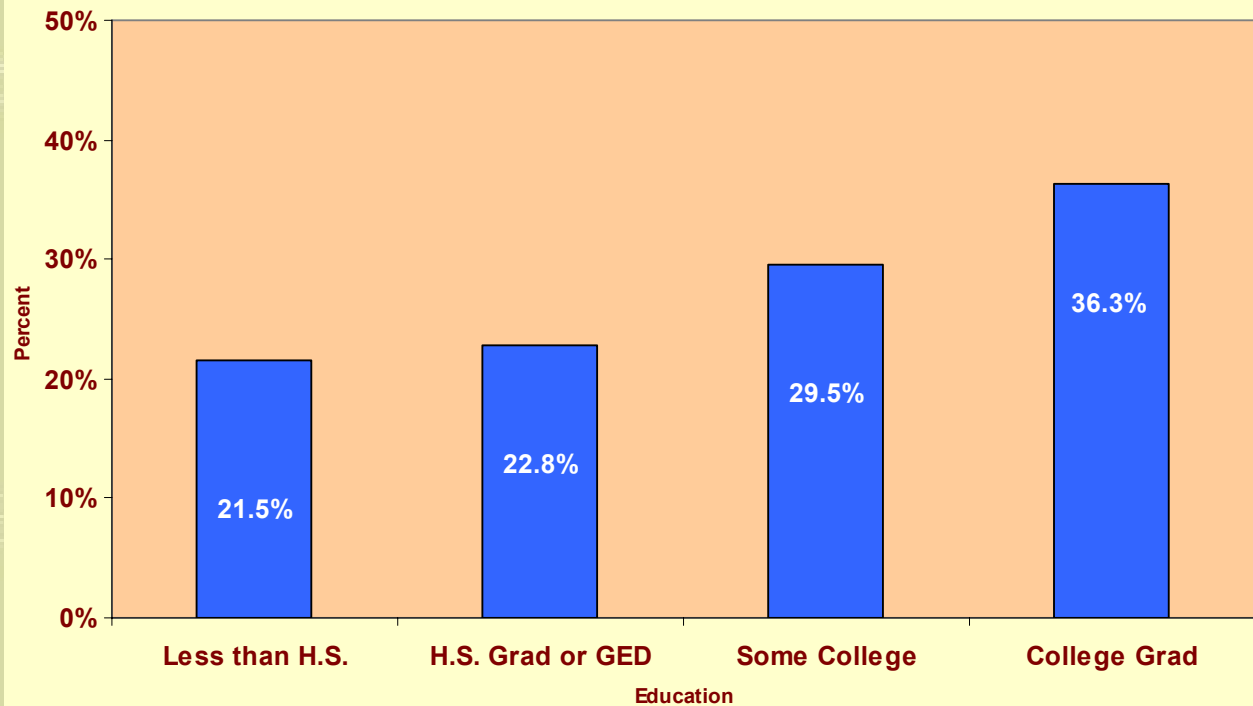


## Maine Adults Reporting Regular and Sustained Vigorous Physical Activity\* By Household Income (BRFSS 2005)



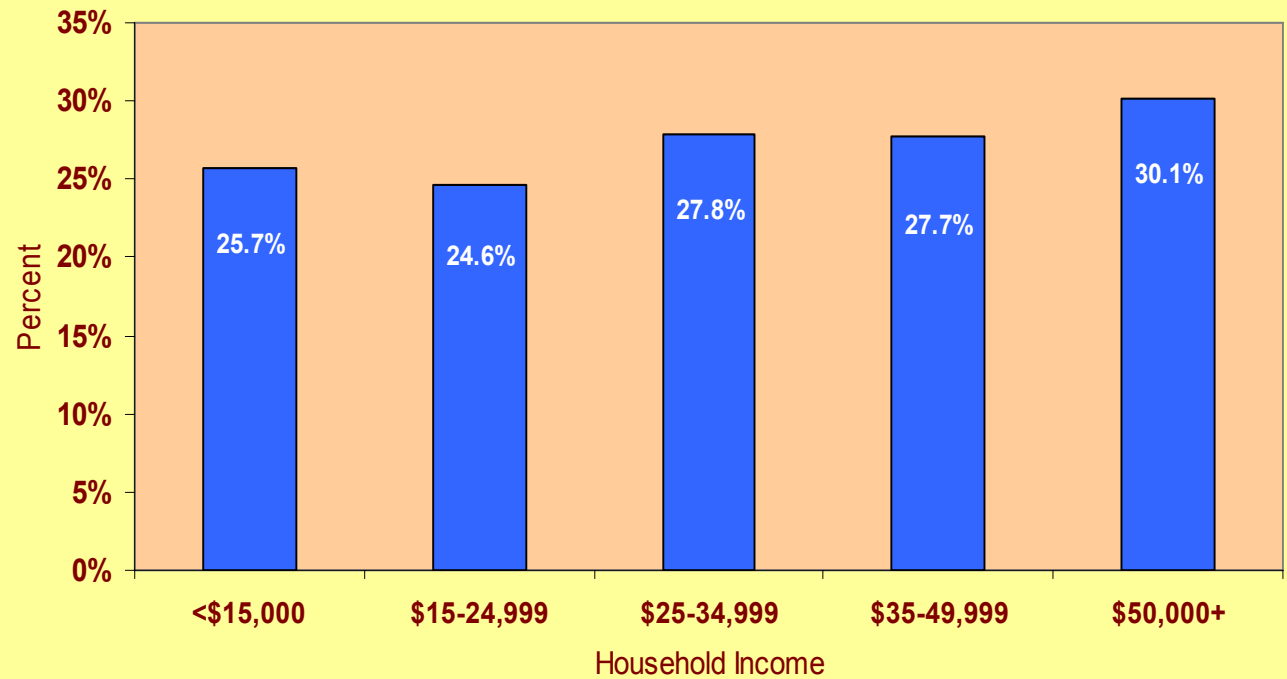


## Maine Adults Reporting They Consume Five Or More Servings Of Fruits And Vegetables Per Day By Education (BRFSS 2005)



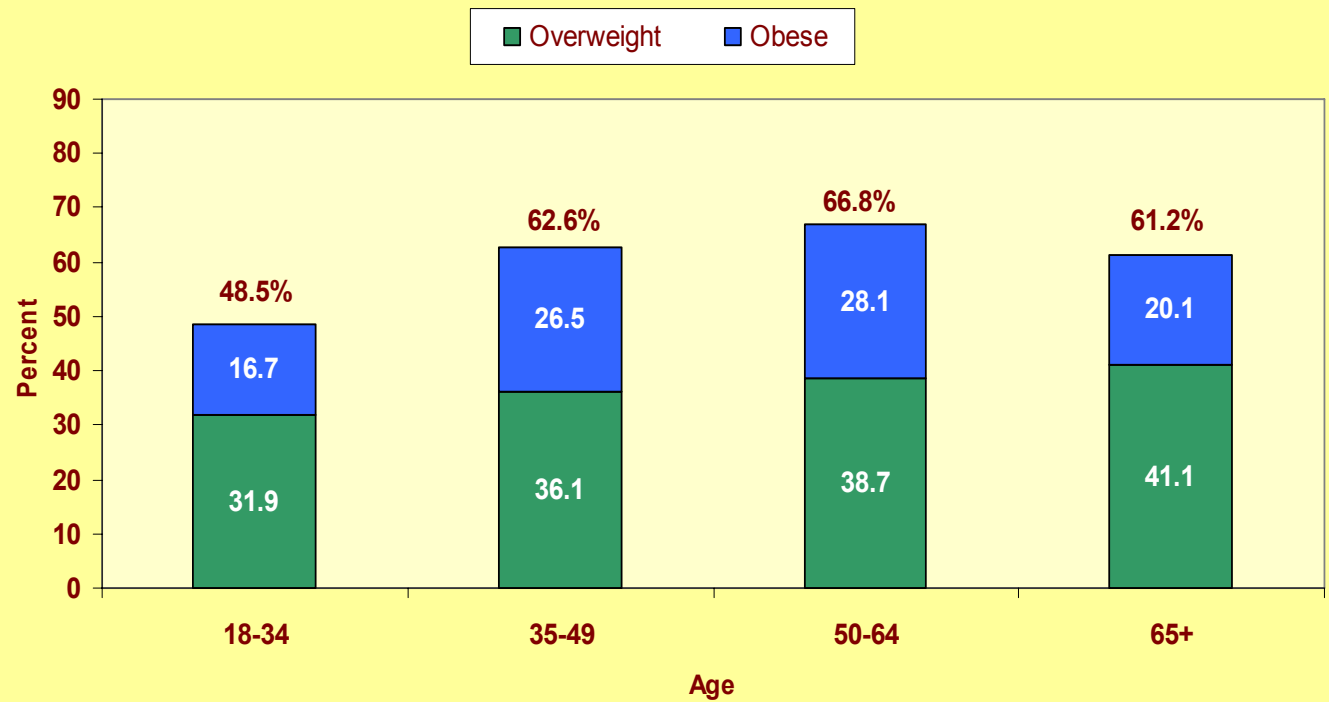


## Maine Adults Reporting They Consume Five Or More Servings Of Fruits And Vegetables Per Day By Household Income (BRFSS 2005)



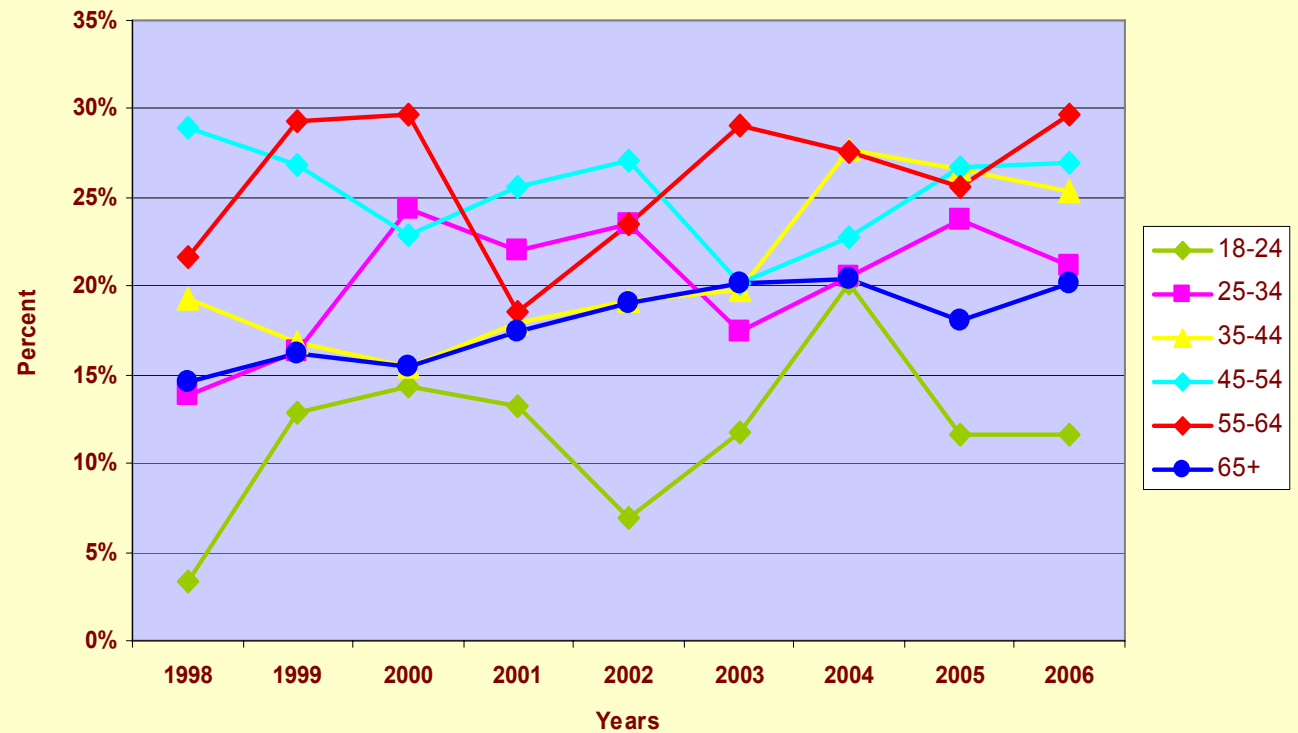


## Age: Maine Adults Who Are Overweight Or Obese By Age (BRFSS 2006)





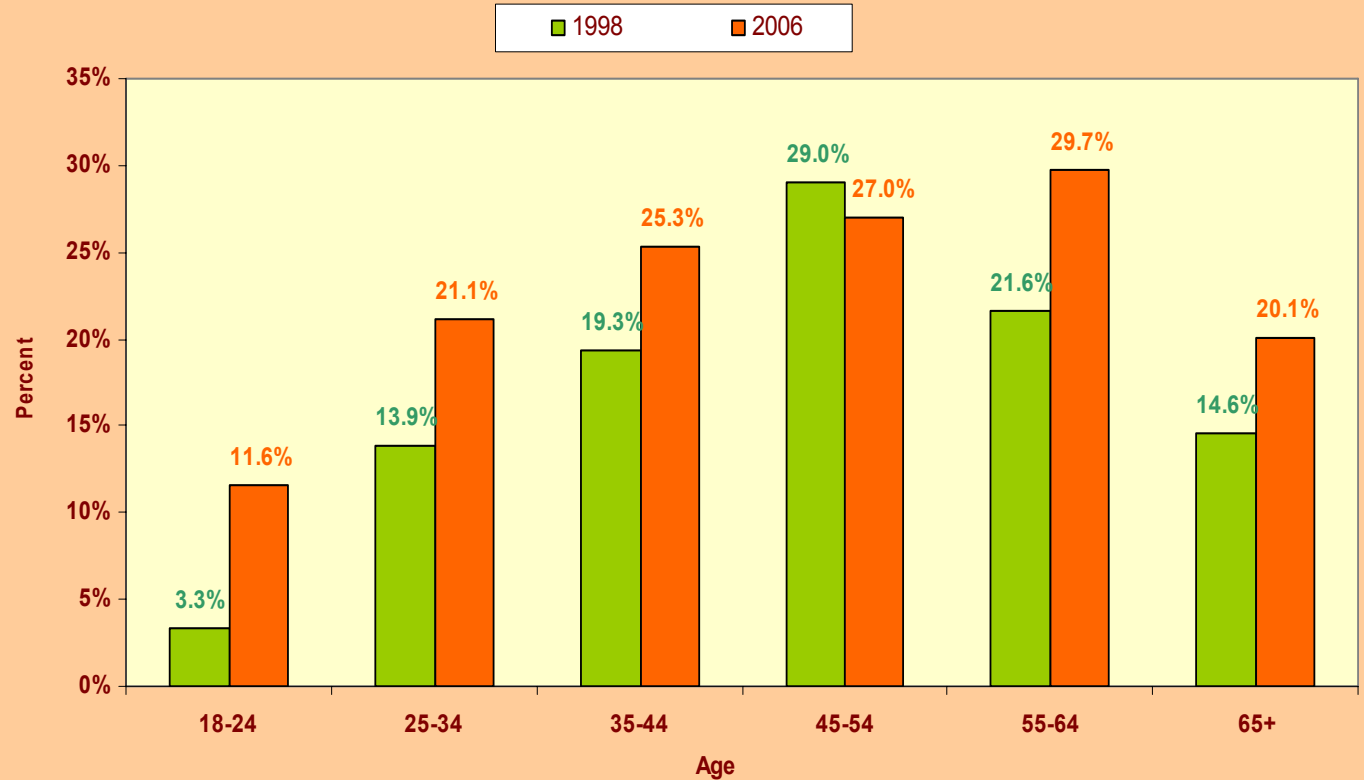
### Obesity: Maine - Grouped By Age 1998-2006





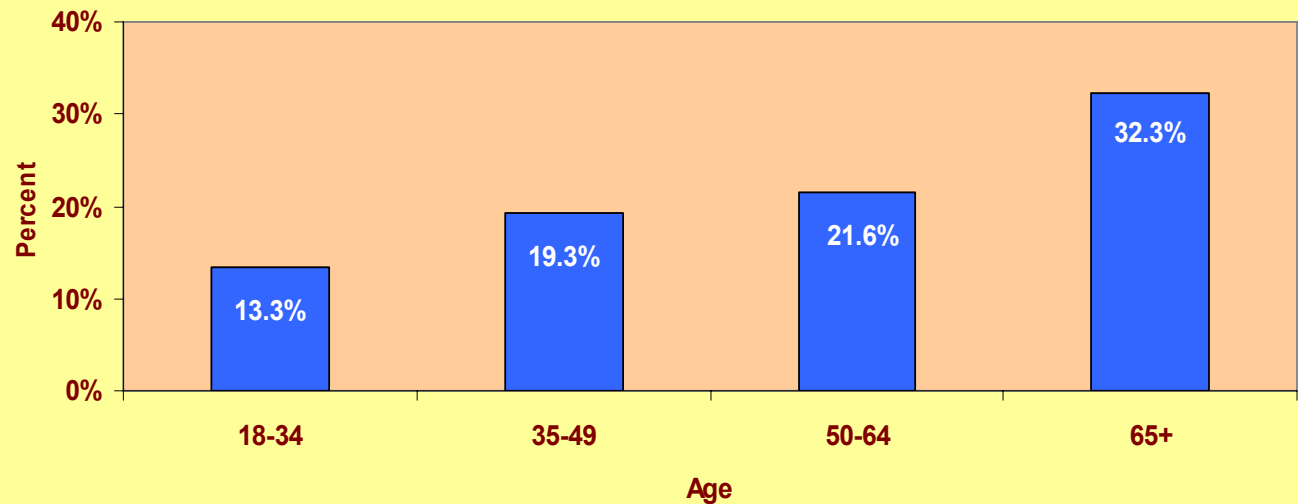


### Obesity: Maine - Grouped by Age





## Maine Adults Reporting No Leisure-Time Physical Activity By Age (BRFSS 2006)

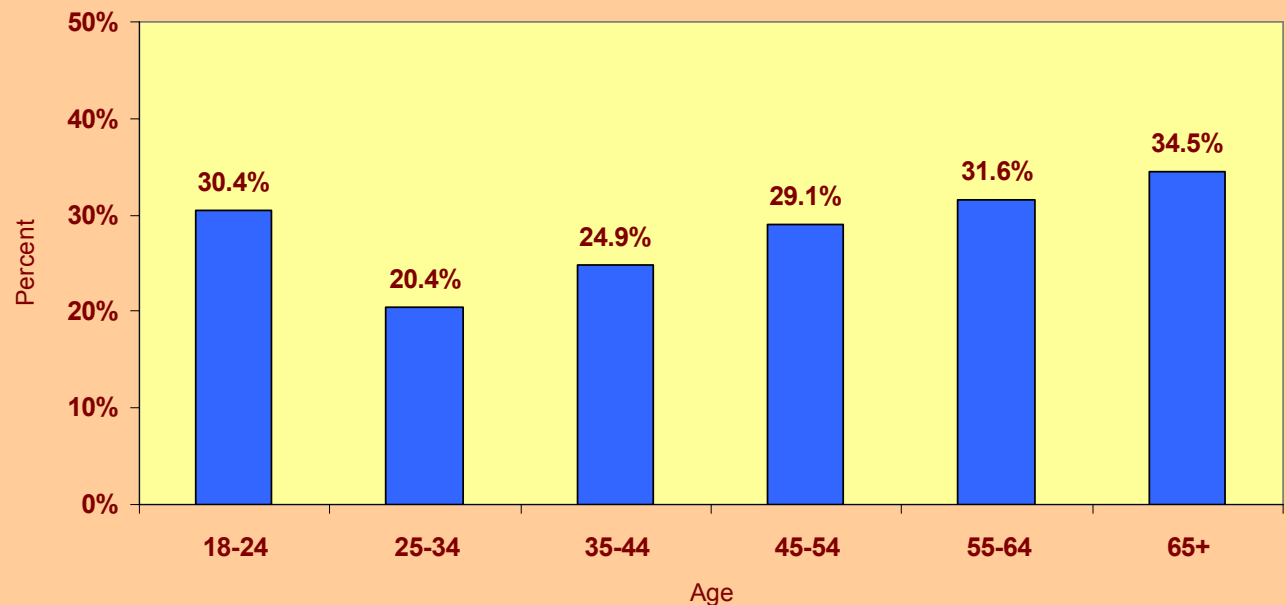


**Older adults are less likely to engage in any leisure-time physical activity than younger adults, but the benefits may be more immediate.**





### Maine Adults Reporting They Consume Five Or More Servings Of Fruits And Vegetables Per Day By Age (BRFSS 2005)



**Younger adults are less likely to eat five or more servings of fruits and vegetables per day than older adults.**





# Maine Child Health Survey (MCHS)

- Conducted in 2003 and 2004 among children in kindergarten, third, and fifth grades
- Directly measures height and weights, versus self-reported data from YRBS (which is only conducted in middle and high schools)
- Children entering kindergarten in 2003 Preliminary Data:
  - 18% with BMIs 85-94% (“at risk for overweight”)
  - 15% with BMIs greater than 95% (“overweight”)
  - **33% have high BMIs!**





# Maine High School Students:

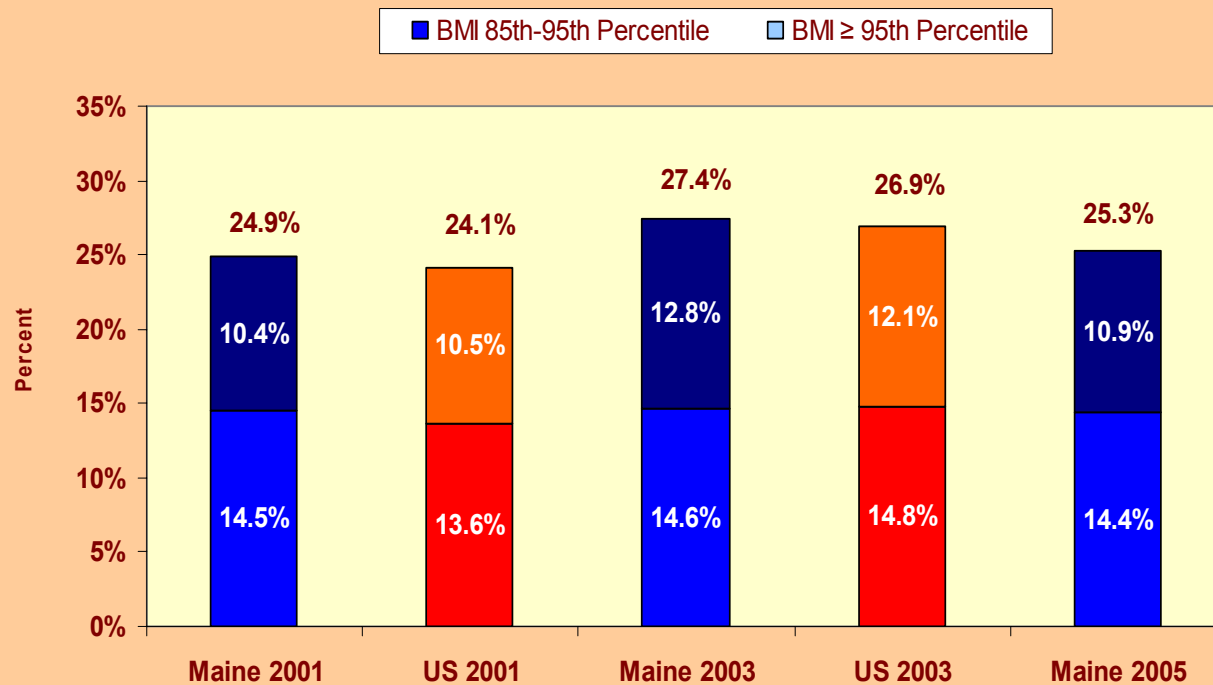
- 93% do not attend daily physical education classes
- 23% watch three or more hours of TV per day on an average school day
- 22% used a computer for fun or video games for at least three hours per day

(Maine YRBS, 2005)





## High School Students With High Body Mass Index (BMI) Maine And US



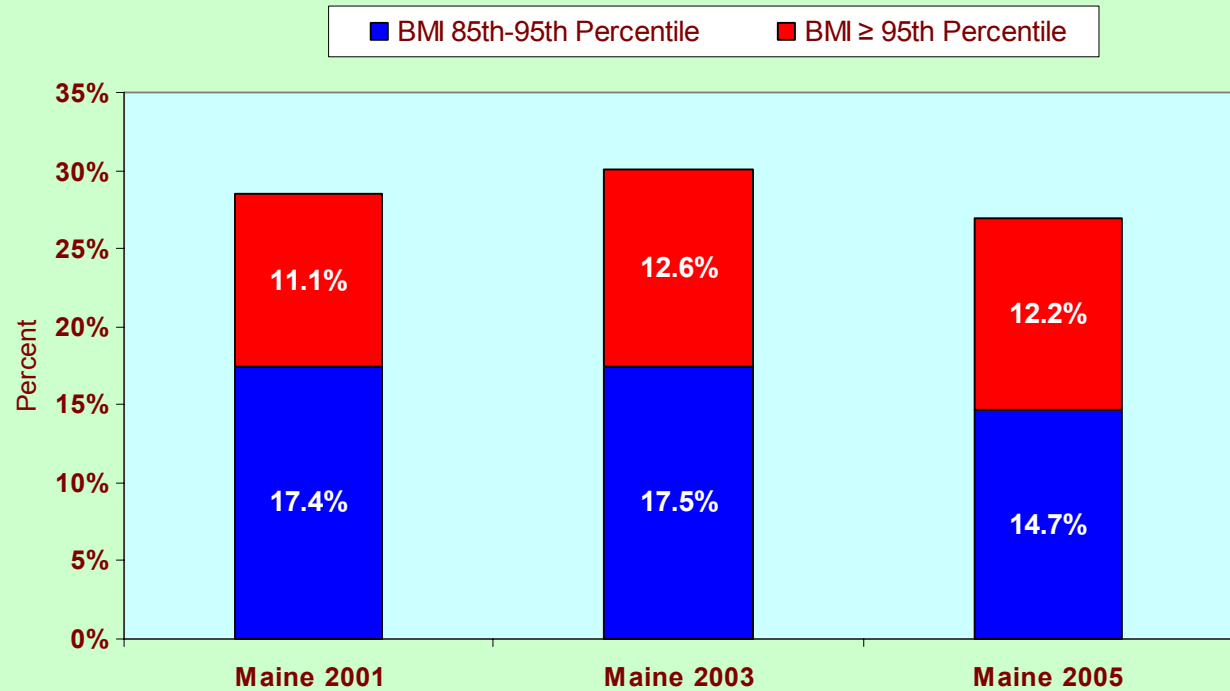
Source: Maine Department of Education, Maine YRBS 2001-2003.



Maine CDC/DHHS



## Middle School Students With High Body Mass Index (BMI) Maine



Source: Maine Department of Education, Maine YRBS 2001-2005.





# Disability Status:

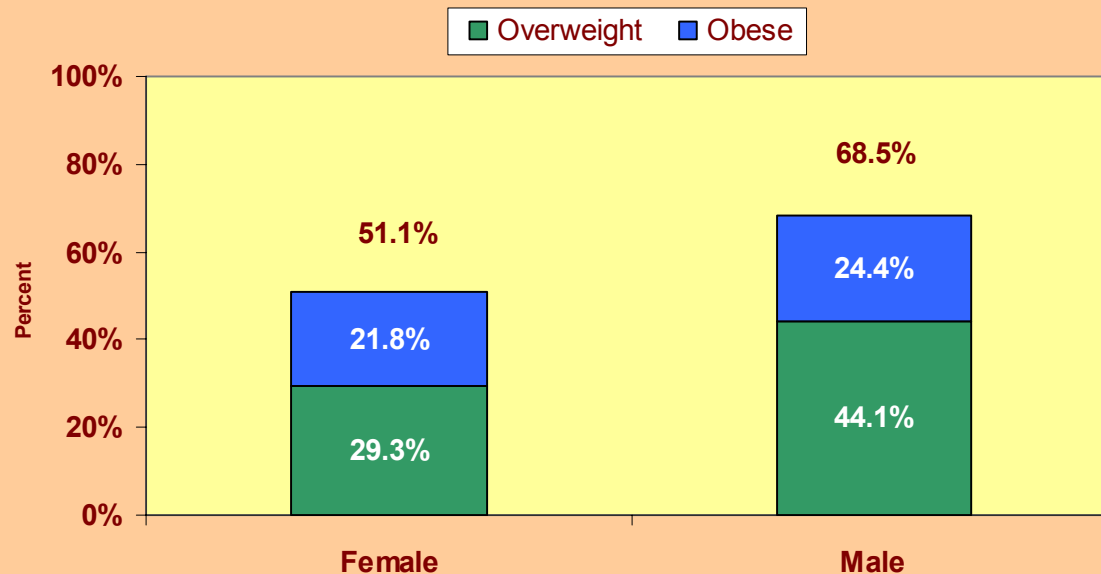
- According to the Behavioral Risk Factor Surveillance System, 21% of Maine adults ages 18-64 are disabled, and approximately 30% of adults over age 64 are disabled.
- National data indicate disabled populations are at risk for obesity.
- These percentages are expected to rise, so our prevention efforts increasingly need to target these populations.
- Over 66% of Maine adults who are defined as disabled are either overweight or obese.





# Gender:

**Percent Of Adults In Maine Who Are Overweight Or Obese By Gender (BRFSS 2006)**

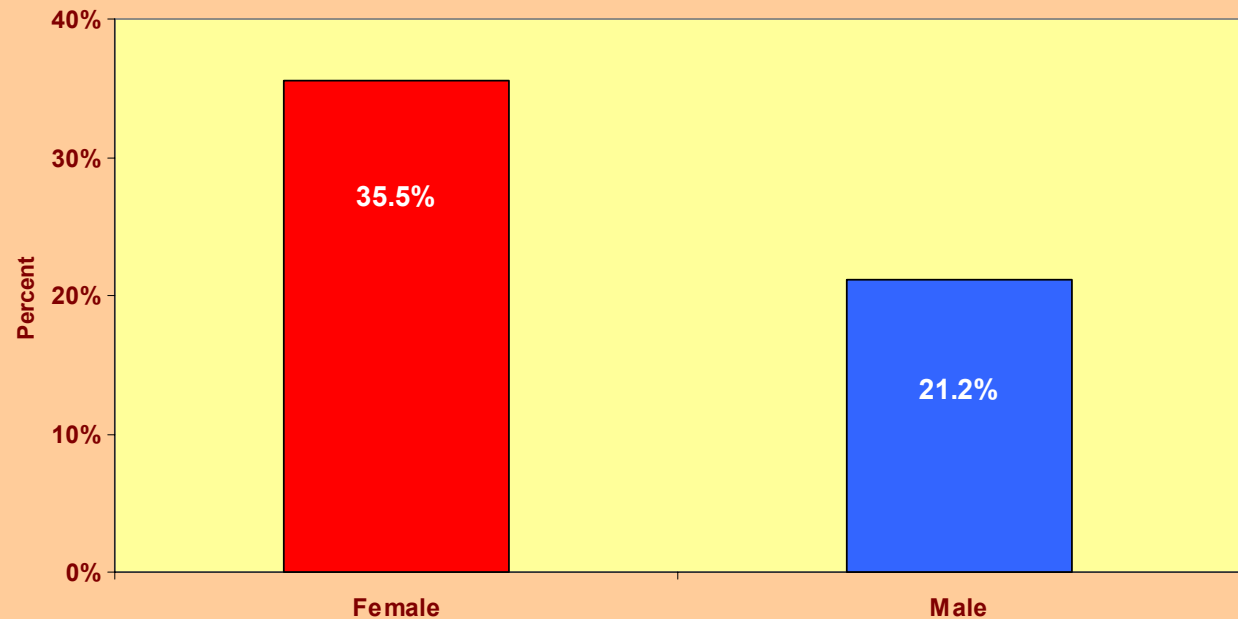


**Maine men are more likely to be overweight and about equally likely to be obese compared to Maine women.**





**Percent Of Maine Adults Reporting They Consume Five Or More Servings Of Fruits And Vegetables Per Day By Gender (BRFSS 2005)**



**Maine women are more likely to eat five or more servings of fruits and vegetables per day than Maine men.**





The impact of race, ethnicity, and sexual minority status on obesity in Maine is not completely known.



Although on first glance there appear to be differences in overweight/obesity rates between geographical regions within Maine (with lower rates in Southern Maine), when these rates are adjusted for income and age, these differences disappear, and there are no significant regional variations.





## 2. The Impact of Obesity

All adults who have a BMI of 25 or more are considered at risk for premature death and disability as a consequence of overweight or obesity. The higher the BMI, the higher the risk for premature death and disability.





# Overweight and obese individuals are at increased risk for:

- Cardiovascular disease (heart disease and stroke)
- Type 2 diabetes
- Cancer (colon, breast, prostate, and endometrial)
- Chronic lung disease
- Gallbladder disease
- Sleep apnea
- Osteoarthritis
- High blood pressure
- High cholesterol
- Complications from pregnancy
- Infertility
- Gout
- Bladder control problems
- Psychological disorders (depression, low self-esteem, eating disorders)





**Indeed, the U.S. has seen a 60% increase in Type 2 diabetes in only 10 years.**

“Dramatic new evidence signals the unfolding of a diabetes epidemic in the United States. With obesity on the rise, we can expect the sharp increase in diabetes rates to continue. Unless these dangerous trends are halted, the impact on our nation’s health and medical care costs will be overwhelming.”

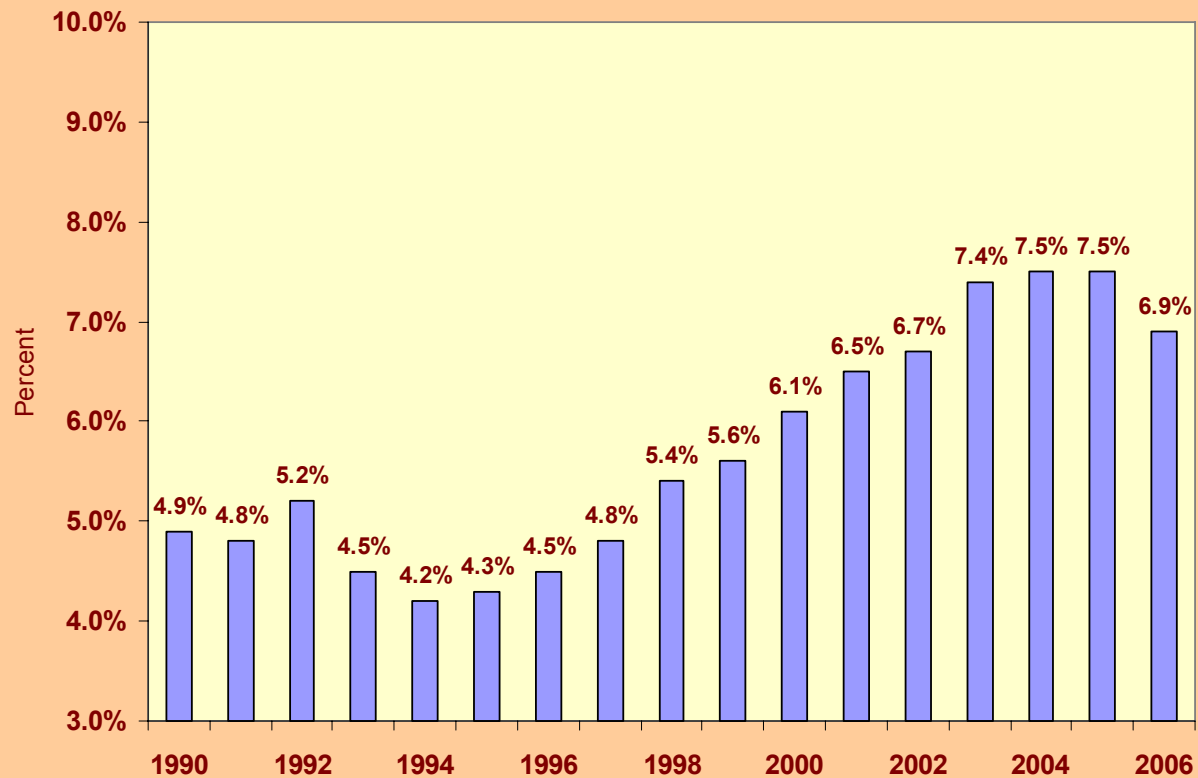
*-Jeffrey P. Koplan, MD, MPH  
Director, CDC 1998-2002*



Maine CDC/DHHS



## Persons With Diagnosed Diabetes U.S. 1990-2006







# Prevalence of Diabetes, U.S. 1994 and 2001



**1994: 14 states < 4% prevalence**

**2 states > 6% prevalence**

**2002: NO state < 4% prevalence**

**31 states > 6% prevalence**

**Maine is one of the few states  
with a > 50% increase.**

**1994: 33,000 estimated prevalence**

**2002: 73,099 estimated prevalence**

**2005 77,219 estimated prevalence**

**2006 72,657 estimated prevalence**







# *New England Journal of Medicine*

## April 24, 2003

- Overweight and obesity are associated with the risk of death from all cancers and with death from cancers at many specific sites.
- It is estimated that 90,000 deaths due to cancer could be prevented each year in the U.S. if men and women could maintain normal weight.
- Overweight and obesity account for an estimated **14% of all deaths from cancer** in men and **20% of those in women.**





# ***Pediatrics, May 2002***

Over the past 20 years in the U.S., increases in hospitalizations for children ages 6-17 for obesity-related diseases:

- 436% for sleep apnea
- 228% for gallbladder disease
- 197% for obesity

Obesity-associated hospital costs for youth ages 6-17 in 20 years have increased from \$35 million (1979-81) to \$127 million (1997-1999).



# *Pediatrics, 1999*

- 58% of overweight children (even as young as 5 years old) were found to have at least one additional risk factor for cardiovascular disease
- 20% were found to have two or more risk factors

Risk factors include:

- High blood pressure
- High blood cholesterol
- Type 2 diabetes





Because of obesity and overweight, our youth may be the first generation in America to not live as long as their parents' generation.





# The Costs?

- 1-5 people are estimated to die every day in Maine prematurely from obesity/overweight (2000 data).
- Over \$0.5 billion in health care dollars every year in Maine.
- Adult obesity in Maine is estimated to cost 11% of the State's medical expenditures.
- \$117 billion in health costs nationally, mostly due to Type 2 diabetes, heart disease, and hypertension.

(cont'd)





- \$61 billion in direct health care costs (treatment of related disease) and \$56 billion in indirect costs (lost productivity due to disability, morbidity, and mortality).
- Obesity raises an individual's health care costs by 36% and medication costs by 77% compared to the general population.
- The direct costs of obesity and physical inactivity account for 9.4% of U.S. health care expenditures (2001, *JAMA*)





### 3. The Causes of Obesity

**Biologically, obesity/overweight is caused by two factors:**

- Too many calories consumed and/or**
- Too few calories expended**

In other words, poor nutrition and/or physical inactivity are the two major underlying causes of obesity. Underlying these two major causes are a myriad of environmental and psychosocial factors.





# 2002 *JAMA* Article

Between 1984 and 1997 (only 13 years), >15% increase in the daily calorie intake per person in the U.S. – this represents about 300 calories, which is the equivalent of a candy bar or two.

Without an increase in energy output, these excess calories represent about 30 pounds per year.

At the same time calorie consumption has increased, daily physical activity among Americans has decreased – increased reliance on motor vehicles, sedentary occupations, TV, computers, etc.

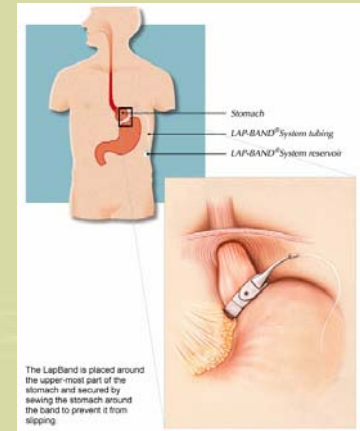




# There is no evidence of an epidemic of loss of willpower in the U.S.



WeightWatchers.com



The Lapband is placed around the upper-most part of the stomach and secured by sewing the stomach around the band to prevent it from slipping.



Jenny Craig

## \$33 billion spent on weight loss products in the U.S. annually.



Maine CDC/DHHS



**There is no evidence of an epidemic of changes in our genes.**



**Well, actually, there is...**





## ***Pediatrics, 1998***

“Despite obesity having strong genetic determinants, the genetic composition of the population does not change rapidly. Therefore, the large increase in obesity must reflect major changes in non-genetic factors”.

*Childhood Obesity: Future Directions and Research Priorities*





## And, national studies show improving physical activity and nutrition prevent Type 2 diabetes:

Diabetes Prevention Project – a 27-center randomized clinical trial sponsored by the NIH and American Diabetes Association and others: Of those with a high likelihood of developing diabetes (impaired glucose tolerance and obesity), there was a:

- 58% decrease in the development of diabetes among those who were given a lifestyle intervention aimed at achieving and maintaining a 7% weight loss (50% did) and 150-minute per week brisk walking level of physical activity (74% did)
- Compared with 31% in those treated with pharmaceuticals (metformin)
- Compared to the control group, over a 2.8 year average follow-up.





**We have built obesity  
into our society.**





## 4. Approaches to Addressing Obesity Population-Based Approaches

“The function of protecting and developing health must rank even above that of restoring it when it is impaired.”

- *Hippocrates*





# Physical Activity







## In the past 100 years, we've moved from:

Walking to Cars

Walking to Elevators

Farming to Grocery Shopping/  
Fast-Food Restaurants

Farming and Maintaining  
a House to Computers

Farming and Maintaining  
a House to Cubicles and Meetings

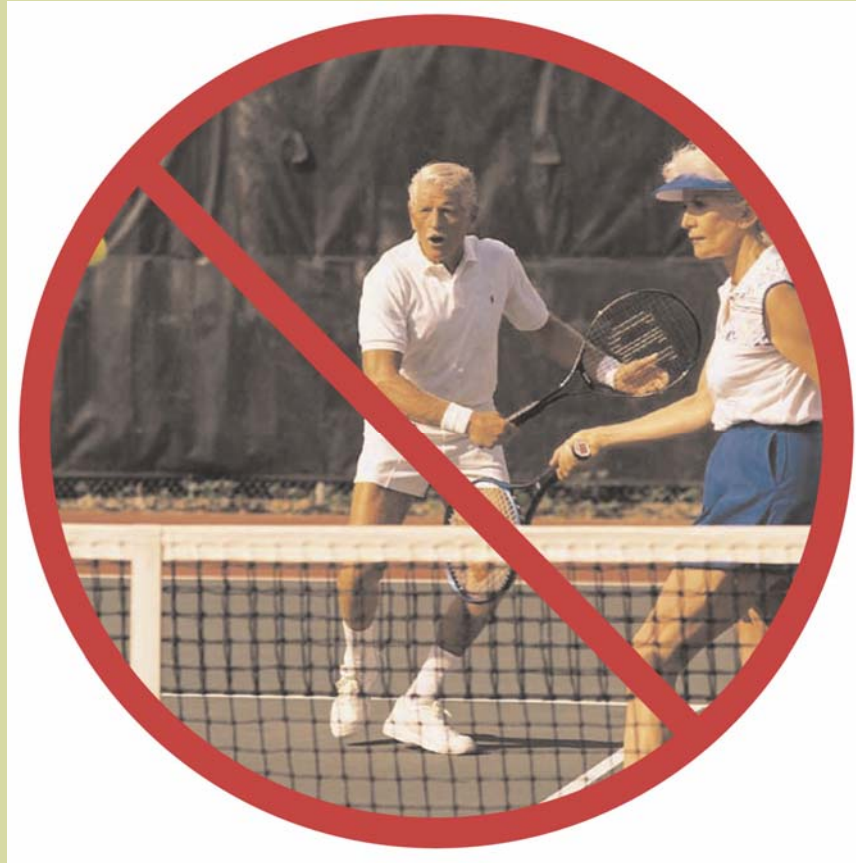
Daylong Clothes-washing to Washing Machines  
and Dryers

Washing Dishes to Dishwashers

Playing to Television and Other  
Screen Times



**27% of American and Maine adults  
report NO leisure-time physical activity!**





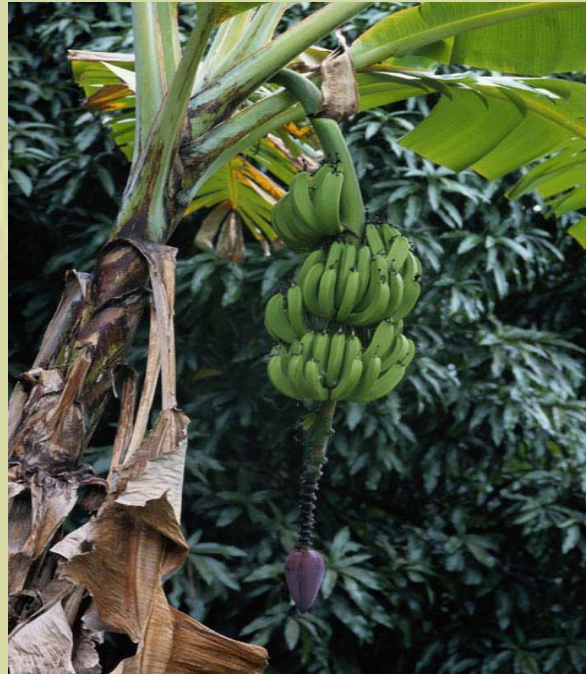
# Solutions:

- Revising our transportation policies
- Restructuring our communities
- Restructuring our workday, school days, family life
- Motivation, education



# Low Hanging Fruits:

- Walking
- Screen Time





# Walking



# ***JAMA Editorial, 1999***

“Automobile trips that can be safely replaced by walking or bicycling offer the first target for increased physical activities in communities. Recent data indicate that 25% of all trips are less than one mile, and 75% of these are by car.”





# Commuting to Work

According to the U.S. Census Bureau, the most common ways we commuted to work in 1960 and 2000:

	<b>U.S. 1960</b>	<b>U.S. 2000</b>	<b>Maine 2000</b>
<b>Car</b>	64%	88%	89%
<b>% of Car Drivers Who Drive Alone</b>	Not Asked	76%	88%
<b>Public Transportation</b>	12%	5%	<1%
<b>Walked</b>	10%	3%	4%
<b>Bicycle/Other Means</b>	Not Asked	1%	1%
<b>Work at Home</b>	7%	3%	5%





# ***American Journal of Preventive Medicine, 2000***

- “Walking trails may be beneficial in promoting physical activity among segments of the population at highest risk for inactivity, in particular women and persons in lower socioeconomic groups.”
- “Among people who used the trails, 55% reported they had increased their amount of walking since they began using the trails. Women and persons with a high school education or less were more than twice as likely to have increased the amount of walking since they began using the walking trails.”







## **CDC: Promoting Better Health for Young People Through Physical Activity and Sports: A Report to the President, 2000**

- Research shows that people walk more when they live in communities that have greater housing and population density and more street connectivity (i.e., streets lead to other streets and stores, rather than ending in cul-de-sacs).
- People are also more active in neighborhoods that are perceived as safe and that have recreational facilities nearby.






## ***JAMA, 1999***

“This is to our knowledge, the first demonstration that a lifestyle approach to increasing physical activity in previously sedentary healthy adults is as effective as more traditional structured exercise approaches. Our results show that sedentary but otherwise health individuals can make significant improvements in physical activity, cardiorespiratory fitness, and CVD risk factors without having to go to a fitness center and perform high-intensity workouts.”



**These are athletic shoes.**

**Physical activity can be a flop.**

**Physical activity is a walk on the beach. A stroll around the yard. A trip around the block. And your heart will become stronger for it. In fact, anything you do—no matter how small—can begin to improve your health. It's that simple.**

THIS HEALTHY WEIGHT AWARENESS MESSAGE IS BROUGHT TO YOU BY  
**Healthy Maine Partnerships**  
The state's network of working on the range and quality of  
 Bureau of Health, Department of Human Services

For more ways to get healthier in your community, go to [www.healthymainewalks.org](http://www.healthymainewalks.org)





**This is an exercise machine.**

**Simple  
steps toward  
better  
health.**

**When  
you have the chance,  
take the stairs. Your  
heart will beat faster. Your  
legs will get stronger. And  
your health will start to improve.  
In fact, anything you do—no  
matter how small—can begin to  
improve your health.  
It's that simple.**

THIS HEALTHY WEIGHT AWARENESS MESSAGE IS BROUGHT TO YOU BY  
**Healthy Maine Partnerships**  
FOR PEOPLE WHO WANT TO GET HEALTHIER  
Bureau of Health, Department of Human Services  
For more ways to get healthier in your community,  
go to [www.healthymainepartnerships.org](http://www.healthymainepartnerships.org)



**Maine CDC/DHHS**



*(camera moves through house freezing on everyday items)*



Maine has a weight problem. But we can do something about it. Start with the stairs. Take them. That's physical activity. Yeah, I know, it doesn't seem like much, but it is. Your heart beats faster, your legs get stronger. Got chores? Picking up around the house, that's good, too. You like music? Put some on and move around. It all counts. It's all physical activity. Anything you do—no matter how small—can begin to improve your health.

It's that simple.



Maine CDC/DHHS

# Screen Time

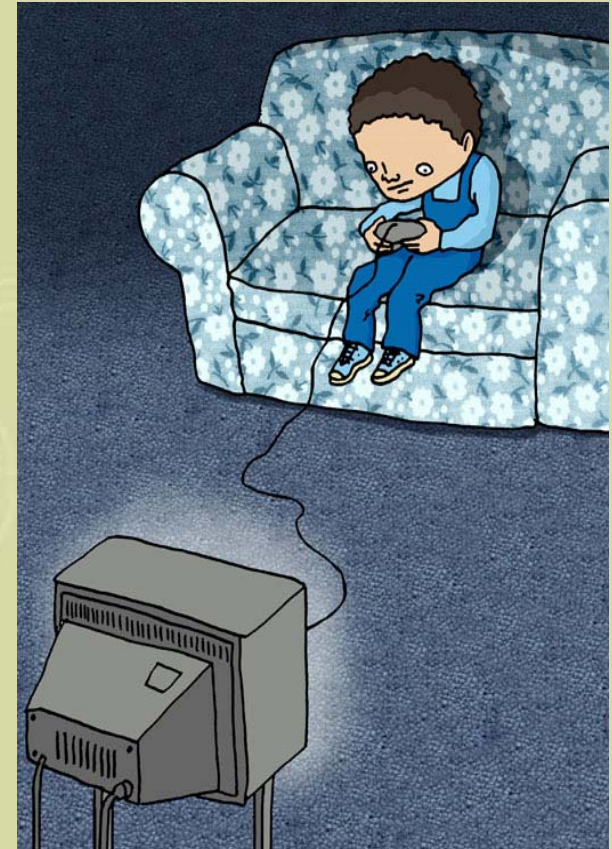






# Kaiser Family Foundation Research on Kids and Media, 1999

- Nationally, children ages 2-18 spend an average of over 4 hours per day watching TV, videotapes, playing video games, or using a computer.
- Most of this time (2+ hours) is spent watching TV.
- Almost 1 in 5 children in America watch more than 5 hours of TV per day.





# ***JAMA, 1999***

Study by Robinson, et al. showed when TV, videotape, and video game watching was decreased, decreases in adiposity as measured by triceps skinfold thickness, waist circumference, and BMI were achieved.

This was the first experiment to demonstrate a direct association between screen time and increased adiposity. Because alternate behaviors were not substituted, a causal relationship is inferred.





# *Archives of Pediatrics and Adolescent Medicine* by Gortmaker, 1999

Among girls, each hour of reduction in TV viewing predicted reduced obesity prevalence.



# ***Archives of Pediatrics and Adolescent Medicine, 1994***

- The prevalence of obesity was lowest among children watching 1 or fewer hours of TV per day.
- The prevalence of obesity was highest among children watching 4 or more hours of TV per day.
- TV watching was positively associated with obesity among girls, even after controlling for age, race/ethnicity, family income, weekly physical activity, and energy intake.





## ***Archives of Pediatrics and Adolescent Medicine by Gortmaker, et al., 1996***

- The odds of being overweight were about 5 times greater for youth watching >5 hours of TV per day as compared to those watching 0-2 hours.
- After adjusting for previous overweight, socioeconomic status, household structure, and ethnicity, results were similar.
- Estimates of attributable risk indicate that more than 60% of overweight incidence in this population can be linked to excess TV viewing time!





## ***JAMA, 2003***

Among women ages 30-55 in the Nurses' Health Study, sedentary behaviors, especially TV watching, were associated with significantly elevated risk of obesity and Type 2 diabetes during 6 years of follow-up. Even light activities such as standing or walking were associated with significantly lower risk.





A MESSAGE TO EVERY MAINE PARENT

# We're just getting started.

**When it comes to giving you the facts about maintaining a healthy weight, we're just getting started.**

And for good reason: Over half of Maine adults are obese or overweight, and nationally, the obesity rate for children has increased by 100% in just the last 20 years. With that comes heart disease, diabetes, high blood pressure and other serious health complications for our kids.

The only good news about childhood obesity is that it's preventable. That's why we launched Maine's Healthy Weight Awareness campaign, so Maine parents could know about the vast amounts of sugar and empty calories in soda that contribute to obesity and being overweight. We recommended you cut back on your soda consumption or switch to healthier beverages.

Fat is, drinking excessive amounts of soda is one of several factors contributing to an epidemic of unhealthy weight among youth. Excessive consumption of fast foods and

large portions are also to blame.

It gets worse: Our youth are less active than ever before, due mostly to excessive "screen" time—spending too much time before a television, a computer or playing video games.

When you consider all this, is it any surprise that obesity is an epidemic among children?

In the weeks ahead, we'll continue to give Maine parents more helpful information about keeping kids healthy and active.

Excessive "screen" time contributes to childhood obesity. Overweight children are more than twice as likely to have high blood pressure, high blood cholesterol or early heart disease.

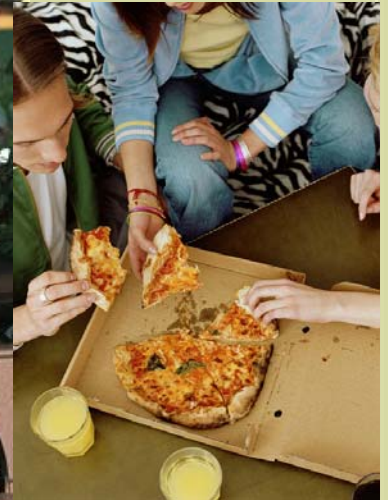
THIS HEALTHY WEIGHT AWARENESS MESSAGE IS BROUGHT TO YOU BY  
**Healthy Maine Partnerships**  
 Maine Cardiovascular Health Program  
 in collaboration with the Maine Nutrition Network  
 Bureau of Health, Department of Human Services



Maine CDC/DHHS

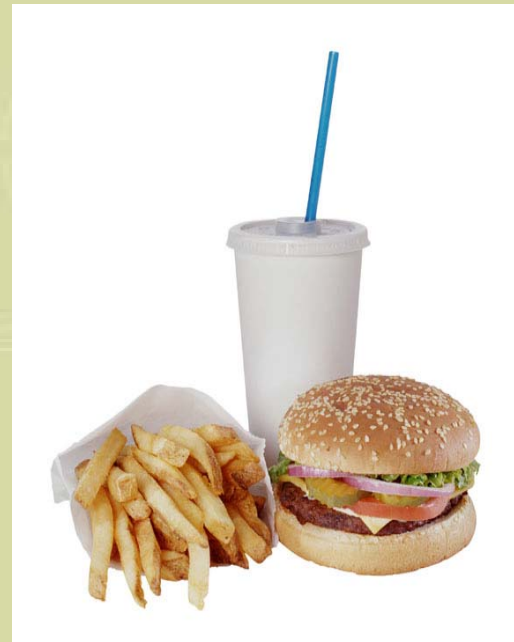


# Nutrition





- Away-from-home calories provide one-third of adults' and children's calories in the U.S.
- 48% of the American family's food budget is spent away from home. (USDA)
- Calories consumed have increased 15% on a per capita per day basis in only 13 years. (2002, *JAMA*)





# Some Low Hanging Fruit

- Soda
- Portion Sizes







**SODA = SOFT DRINKS = POP**





- Soda adds calories to our diets without providing nutrients = “empty calories”.
- The number one source of added sugars is non-diet soft drinks (soda or pop).
- Soda displaces more healthful foods in diets like low fat milk, which can prevent osteoporosis, or 100% fruit juices, which can prevent cancer.
- Most of the increased calorie intake over the past few years is from carbohydrates, and much of this in children and adolescents is attributed to non-diet soft drinks.
- Soft drink consumption in the U.S. increased by 63% in 20 years – 1972 to 1992.





- Less than one-third of children consume the recommended number of servings of milk daily, and even fewer eat the recommended amount of fruit.
- Studies show that children who drink more soft drinks consume more calories and are more likely to be obese.





# USDA Study 1994-1996

- 12 to 19-year-old boys who drink soft drinks consume an average of 29 ounces per day = 868 cans per year, and 95% of them consume non-diet soft drinks (2/3 drink only non-diet).
- 12 to 19-year old girls who drink soft drinks consume 21 ounces per day = 627 cans per year, and 90% of them consume non-diet soft drinks (56% drink only non-diet).
- One-third of added sugar intake is from non-diet soft drinks.





# ***Lancet, February 2001***

- In children starting at age 11 years, for each additional serving of sugar-sweetened drink consumed, both BMI and frequency of obesity increased.
- The likelihood of becoming obese among children increased 1.6 times for each additional can or glass of sugar-sweetened drink they consumed daily.



# *American Journal of Public Health,* September 2002

- For children in grades 4 through 6, sweetened beverages comprised 51% of the average daily intake of total beverages consumed.
- Children with the highest consumption of total sweetened beverages consumed more calories (about 330 extra per day) than those who did not drink sweetened drinks.







- Those children drinking the highest amounts of sweetened beverages also consumed more high-fat vegetables such as french fries, and 60% less fruits.
- Children whose parents had lower educational attainment had higher consumption of soft drinks and sweetened beverages.





# ***Journal of the American Dietetic Association, 1999***

- Children who drink soft drinks consume more total calories than those who do not consume soft drinks.
- Those children in the highest soft drink consumption category consumed less milk and fruit juice compared with those in the lowest category (non-consumers).
- Nutrition education messages targeted to children and/or their parents should encourage limited consumption of soft drinks. Policies that limit children's access to soft drinks at day care centers and schools should be promoted.







# Oral Health and Soda: *Journal of Dental Research*, 2001

Persons who consumed sugared soda three or more times daily had 17-62% higher dental caries than those who consumed no sugared soda.





**Yet, some suggest that the answer is more physical activity.**

- Children DO need to be more active, however, they also need to consume fewer calories, especially empty calories such as soft drinks.
- A 110-pound child would have to bike for 1 hour and 15 minutes to burn off just one 20-ounce Coke.





**We have built obesity  
into our society.**

**“First, do no harm.”**  
*- Hippocrates*



Maine CDC/DHHS



**150 useless  
calories.**

We may drink it like water, but a twelve ounce serving of cola can contain up to ten teaspoons of sugar and 150 empty calories. No wonder obesity is an epidemic among children.

**This is not water.**

**Cut the  
calories.**

A soda now and then is okay, but don't overdo it—cut back or switch to a healthier beverage.

THIS HEALTHY WEIGHT AWARENESS MESSAGE IS BROUGHT TO YOU BY  
**Healthy Maine Partnerships**  
The people dedicated to living on the edge and leading. ®  
Bureau of Health, Department of Human Services



**Maine CDC/DHHS**

# Portion Sizes

Portion sizes have increased both at home and in eating establishments in the U.S.





# Public Health Reports, 2000

The standard serving sizes of soda have increased over the years:

- In the 1950s, Coca Cola was packaged in 6.5 ounce bottles (not even a cup!).
- Now, single servings are often 20 ounces, and movie theatre sizes can be 64 ounces.



1950's **6.5 OZ**  
bottles



2003: **20 OZ**  
servings



2003: **64 OZ**  
servings



Maine CDC/DHHS



## ***American Journal of Public Health, February 2002***

“Marketplace food portions have increased in size and now exceed federal standards. Portion sizes began to grow in the 1970s, rose sharply in the 1980s, and have continued in parallel with increasing body weights.”





# ***Journal of the American College of Nutrition, 2001***

- “A comparison of food service portion sizes from 1957 to 1997 is particularly striking.
- The typical fast-food outlet hamburger in 1957 contained a little more than 1 ounce of cooked met, compared to a burger weighing up to 6 ounces in 1997.
- The average soda was 8 ounces in 1957, compared with 32-64 ounces in 1997.
- The average theatre serving of popcorn consisted of 3 cups in 1957, compared to 16 cups (“medium size”) in 1997.
- Larger portion sizes could be contributing to the increasing prevalence of overweight among children and young adults.”







# ***The Journal of the American Dietetic Association, February 2002***

“For children who have learned to be responsive to environmental cues, very large portion sizes may elicit overeating and, thus, promote weight gain.”



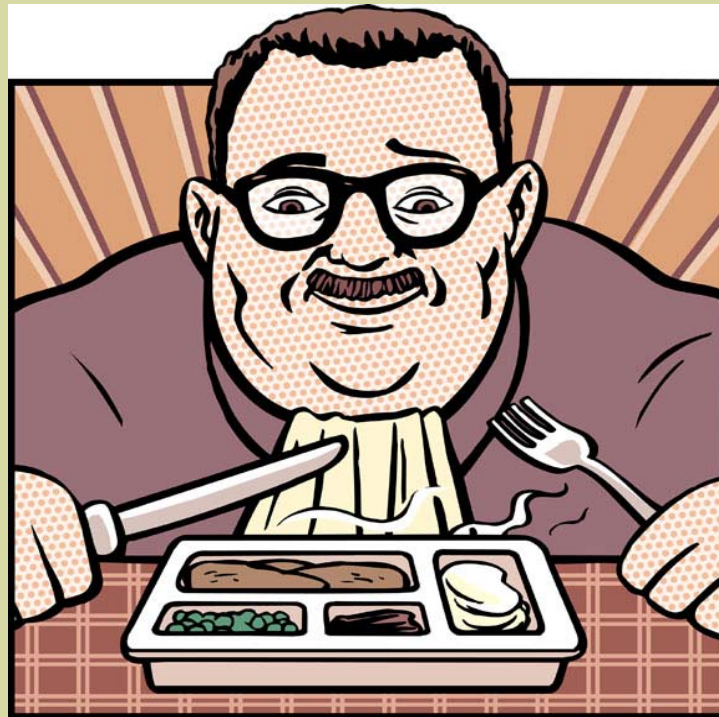
# Science, May 1998

- Compounding the availability of highly palatable, inexpensive foods in the current environment that promotes obesity, is the growing trend in the United States toward larger portions.
- “This is especially evident in so-called fast-food restaurants, where “super-sizing” of menu items is commonplace.”



# USDA, 2000

1999 away-from-home spending on already prepared foods reached a record 48% of total food expenditures in the U.S.





# Another USDA Study, 2000

- Food supply data suggest that between 1984 and 1997 there was a 15% increase in the average daily calorie intake per person in the U.S.
- Nearly 90% of this increase in average daily calorie intake was due to higher consumption of carbohydrates:
  - 42% refined grains
  - 23% added sugars
  - 23% added fats





# Blueprint for Addressing Pediatric Obesity

“Overweight prevention should focus on improving the balance between calorie intake and energy expenditure. The Dietary Guidelines for Americans recommend that children and adolescents two years of age and older choose a healthful assortment of foods that includes vegetables; fruits; grains (especially whole grains); fat-free or low-fat milk products; and fish, lean meats, poultry, or beans.

The guidelines also recommend that children get at least 60 minutes of physical activity daily and limit inactive forms of play such as television watching and computer games.”

*National Health and Nutrition Examination Survey (NHANES), CDC, 2003*





# Focus Groups in Maine, 2002

- Six groups of low-income parents of children under the age of 18
- 59 parents from Machias, Caribou, Rumford, Portland, Presque Isle, and Sanford





- Soda is consumed by the majority of respondents in fairly large quantities – several noted that they drink at least 2 liters per day.
- When parents were told about the high levels of sugar in regular soda, the universal reaction was that they had no idea about the amount of sugar or levels of consumption by teens.
- Parents agreed that after having knowledge of this information, they would like to limit their children's soda consumption, but noted its extreme prevalence in schools and recreation centers, and wondered how they could accomplish this limitation in the face of such marketing.







- The vast majority (80%) said they had not engaged in any sustained periods of physical activity or exercise within the past 12 months.
- The vast majority also voiced a strong desire to be more physically active because they equate it with better health and appearance.
- However, participants noted struggling with not enough available time, childcare issues, and safety issues while on the roads with the inability to be physically active.
- Participants were aware of healthy food choices and the benefits of healthy eating, but mentioned the high price of fresh produce as a barrier to eating more of it.





Fast food appeared to be a frequent staple for the majority of the lower-income respondents, due in large part to the perception that it is easier to feed a family with limited resources.





# Two Focus Groups with Maine Youth:

- The majority reported drinking soda, some as much as 5 cans per day (60 ounces) or two 20-ounce bottles per day.
- Knowledge levels were high for what they could do to improve their health: exercise and eat better, such as eating more fruits and vegetables.





# A Comparison With Tobacco Strategies:

## Causes:

Mass marketing by the Tobacco Industry

Lack of knowledge about tobacco's effects

Smoke-filled places

Low prices of cigarettes

Easy access by youth

Lack of easily available treatment

## Statewide Counter Strategies:

Statewide education through media

Educate the public about tobacco

Implementing smoke-free policies

Raising tobacco excise taxes

Enforcing youth access laws

Toll-free HelpLine and free pharmaceuticals





# Analogous Strategies to Obesity:

- Statewide education through media
- Educate the public about obesity – nutrition and physical activity
- Create healthy public places – healthy food, or food with up-front nutritional information, public places built for pedestrians (not just cars)
- Higher prices for non-nutritious foods
- Reduce access by youth to non-nutritious and unhealthy foods and increase healthy foods in school cafeterias and vending machines
- Make treatment easily available





# Maine's Statewide Approach to Obesity:

1. Statewide educational campaigns
2. Policies that reduce barriers to healthy choices
3. Treatment: to be focused on when additional resources are available



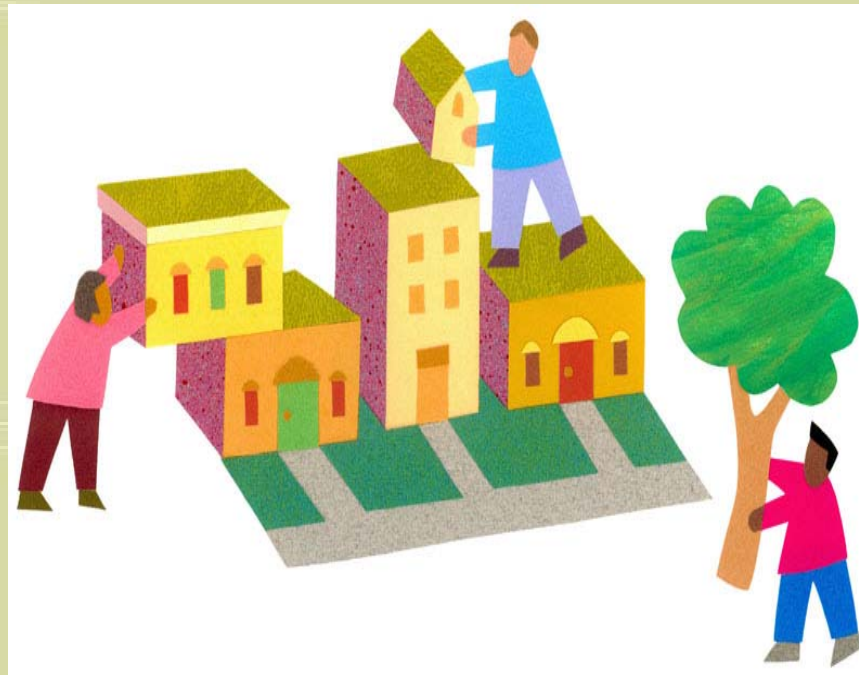


# How does Public Health work with the Food Industry?





**We have built obesity into our society – we can build health back into our society.**





[www.mainepublichealth.gov](http://www.mainepublichealth.gov)



Maine CDC/DHHS