

PUBLIC HEALTH: Addressing health disparities

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What is public health?

Promotes health and prevents disease in the population as a whole—an environmental vs. an individual perspective

Emphasizes preventing disease before it occurs

Recognizes that social, cultural, economic, and political forces influence health behaviors and risk factors for disease (upstream causes)

Public health versus clinical medicine

Public Health

- Emphasis on prevention
- Takes place in communities
- Focus on health of populations

Clinical Medicine (Docs)

- Emphasis on treatment
- Takes place in hospitals and clinics
- Focus on health of individuals

The three types of prevention

Primary Prevention—intervening before health effects occur (**public health!**)

Secondary Prevention—screening to identify diseases in the earliest stages (treatment, doctors)

Tertiary Prevention—managing disease after diagnosis to slow or stop it (rehabilitation, doctors)

Why has our health improved so dramatically since 1900?

Public health: the great achievements in the last century (1900-1999)

Achievements in Public Health, 1900-1999: Changes in the Public Health System, MMWR. 1999;48:1141-1147

Top ten achievements

1. Vaccinations (polio, measles, mumps)
2. Control of infectious diseases (tuberculosis, diphtheria)
3. Automobile/vehicle safety (seat belts, safer cars, helmets)
4. Safer workplaces
5. Family planning
6. Fluoridation of drinking water (healthier teeth)
7. Healthier mothers and babies (medical care, nutrition)
8. Safer and healthier foods
9. Knowledge that smoking causes diseases
10. Knowledge of risk factors for heart disease and stroke

Public health has impacted the two main kinds of disease

Infectious diseases: caused by an organism (bacteria, viruses, fungi or parasites). Are short term, you die or get well quickly

Chronic diseases: not infectious, usually last 1 year or more and require ongoing medical attention, or limit activities of daily living or both.

Which kind was more common in the 1900s?

Which kind is more common now?

Infectious disease examples

(caused by an infectious organism—short term)

Covid-19

Common cold, flu, pneumonia

HIV (human immunodeficiency virus)

Salmonella (bacteria in food)

STDs (sexually transmitted diseases--syphilis, gonorrhea)

Hepatitis (inflammation of liver due to virus)

Tuberculosis (TB)

Chickenpox, measles, mumps, diphtheria

Chronic disease examples

(not infectious, longer term)

Heart Disease

Stroke

Cancer

Arthritis

Asthma

Alzheimer's

The top three are the main conditions that public health professionals want to prevent and that many doctors treat. Do you know someone with a chronic disease?

How long will we live?

Life expectancy, 2021

Women 81 years, Men 77 years

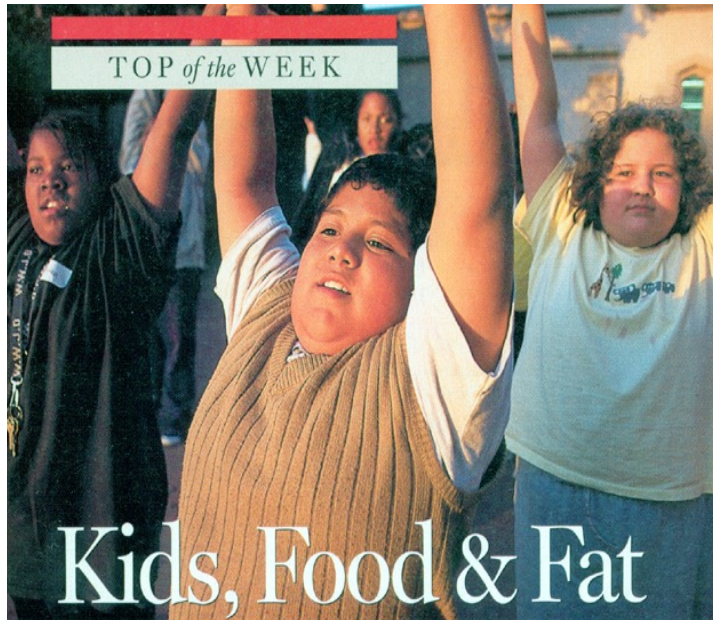
Our Region's Health Faring Better than Many Subgroups in U.S.

But, the average U.S. life expectancy dropped by one year in 2020.

Deaths from COVID-19 were the main factor, but also a surge in drug overdose deaths.

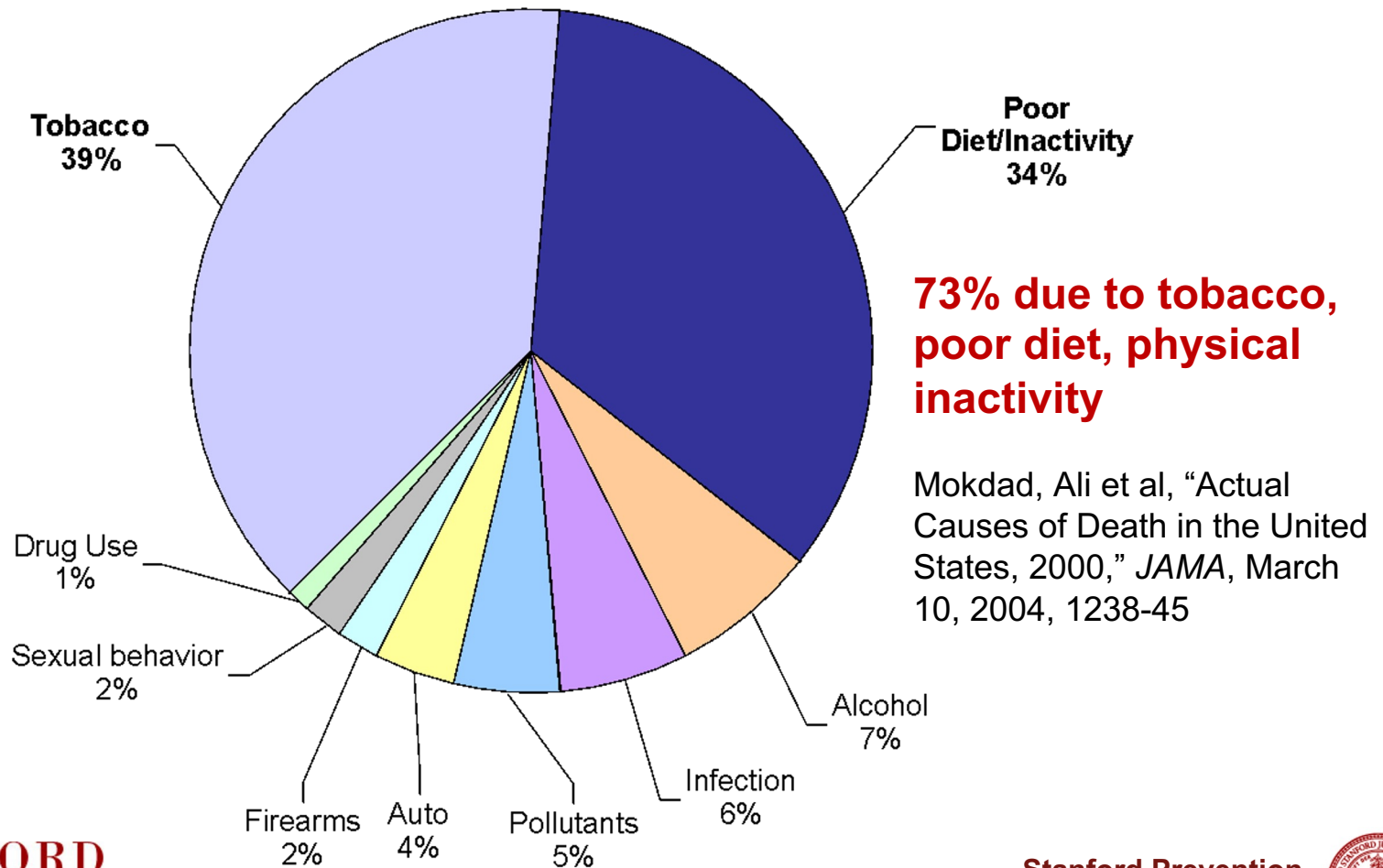


Public health addresses chronic disease risk factors: they are preventable and modifiable!



- Cigarette smoking
- Physical inactivity
- Poor diet
- Overweight and obesity
- Diabetes
- High blood cholesterol
- High blood pressure

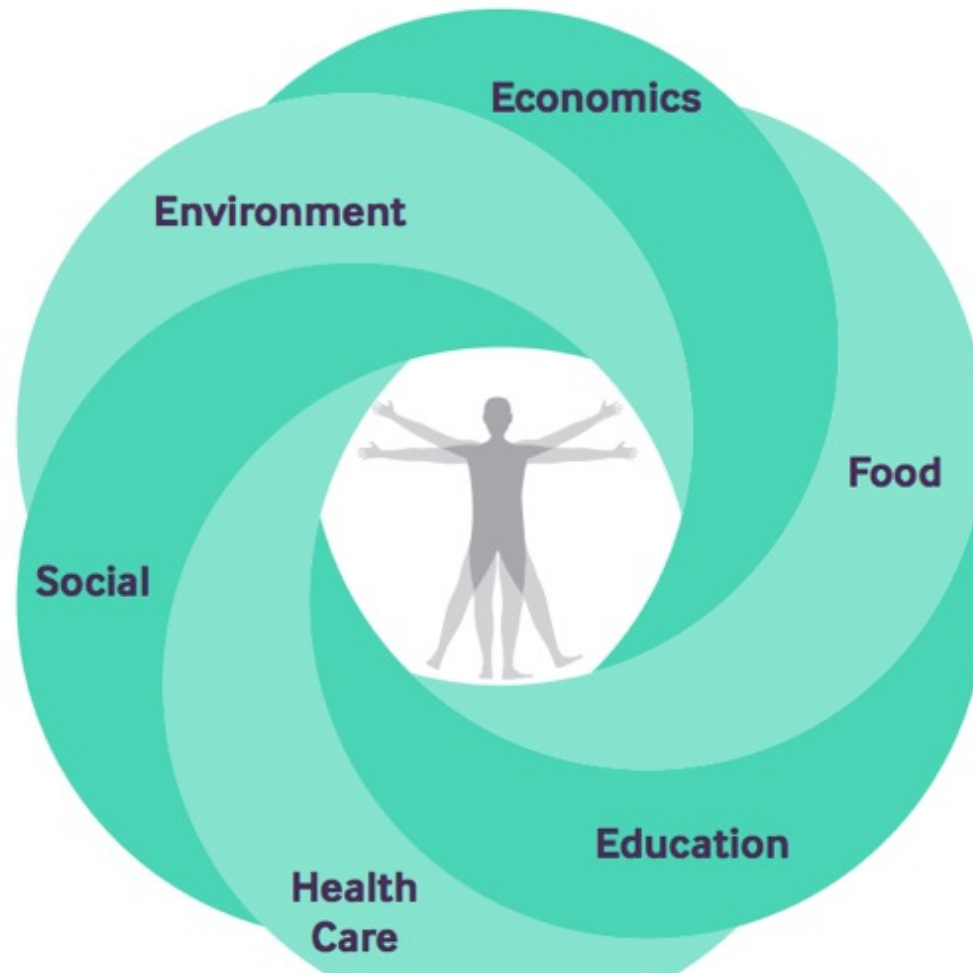
Majority of all deaths linked to chronic disease-related risk factors



Risk factors are influenced by social determinants of health

Social Determinants of Health

The places where we are born, live, work and play affect the quality of our life, our risk factors, and health outcomes



Without understanding social determinants of health, patients are often called “noncompliant”

Why did this patient break appointments or not adhere to medical advice?

Social determinants

- No transportation
- No childcare
- No time off from work
- Not enough money for prescriptions
- No refrigerator for medicines requiring refrigeration
- Spousal abuse, caring for sick parents



Upstream causes of health

Social circumstances can get under our skin and disrupt our health as much as germs and viruses. There is much more to our health than bad habits, health care, or unlucky genes.

In public health we look at upstream causes of health and ask, “Why is this person healthy or ill?”

We are not blaming the individual but looking “upstream” to understand the health of people and communities.

We then work to improve the environments in which people live to promote healthy lifestyles.

Example: Upstream causes of health

Hopi and Navajo Native Americans—Southern Arizona—
were farmers (corn, beans, squash, nuts, fruits, deer)

Almost no diabetes

- **Today: 28% diabetes one of highest in U.S.** Why?
- High levels of obesity, sedentary lifestyles. Why?
- Dependent on high-fat government surplus food. Why?
- Sudden change from farming, no water rights. Why?
- Dam- took away water rights (1935 Hoover Dam).
- Who is to blame for the diabetes?

Where do we stand?

- Overall health for all has improved tremendously in last 50 years
- Large declines in chronic diseases across all age, education, income, and ethnic groups.



Large declines in age-adjusted death rates, 1972 and 2002

| <u>Cause of Death</u> | <u>Deaths/100,000 Population</u> | | 1972-2002 | Percent |
|-----------------------|----------------------------------|-------------|-------------------|---------------|
| | <u>1972</u> | <u>2002</u> | <u>Difference</u> | <u>Change</u> |
| All causes | 1,214.8 | 846.8 | -368.0 | -30.3 |
| CVD | 695.4 | 318.7 | -376.7 | -54.2 |
| Stroke | 147.3 | 56.3 | -91.0 | -61.8 |

From: Morbidity and Mortality: 2004 Chart Book on Cardiovascular, Lung, and Blood Diseases, NHLBI

Health disparities

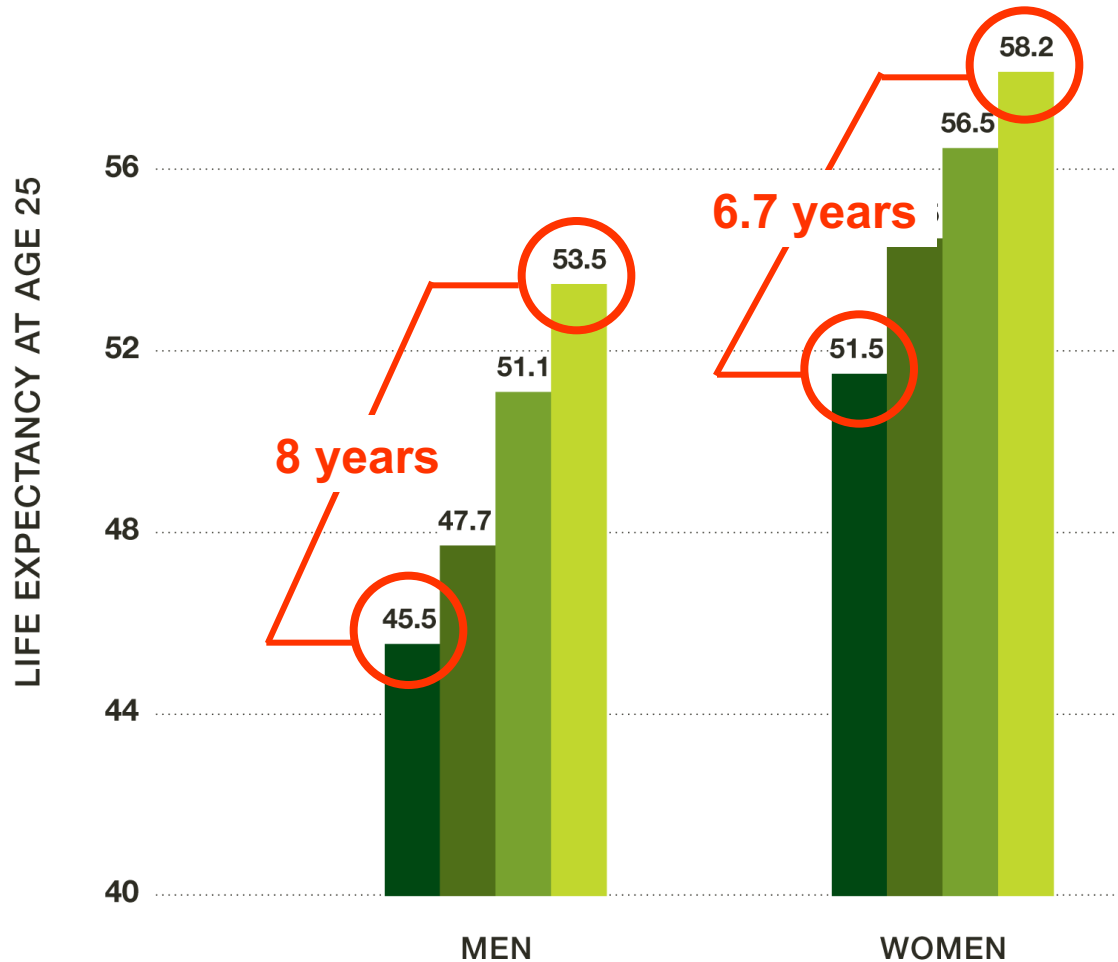
- Despite declines in death rates, large differences in health between the “haves and have nots”.
- Those with lower incomes, lower educations and from ethnic minority groups are often sicker, have shorter survival times, and shorter life expectancies.
- Why? Higher rates of cigarette smoking, high blood pressure, high cholesterol, obesity, diabetes.
- **AND systemic factors:** crowded housing, promotion of tobacco and high fat/high sugar foods, food deserts, poor access to medical care

Health disparities: It's how much you earn

Lower income is associated with shorter life expectancy: 7-8 years!

Family Income
(Percent of Federal Poverty Level)

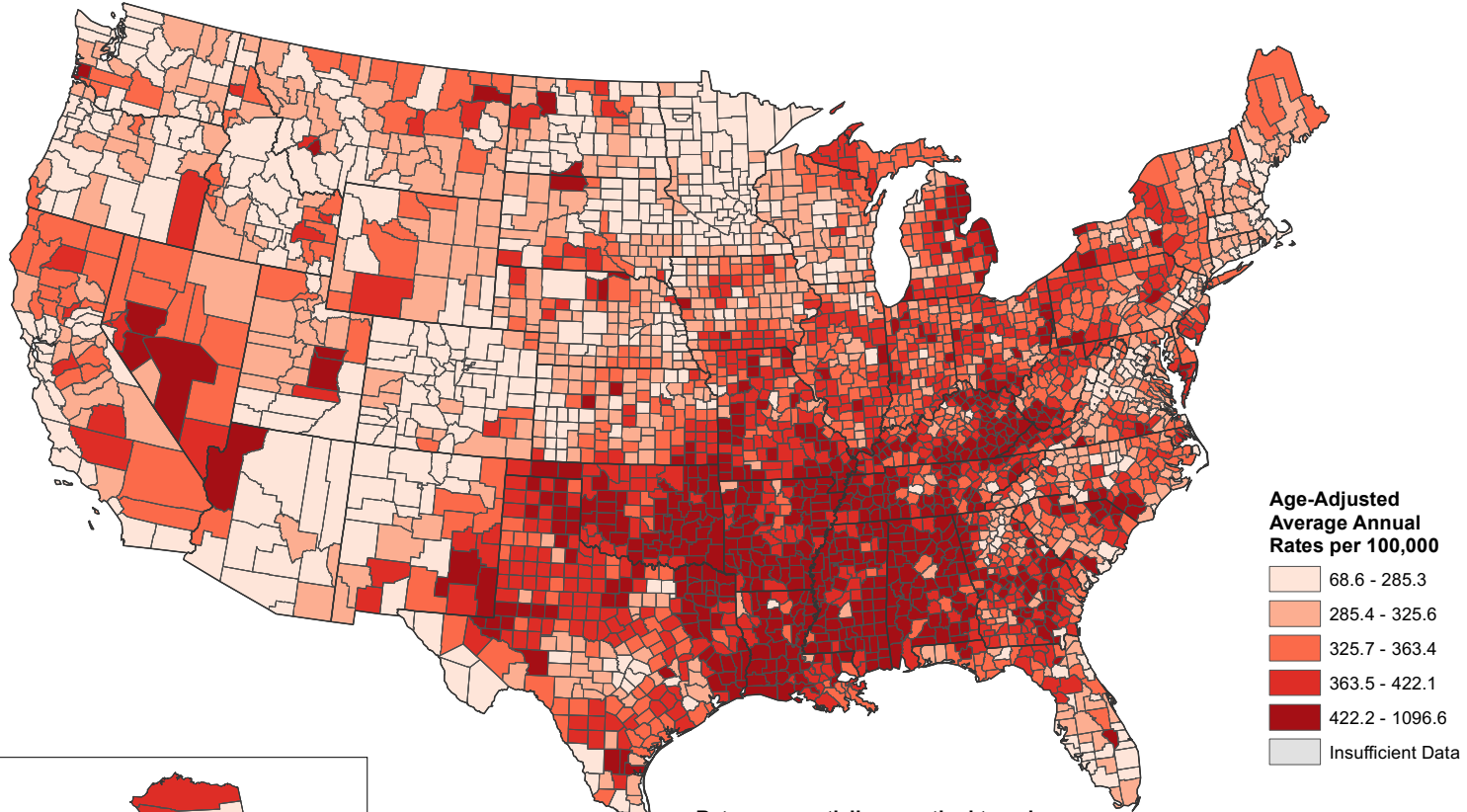
- <100% FPL
- 100–199% FPL
- 200–299% FPL
- 300–399% FPL
- ≥400% FPL



Your zip code determines your health

4 + times higher heart disease death rates in some geographic areas!

Heart Disease Death Rates, 2015-2017
Adults, Ages 35 +, by County



Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

Data Source:
National Vital Statistics System
National Center for Health Statistics

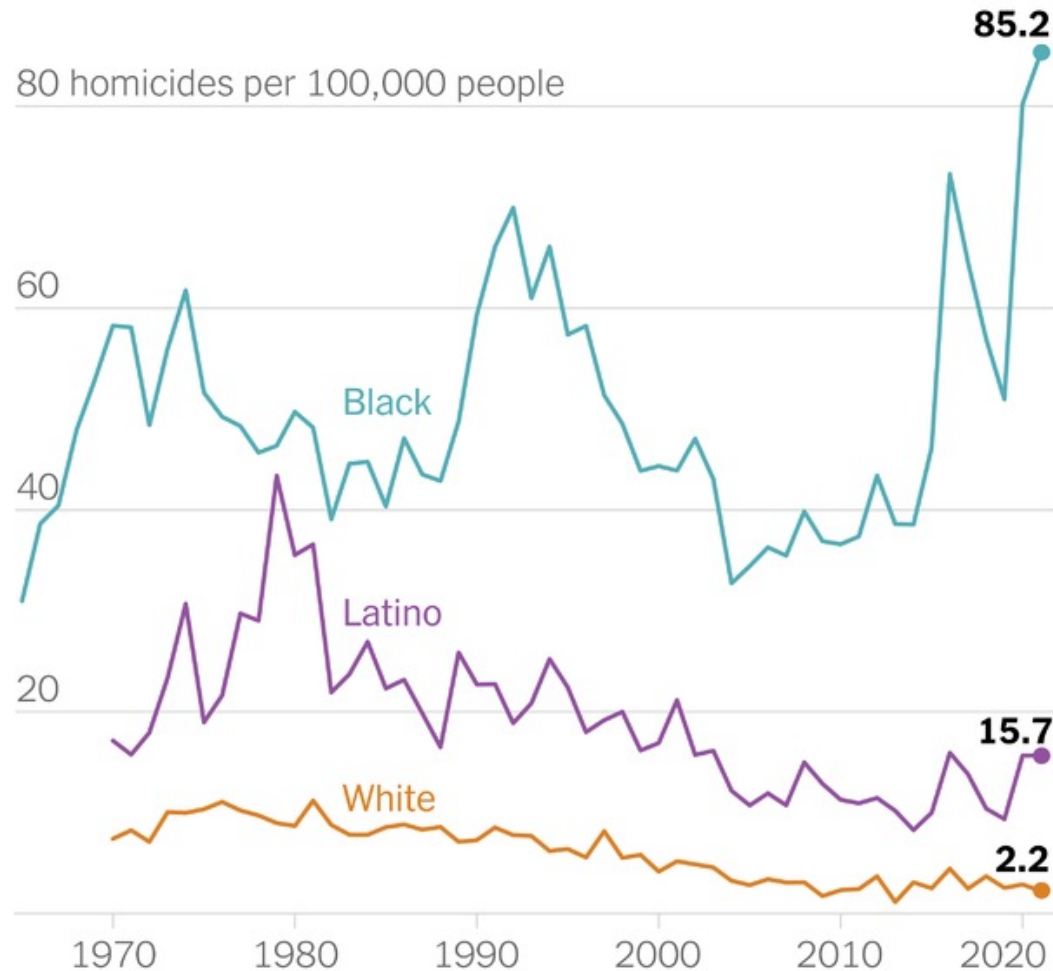
www.cdc.gov/dhdsp/maps



Violence health disparities

Blacks in Chicago: nearly 40 times more likely to be shot to death than whites. Similar disparities in Black and brown U.S. neighborhoods

Homicide rates in Chicago, 1965-2021



Disparities in health care access and where Americans get health care

Free clinic



Stanford hospital



21 million gained health care coverage under the Affordable Care Act (Obama Care) to low-income adults under 65.

But, 30 million in the U.S. are still uninsured and risk financial ruin if they become ill or injured (almost 10% of our population).

People, places, and health

- Health is shaped by influences at **both** the individual and neighborhood level.
- Initial programs provided *people* with information, and/or skills to avoid or modify high-risk behaviors.
- Now we must consider how the social and physical environment (*places*) affect individual health behaviors and disease outcomes.

How can one's environment influence health?

- Exposure to cigarette advertising and promotions (and e-cigarettes)
- Exposure to high fat foods and large portion sizes
- Poor access to health care services
- Norms that counter healthy behaviors

Tobacco advertising



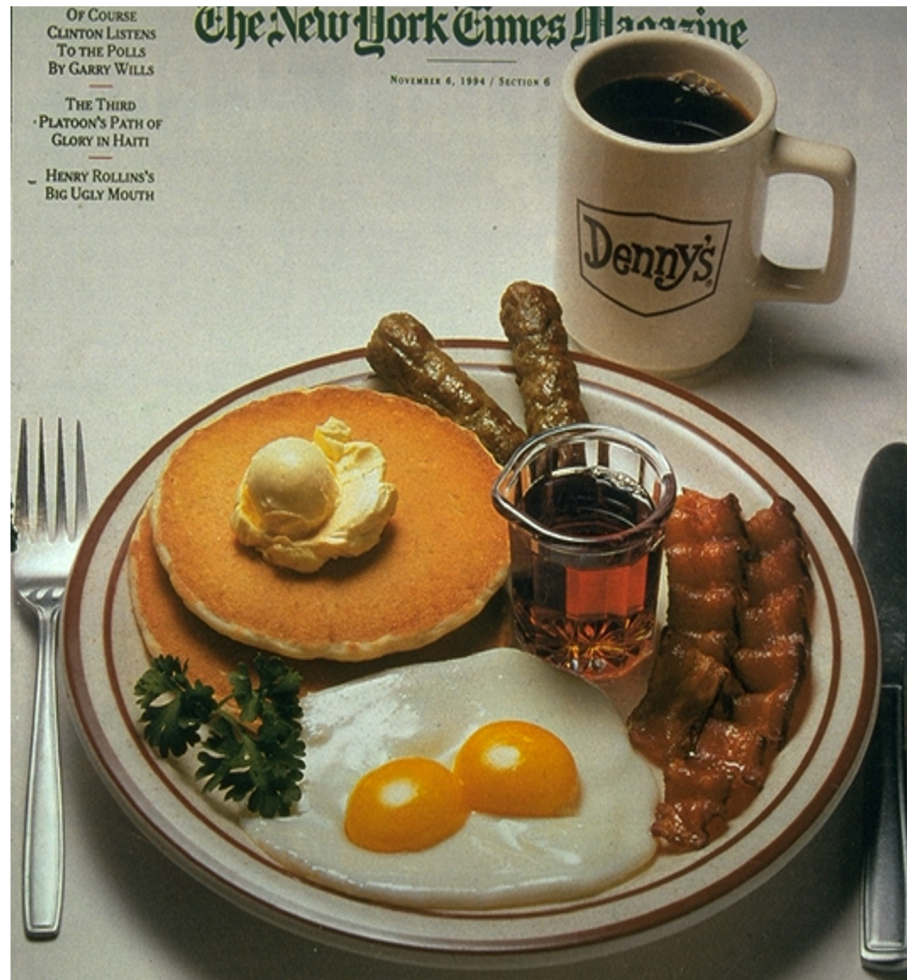
Tobacco promotions



How much does the tobacco industry spend on advertising and promotions?

- Nearly \$1 million dollars per **HOURL** on marketing tobacco products in U.S.
- \$8 billion on cigarette ads and promotions a year
- \$700 million on smokeless tobacco products
- **More spent on tobacco ads in one day than on all of tobacco prevention in an entire year**

Exposure to high fat foods



Large portion sizes: Big Macs—an increase in hamburger obesity



1990

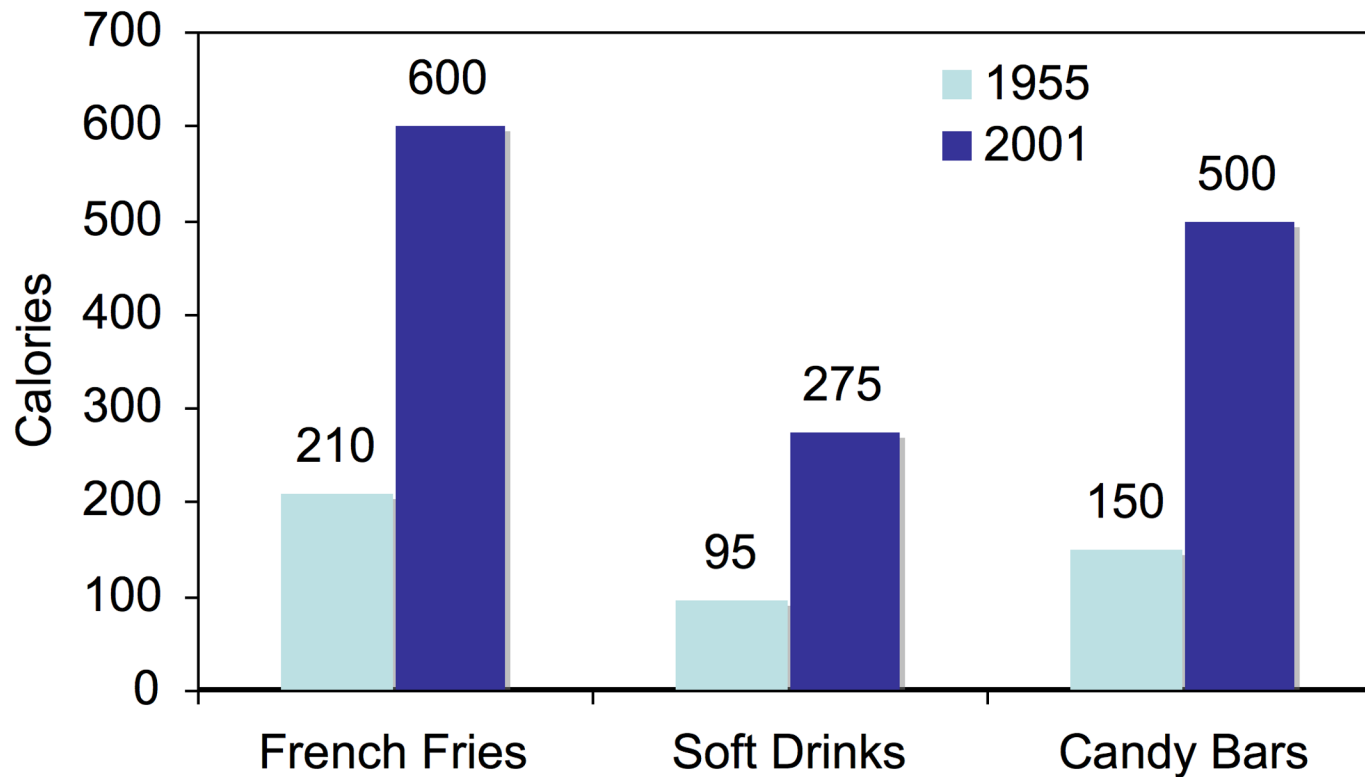


2000



2020

Portion sizes: significant increases in last 50 years

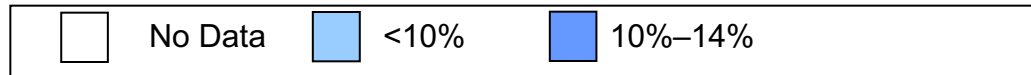
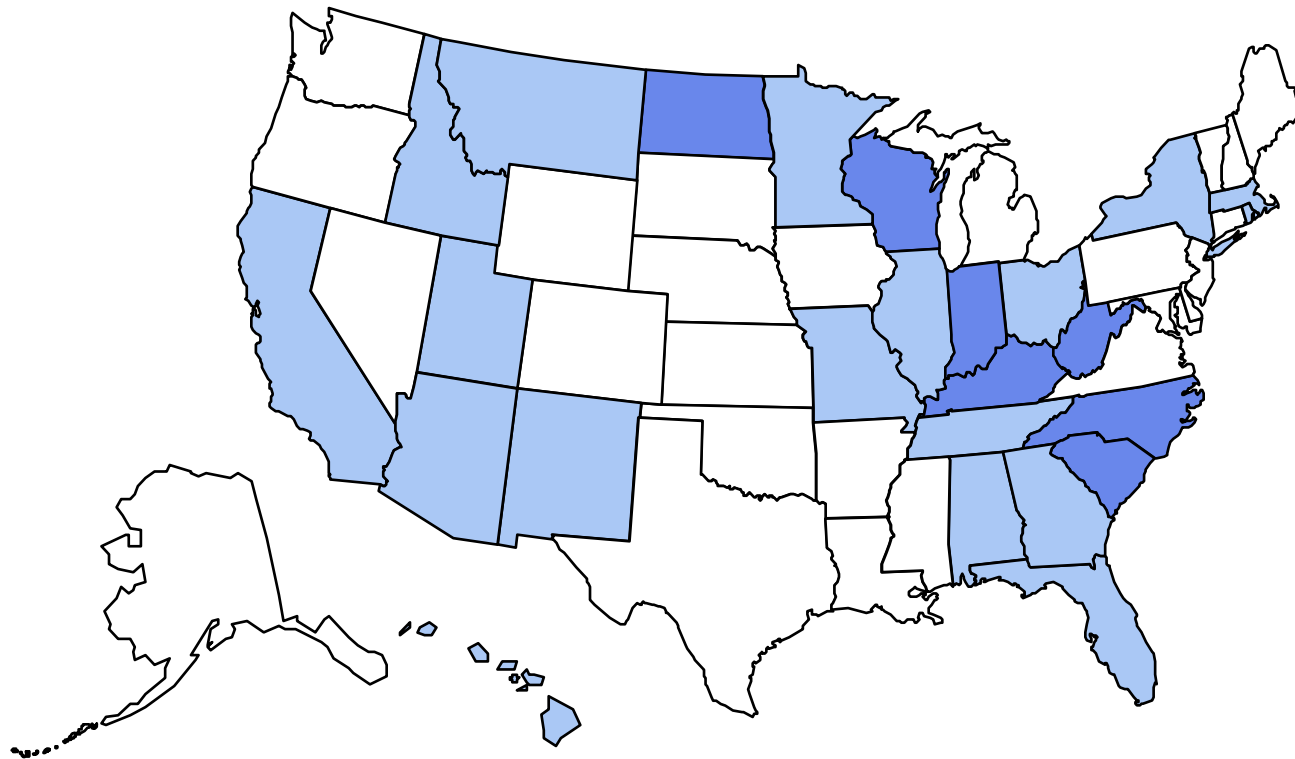


How do these changes in our
environment influence
our health? The obesity story

Obesity Trends* Among U.S. Adults

BRFSS, 1986

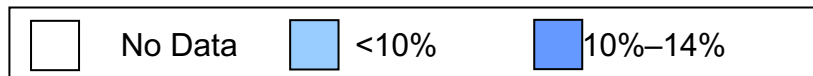
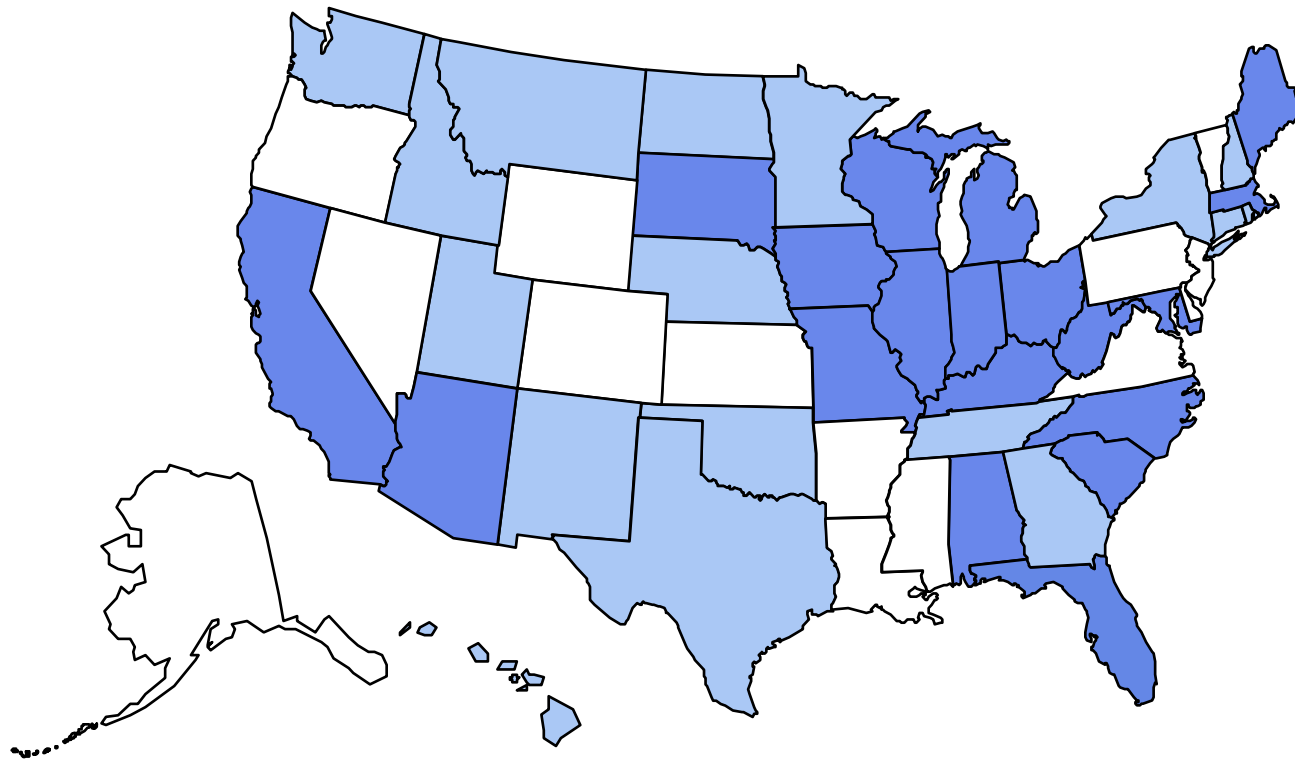
(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Obesity Trends* Among U.S. Adults

BRFSS, 1988

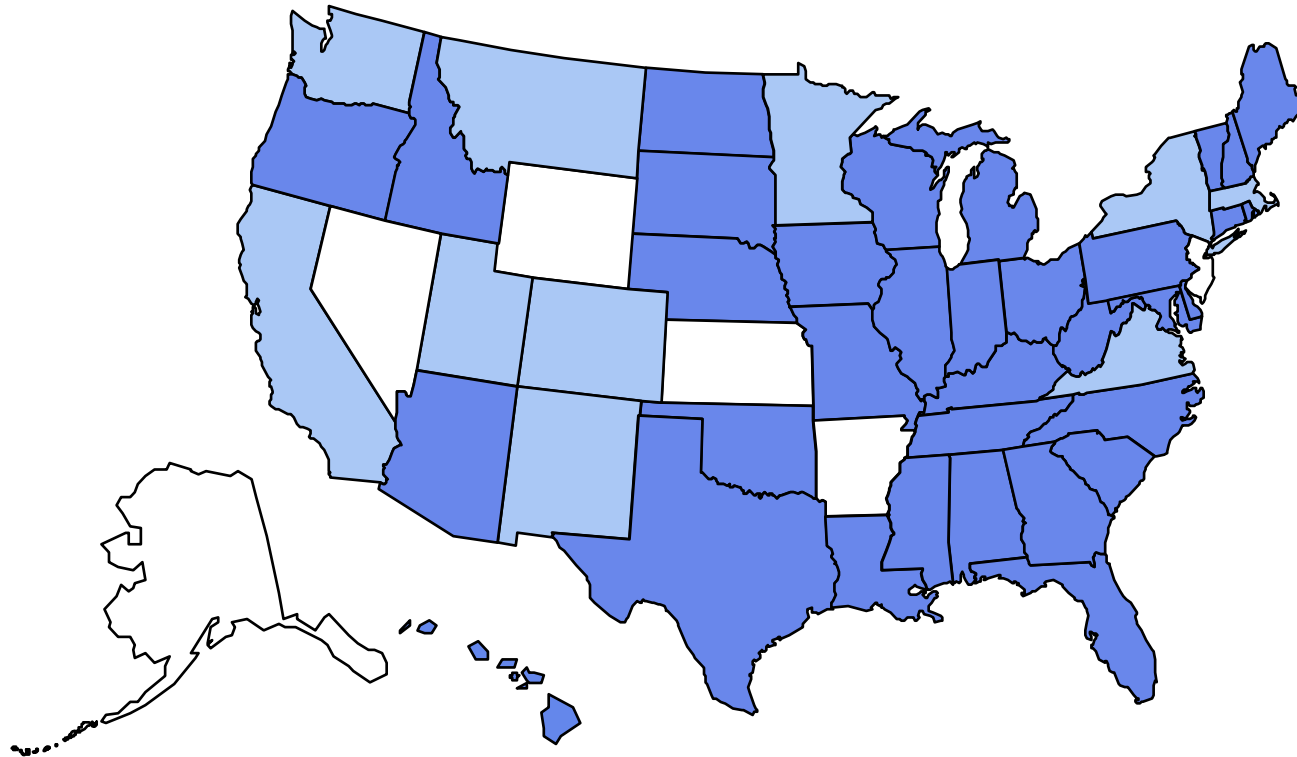
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Obesity Trends* Among U.S. Adults

BRFSS, 1990

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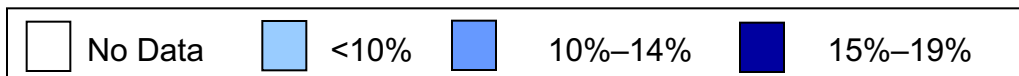
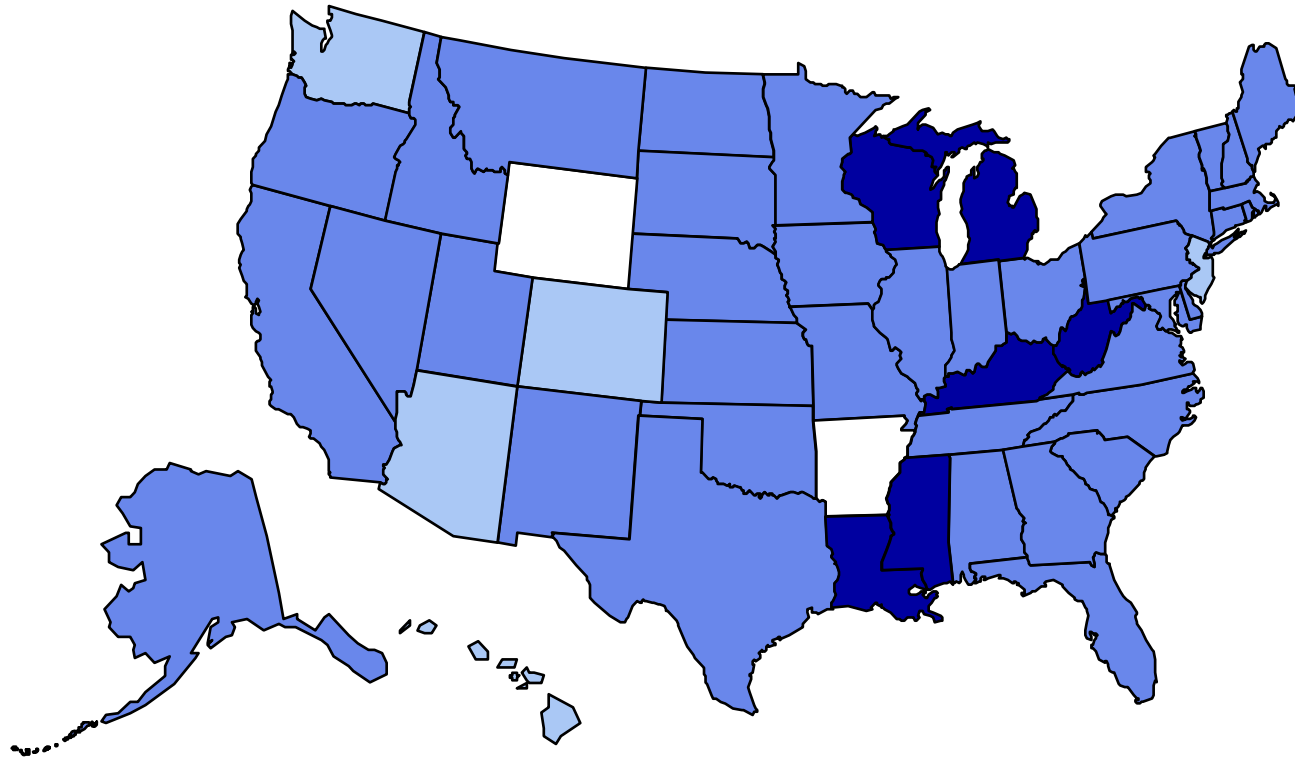


□ No Data ■ <10% ■ 10%–14%

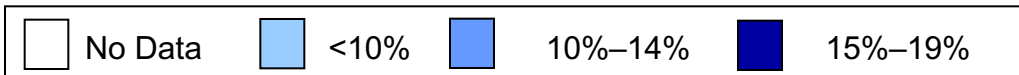
Obesity Trends* Among U.S. Adults

BRFSS, 1992

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



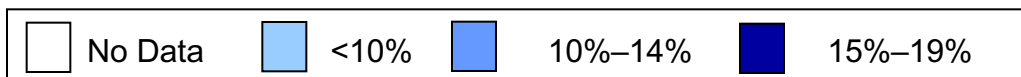
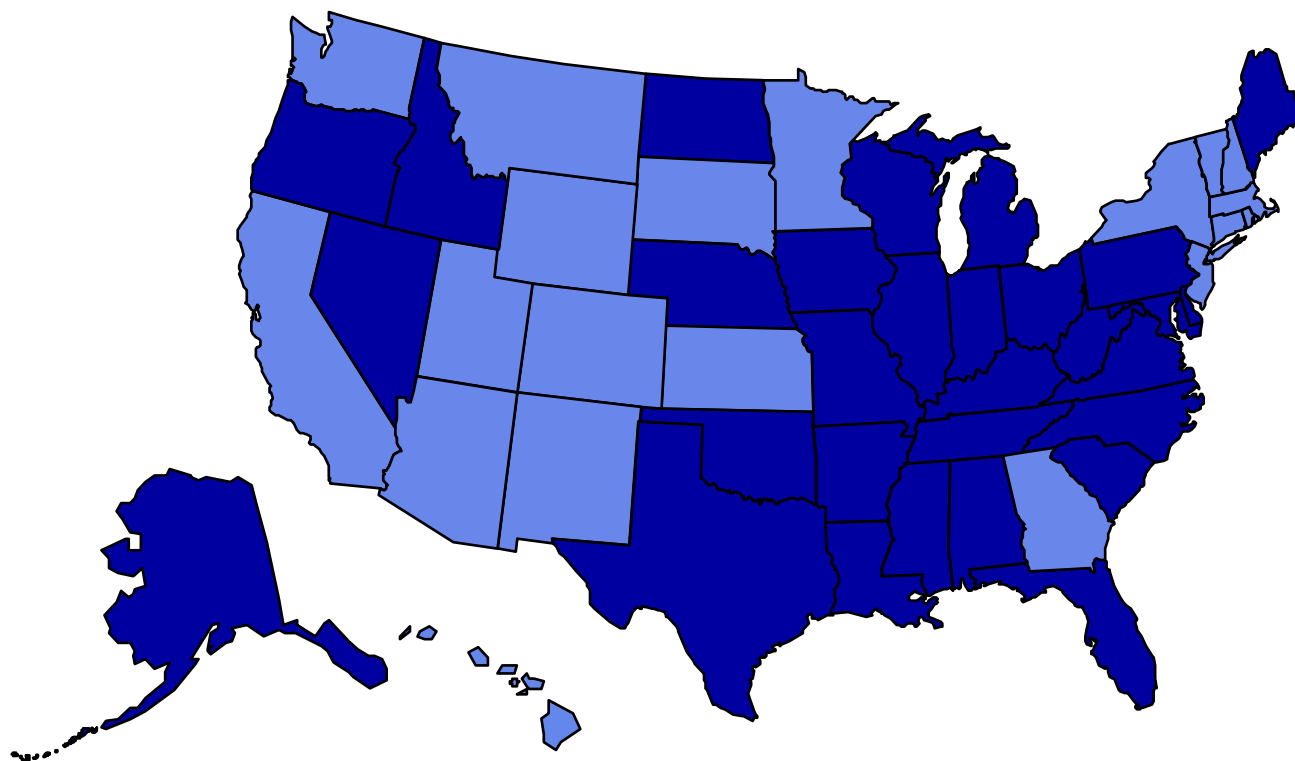
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Obesity Trends* Among U.S. Adults

BRFSS, 1996

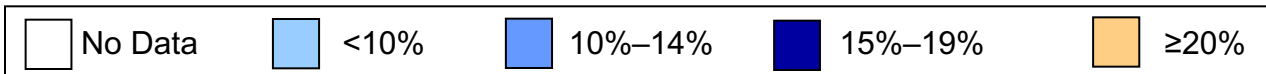
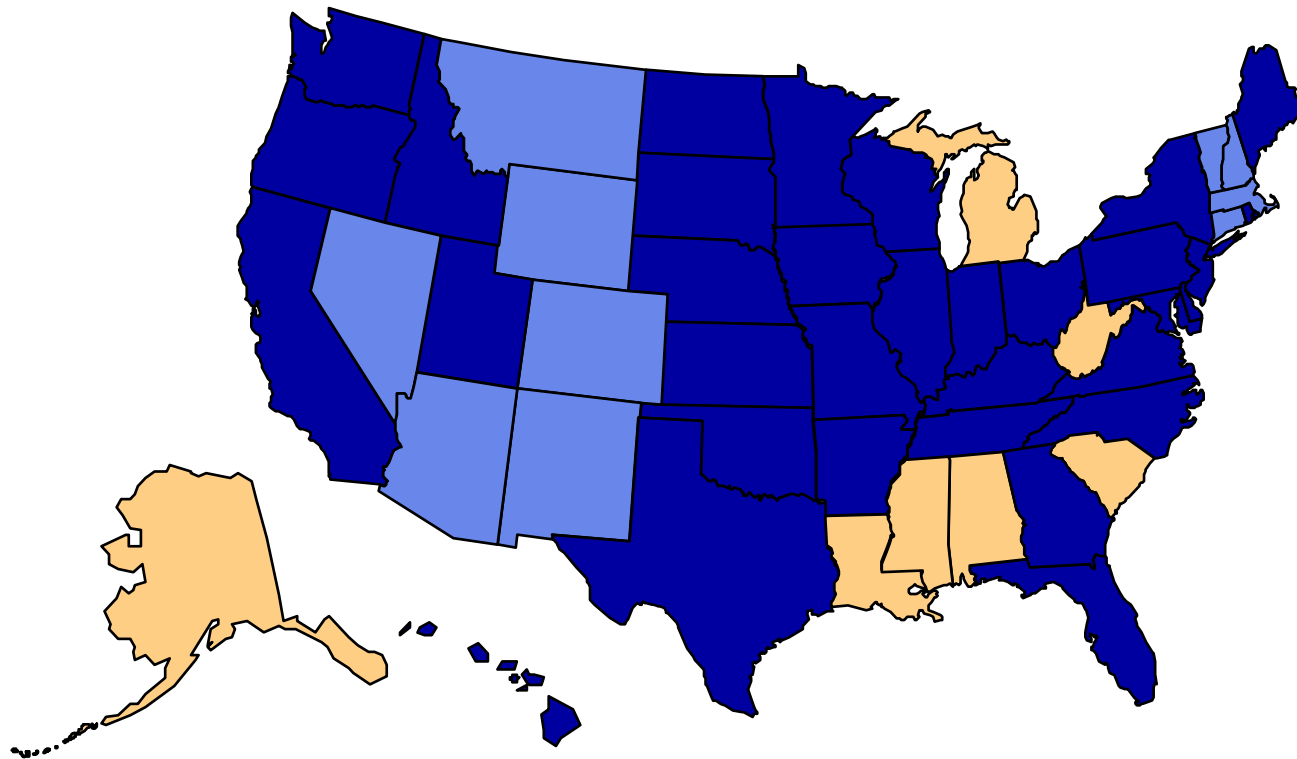
(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Obesity Trends* Among U.S. Adults

BRFSS, 1998

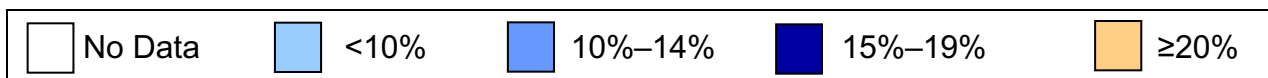
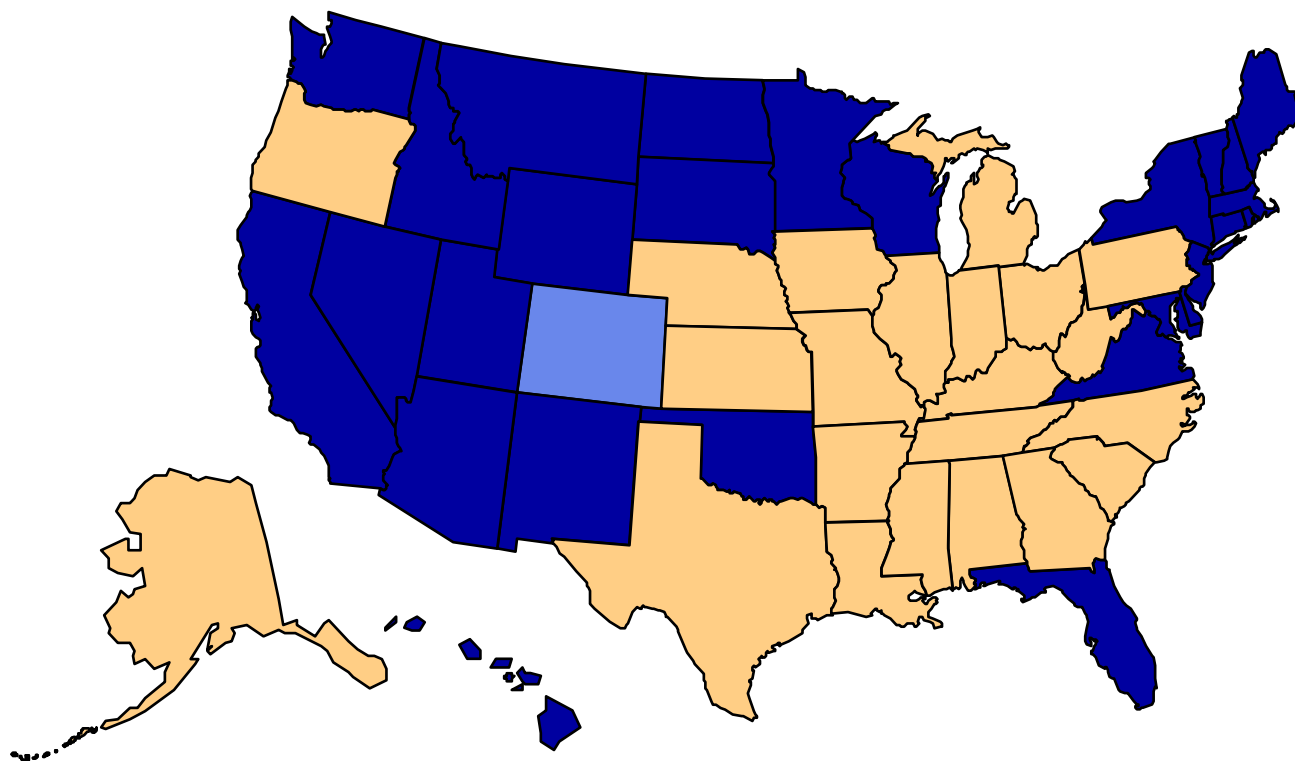
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Obesity Trends* Among U.S. Adults

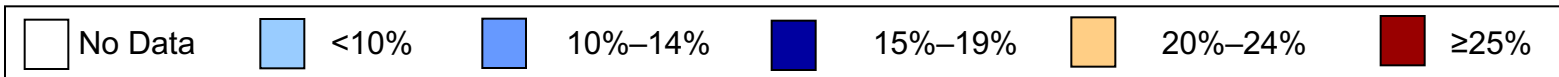
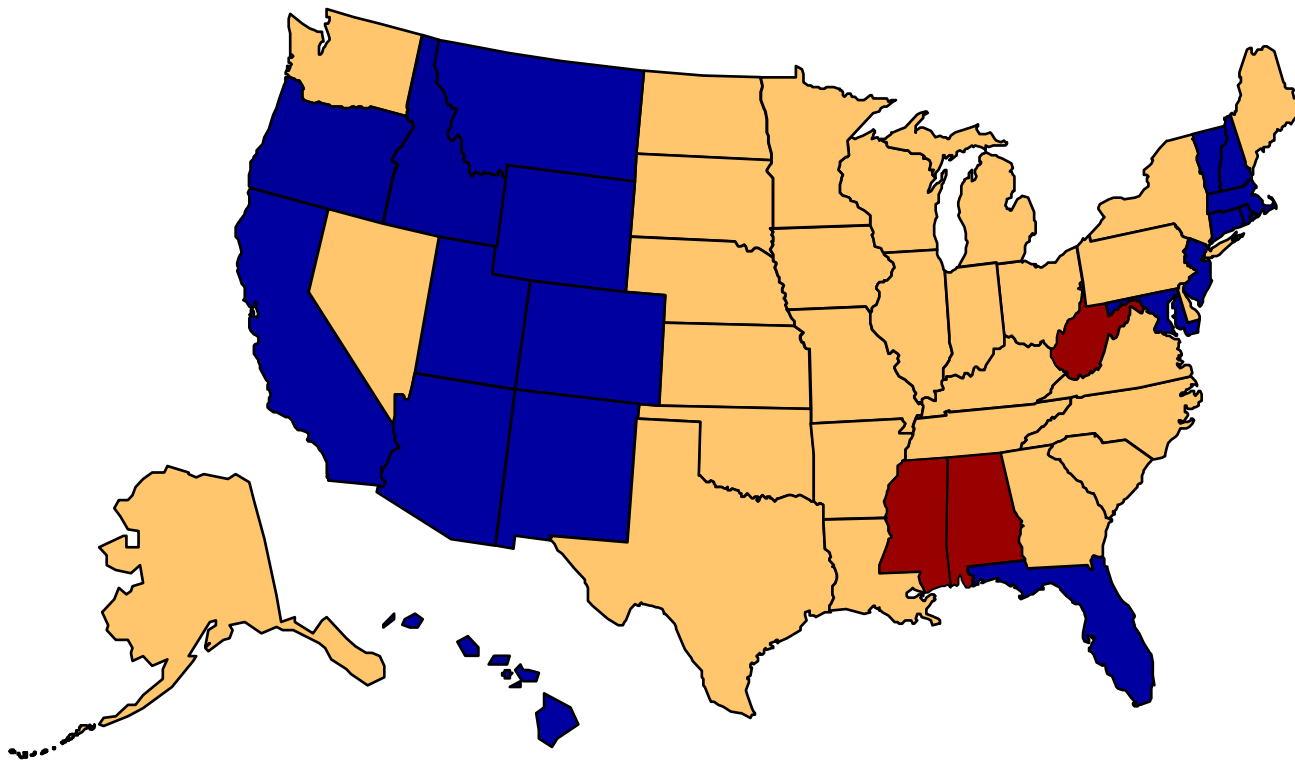
BRFSS, 2000

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



BRFSS, 2002

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

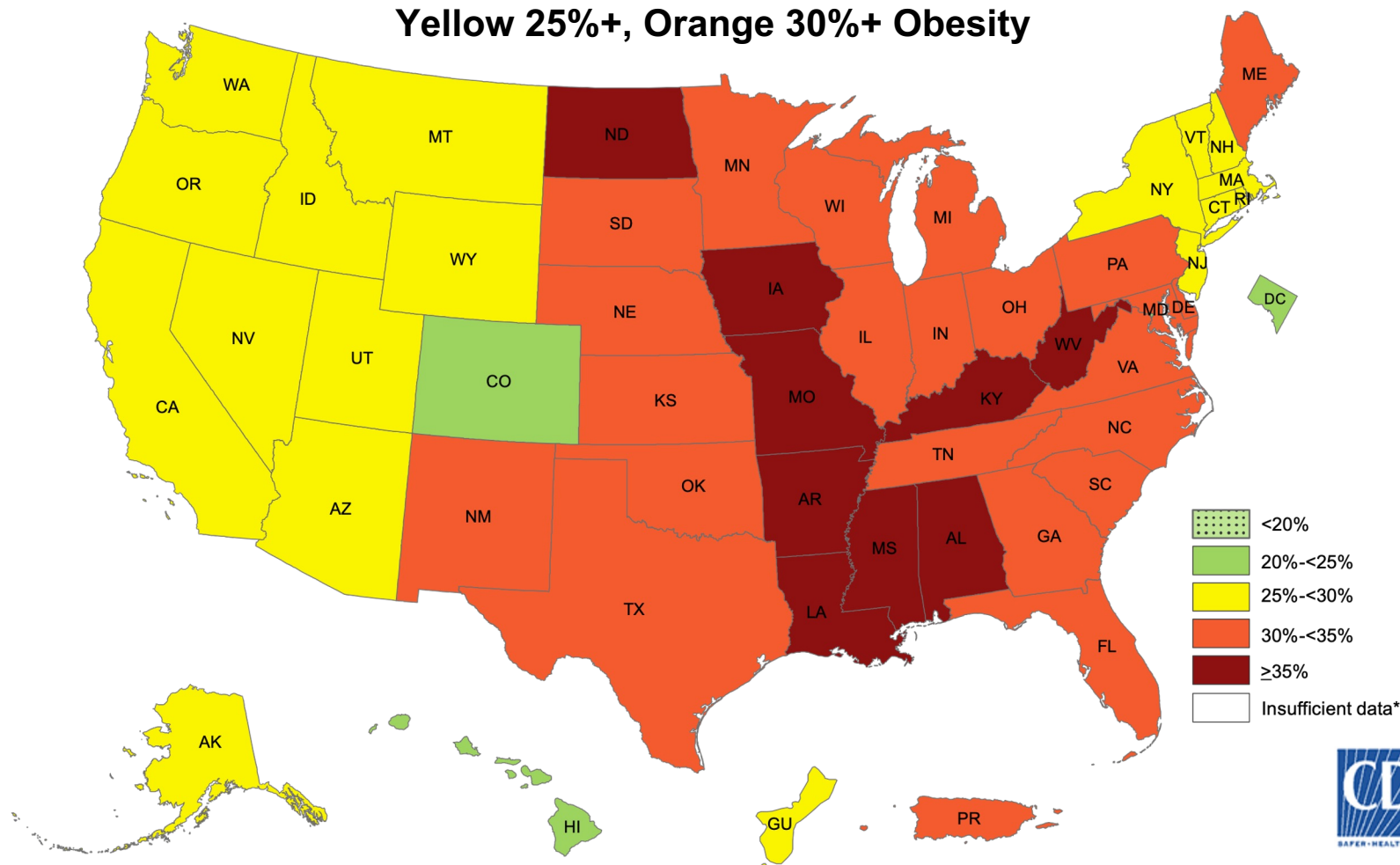


Obesity Trends* Among U.S. Adults

BRFSS, 2018

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

Yellow 25%+, Orange 30%+ Obesity



Three public health approaches

- *Tailored approach*

Develop tailored programs for high risk subgroups to provide the most suitable strategies and messages.

- *Population-wide approach*

Develop programs for everyone in the population to create a consensus for healthy lifestyles and a healthy environment.

- *Neighborhood/policy approaches*

Change environments in which people live to enhance health.

Do something, do more, do better!

- Invest in early childhood education
- Reverse regressive taxes where lower income people pay same as higher income people, e.g., tax on food
- Create fair employment and work for all
- Ensure a healthy standard of living for all
- Create and develop healthy and sustainable places and communities
- Maximize capabilities of all children, young adults and adults

Take home points

- *The greatest achievements in health has been from public health measures rather than treatment*
- *Most of us will live a long time*
- *Most of us will die from a chronic disease*
- *We know the main risk factors for chronic diseases and how to prevent and modify them*
- *Social determinants are key upstream causes of why we get sick*
- *Large health disparities remain*
- *We must accelerate improvements in health among those at highest risk*

Careers in Public Health

- *Undergraduate degree in public health (offered by some universities) -- a great preparation for an MPH or MD.*
- *MPH-Masters in Public Health -- 2 years. Leads to many well paying, meaningful jobs at the Federal, State and County level; on research studies; in hospitals and community clinics; at nonprofits.*
- *MD/MPH -- Allows doctors to understand social determinants of health, opportunities for non-clinical work (preventive medicine, innovations in health care systems)*

How do you become a public health professional?

School of Public Health (versus a School of Medicine)

B.S.: Some colleges offer undergrad degree

MPH: Masters in Public Health or

Ph.D.: Doctorate in Public Health

Different fields within public health:

Behavioral science and health education

Environmental/occupational health

Maternal and child health

Epidemiology/biostatistics

Health services/policy

Public health needs you!

We need you, your ideas, and your contributions

