



## Overview of Public Health Practice and Current Issues in Public Health

Presented by:

The Ca-Nv  
Public Health Training Center

Funded by:



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## California-Nevada Public Health Training Center

- **Collaboration of:**

- San Diego State Univ., Graduate School of Public Health
- Loma Linda U., School of Public Health
- California State University Fullerton, Dept. of Health Science
- Univ. of Nevada Las Vegas, School of Community Health Sciences

- **Goal:**

- Strengthen performance in the core functions and delivery of essential services among public health workers in CA and NV

- **Website:**

- <http://www.CaNvPHTC.org>



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## Upcoming Trainings in San Diego

### In-Person Trainings (all 8:30AM-noon)

- **8/21/12:** Health Care Reform
- **8/27/12:** Health Disparities, Health Equity, and Social Determinants of Health
- **8/29/12:** Writing Grant Proposals for Health Programs

### Webinars

- **8/21/12:** Fall Prevention: A Step-by-Step Guide to Reducing Falls in Older Adults (10-11AM)
- **9/13/12:** Health Policy for Program Planning (11:30AM-12:30PM)



Go to [CaNvPHTC.sdsu.edu/Trainings/default.asp](http://CaNvPHTC.sdsu.edu/Trainings/default.asp) to register

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## Overview of Public Health Practice and Current Issues in Public Health

August 13, 2012

Trainers:

**Ernesto Ramirez, MS**

PhD Candidate (Health Behavior)  
San Diego State University/ UCSD

**Robert Seidman, PhD**

Director, CaNvPHTC  
Head, Division of Health  
Management and Policy  
San Diego State University

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## Objectives

This training will help you to:

1. Identify the most important public health problems and issues facing communities.
2. Describe the different dimensions of public health practice.
3. Understand the organization, financing, and delivery of medical and population-based services in the U.S.
4. Describe the historical development of public health and factors that have changed health behaviors.



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## Topics

- **Overview of public health**

- Characteristics of PH; history and achievements
- Epidemiology
- Infectious & chronic disease
  - Incidence and prevalence

- **Structure of PH Sector**

- Core functions & essential services
- Public health organizations
- Healthy People 2020

Break

- Health care sector: expenditures, insurance, delivery

- **Factors affecting population's health**

- Health disparities, social determinants of health, health equity
- Behavioral science: lifestyle factors; ecological model
- Environmental health issues

- **Current PH Issues & Initiatives**

- Emergency preparedness
- Global/Border health issues
- Live Well San Diego



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## The Rules

- Ask questions
- Always be thinking of how the material applies to something you're currently working on.



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## What is Public Health?

- “The science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities, and individuals.”

- C.E.A. Winslow



Charles-Émile Winslow—1877–1957



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## What is Public Health?

Medical Model	Public Health Model
Individual-based	Population-based
Curing sick individuals	Prevention of illness
Diagnosis	Community Assessment: data analysis
Treatment of individual	Development of policy & laws
	Assures services are available to everyone in the community
> \$6,000/person/year	< 2% of total health care costs



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## Important Characteristics of Public Health

1. Emphasis on population (not individuals)
2. Emphasis on prevention (not treatment) as prime strategy
3. Financed primarily from public funds
  - Closely linked to government
4. Underlying philosophy of social justice
  - Equity



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## Important Characteristics of Public Health

5. Emphasis on promoting physical and mental health through interventions that target lifestyle behaviors and environmental conditions.
  - Seat belt laws; Cigarette smoking and alcohol age limits
6. Involves broad base of disciplines drawn from the biological, physical, social, and behavioral sciences. Multidisciplinary approach.
7. Traditional “safety net provider”



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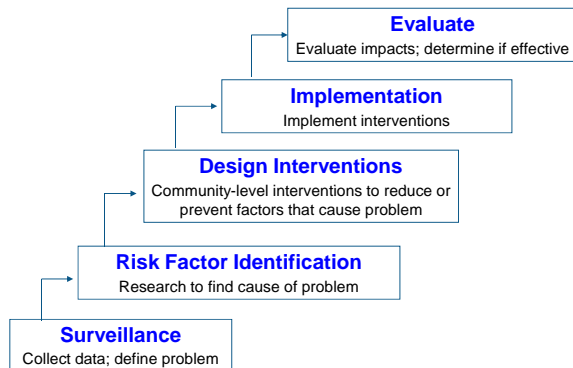
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## Public Health Approach



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## Multidisciplinary Approach of Public Health

- Public health practice does not rely on a single body of knowledge and expertise.
  - It is a combination of different and distinct scientific and social approaches
  - It is NOT a subspecialty or any other subset of medicine.



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## Selected Disciplines of Public Health

- |                             |   |
|-----------------------------|---|
| • Epidemiology              | • Health policy, finance, management and administration |
| • Biostatistics             |   |
| • Nutrition                 | • Sociology   |
| • Health education          | • Microbiology  |
| • Behavioral health science | • Social Work   |
| • Environmental health      | • Information Tech.                                     |
| • Medicine                  | • Many others   |



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## Discussion Question

- Think about the people who work in your department or organization
  - Which of these disciplines are represented?

• Epidemiology	• Health policy, finance, management and administration
• Biostatistics	
• Nutrition	• Sociology
• Health education	• Microbiology
• Behavioral health science	• Social Work
• Environmental health	• Information Tech.
• Medicine	• Many others



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## Public Health Achievements of 20th Century

1. **Vaccination**
  - Smallpox; polio; etc.
2. **Motor Vehicle Safety**
  - Seatbelt legislation and use; airbags; innovations in vehicle design and highway construction to enhance safety
3. **Environmental Health**
  - Pollution control; lead poisoning eradication efforts; asbestos identification and elimination
4. **Infectious Disease Control**
  - Discovery & use of antibiotics, penicillin, etc.
  - HIV & health education/behavior modification efforts
  - Emerging infectious diseases (Avian flu; SARs; Ebola; etc.)



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## Public Health Achievements of 20th Century

5. **Cancer**
  - Screening; early detection and improved treatment
    - Cervical, breast, prostate, colon, skin cancers
6. **Reduced deaths from cardiovascular disease (heart disease & stroke)**
  - Identification & reduction of risk factors (blood pressure, cholesterol, exercise, smoking, obesity, etc.)
  - Early diagnosis and more effective treatment
7. **Safer & Healthier Foods**
  - Better food preparation practices (through education) and food supply (inspections/regulation) to reduce foodborne illness
  - *Salmonella* & *E. coli* scares
  - Nutrition labeling



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## Public Health Achievements of 20th Century

8. **Advances in Maternal and Child Health: Healthier mothers and children**
  - Lower maternal and infant mortality rates due to increased emphasis/provision of prenatal care & technological developments
  - Family planning services
9. **Oral Health**
  - Fluoridation of water
  - Emphasis on flossing
  - Improved toothpaste
10. **Safer Workplaces**
  - OSHA and other regulatory oversight
    - OSHA: Occupational Safety and Health Administration



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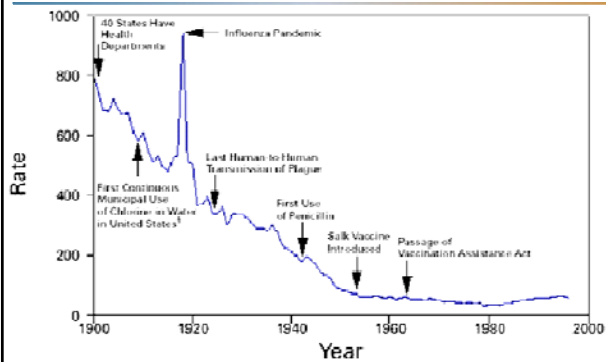
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## Control of Infectious Diseases

Crude death rate in U.S. per 100,000 population




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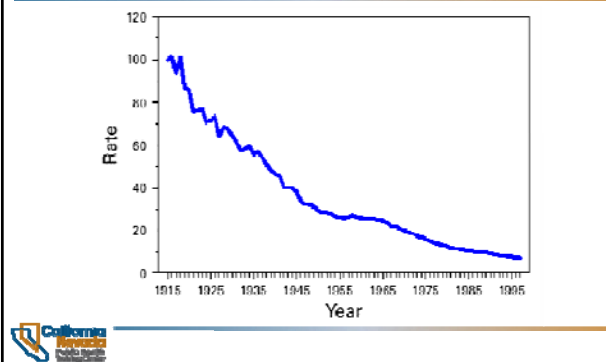
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## Healthier Babies

Infant mortality rate in U.S. per 1000 live births




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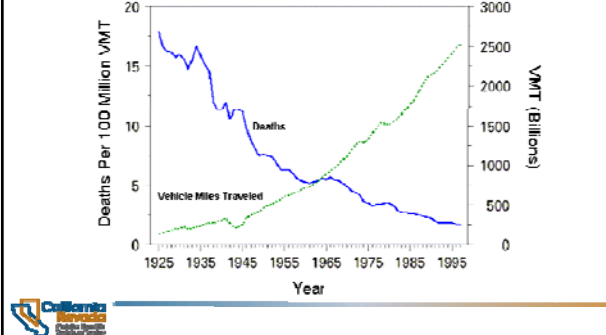
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## Motor Vehicle Safety

Motor vehicle deaths per 100 vehicle miles traveled (VMT)




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## EPIDEMIOLOGY



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## Public Health: Epidemiology

- Study of the distribution and determinants of disease frequency in human populations.
- The “basic science” of public health.



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## Objectives of Epidemiology

- To identify the etiology or cause of a disease and the relevant risk factors
- To determine the extent of disease found in the community
- To study the natural history and prognosis of disease
- To evaluate preventive and therapeutic measures and modes of health care delivery
- To provide the foundation for developing public policy regarding disease prevention and health promotion



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## Epidemiology: John Snow

- In the first week of September in 1854, 600 individuals living near the Broad Street water pump in London died of cholera.
- Two different hypothesis presented:
  - Miasma (William Farr)
  - Water Contamination (John Snow)



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## Epidemiology: John Snow

- House to house survey to calculate the relative frequency of cholera deaths
  - 315 deaths per 100,000 houses – Southwark and Vauxhall Company
  - 38 deaths per 100,000 houses – Lambeth Company
- Contaminated water was the cause of the cholera deaths.



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## Epidemiology & Disease

- Early detection of epidemics
- Recognition of new diseases & illnesses
  - Examples: SARS, West Nile, H1N1, etc.
- Identify risk factors
- Observe long-term trends
- Establish causation (between risk factors & disease)



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## Basic Epidemiologic Terms

- **Morbidity vs. Mortality:**
  - Both measure impact of disease or illness
  - **Morbidity:** nonfatal effects due to illness
    - Miss work; unable to enjoy leisure; etc
  - **Mortality:** death
- Check out CDC Morbidity and Mortality Weekly Report
  - <http://www.cdc.gov/mmwr/>



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## Basic Epidemiologic Terms

- **Prevalence vs. Incidence**
  - **Incidence:** Number of **NEW** cases
  - **Prevalence:** Number of **EXISTING** cases (regardless of when first diagnosed)
- Time period important.
  - Incidence: # new cases during period of time
  - Prevalence:
    - **Point** prevalence: # cases at a given time (e.g., today)
    - **Period** prevalence: # cases **during** a time period



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## Basic Epidemiologic Terms

- **Endemic vs. Epidemic vs. Pandemic**
  - **Endemic:** expected or usual rate of disease frequency
    - Often referring to specific region or people
  - **Epidemic:** disease frequency **greater** than expected or usual.
  - **Pandemic:** epidemic occurring over large geographic area and affecting large proportion of population



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## Basic Epidemiologic Terms

- Risk Factor

- Characteristic, condition, or behavior associated with **increased likelihood** of disease or injury
  - Examples: high BP, smoking, weight, age, gender, diet.
  - NOTE: some risk factors (BP, weight) potentially modifiable.
    - Others (age, gender) not.



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## Basic Epidemiology Methods

- Define disease
- Identify distribution of disease
  - Patterns of disease occurrence
- Identify determinants of disease
- Measure disease frequency



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## Define the Disease

- Develop a case definition
  - Death is easy to determine – death certificates have cause of death
  - Definitions sometimes change as more learned
    - Example: “high” blood pressure
- Not necessarily interested in just “disease”
  - Other health outcomes important



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## Identify Distribution of Disease

- Who is getting the disease? (i.e., “**Person**” )
  - sex; age; race/ethnicity; occupation
- Where is disease occurring? (i.e., “**Place**” )
  - neighborhood (e.g., disease clusters); latitude (climate); urban vs. rural; national variations
- When did they get the disease? (i.e., “**Time**” )
  - what season; what year (long-term trends)
  - elapsed time since exposure



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## Identify Determinants of Disease

- From this information, epidemiologists often decide why the disease is occurring
- MANY possible determinants of disease
  - Individual risk factors
    - Genetic, environmental, lifestyle, psychosocial, access to care
  - Social & cultural influences
    - Socioeconomic status, poverty, cultural beliefs
  - Global influences
    - Overpopulation, poverty, political



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## Measure Disease Frequency

- Quantitative measures of morbidity & mortality
- Population-based measures: **RATES**
  - Count # people with disease; compare to population at risk of disease
  - Numerator: # of people with disease
    - Incidence? Prevalence?
  - Denominator: total # people who could get disease
    - May be specific to gender or other subpopulation group



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### Example of Calculating a *Rate*

	# Deaths	Population
Whites	20,000	220,000,000
Nonwhites	14,000	125,000,000
<b>TOTAL</b>	<b>34,000</b>	<b>345,000,000</b>

- **Question:** what is *overall* mortality rate?
- **Answer:** Total # deaths = 34,000. Total population = 345,000,000
  - Mortality rate =  $34,000 / 345,000,000 = 0.0000986$
  - Mortality rate per million population: Multiply by 1,000,000.  
Conclusion: 98.6 deaths per 1 million population
- Could calculate separate mortality rates for whites, nonwhites




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## INFECTIOUS & CHRONIC DISEASE



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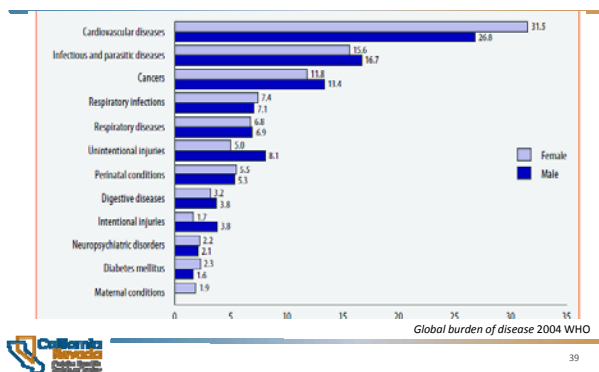
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## Causes of Death



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## Infectious Disease

- What is Infectious Disease?
  - Transmissible or communicable disease
  - Pathogen present in host causing illness
- Transmission of disease
  - Direct
    - Person to Person
  - Indirect
    - Contamination
    - Vector
      - Biological hosts – ex. Mosquitos transmitting Malaria



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## Links in Chain of Infection

### Pathogen (infectious agent)

- Virus, bacteria, or parasite causing disease in humans



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## Links in Chain of Infection

### Reservoir (Vector)

- Place where pathogen lives
- Examples: birds, mosquitos (malaria; W. Nile), rodents (Hanta), fleas (plague), deer mice (ticks cause Lyme)



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## Links in Chain of Infection

### Method of transmission

- Method for pathogen to travel to person
- Examples: airborne, foodborne, blood



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## Links in Chain of Infection

### Susceptible Host

- Must be available to pathogen; not immune



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## HOW to Interrupt Chain of Infection?

- Kill pathogen
  - Through use of antibiotics, if susceptible
- Eliminate reservoir that harbors pathogen
  - Control rodent & insect populations
  - Better water/sewage treatment to prevent water-borne disease
  - Better food handling methods & safety measures to prevent food-borne disease



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## HOW to Interrupt Chain of Infection?

- Prevent transmission
  - Quarantine infected individuals
    - if extremely serious disease consequences, highly infectious, or no treatment or vaccine
  - Educate people to adopt better hygiene and promote safety
    - For ex: wash hands; boil water supply if infected; cover nose when sneezing; practice safe sex (using condoms)




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## HOW to Interrupt Chain of Infection?

- Increase resistance of host (e.g., immunizations)
  - May not exist for all infectious diseases
    - ineffective if infectious agent mutates (e.g., HIV)
    - may not be cost-effective to develop or provide (high R&D costs vs. small number who will benefit)



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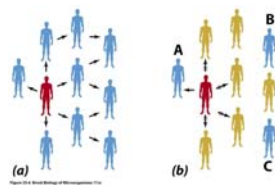
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## Controlling Infectious Diseases

- Herd Immunity
  - Large fraction of a population is immune to a given disease, and it is difficult for the disease to spread (proportion immune individuals needed depends upon type of infection)



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## Chronic Disease

- What is chronic disease?
  - Disease with persistent effects
  - Usually non-communicable (but not always) – ex HIV
- Multiple causes (risk factors)
- Prevention more difficult
- Can usually “catch” with screening measures
- Most often related to lifestyle risk factors
- Often associated with functional or lifestyle impairment
- Rarely Cured



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## Major Chronic Diseases

- Cardiovascular Disease
  - Heart disease and stroke
- Cancer
- Diabetes
  - Type 1 and Type 2
- Respiratory Disease
- Mental Illness
- Arthritis



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## Cardiovascular Disease

- Major Killer in the US and Worldwide
- US deaths attributed to CVD

Race of Ethnic Group	% of Deaths
African Americans	25.8
American Indians or Alaska Natives	19.8
Asians or Pacific Islanders	24.6
Hispanics	22.7
Whites	27.5
All	27.2



Source: CDC

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## Cardiovascular Disease

- How do we know about CVD?
  - Framingham Heart Study
  - Longitudinal study of CVD and risk factors
  - Recruited ~5,200 in 1948 and biennial follow-ups
    - Has expanded to three generations now
  - Many major findings!



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## Framingham Heart Study: Findings

- 1960 Cigarette smoking increases the risk of heart disease
- 1961 Cholesterol level, blood pressure, and ECG abnormalities increase the risk of heart disease
- 1967 Physical activity reduces and obesity increases the risk of heart disease
- 1970 High blood pressure increases the risk of stroke
- 1976 Menopause increases the risk of heart disease
- 1978 Psychosocial factors affect heart disease
- 1988 High levels of HDL cholesterol reduce risk of death
- 1994 Enlarged left ventricle increases the risk of stroke
- 1996 Progression from hypertension to heart failure



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## Preventing Chronic Disease

- Typically an ongoing effort of primary and secondary prevention
- **Primary** prevention
  - Reduce prevalence of risk factors to lower incidence of CVD
    - Education and policy promote healthy lifestyle
- **Secondary** prevention
  - Identify those with early stages of disease (screening) and no symptoms
  - Treat and reduce risk factors (medication, counseling, more education)



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## CORE PUBLIC HEALTH FUNCTIONS AND ESSENTIAL SERVICES



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### Core Public Health Functions

- From *The Future of Public Health*, Institute of Medicine, 1988.
- Defined PH as “collective actions society takes to assure conditions in which people can be healthy.”
- *Public health system “in disarray.”*
- As a society . . . “lost sight of public health goals...”
- Proposed **3 core public health functions**



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### Core Public Health Functions

- Assessment
- Policy Development
- Assurance



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## Core Public Health Functions

- **Assessment**

- Assess health of population
  - Collect and analyze data on health status; disseminate information about community's health.

- Policy Development

- Assurance



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## Core Public Health Functions

- Assessment

- **Policy Development**

- develop comprehensive public health policies
  - promote use of scientific knowledge in decision making to develop strategies to improve population's health

- Assurance



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## Core Public Health Functions

- Assessment

- Policy Development

- **Assurance**

- provide services to those in need
  - directly (provide services)
  - indirectly (encourage action by public and private entities; implement regulation)



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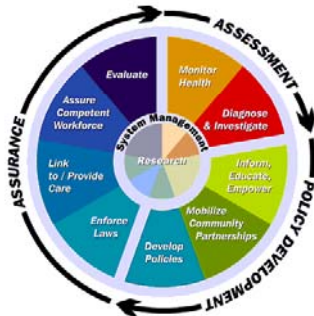
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## Essential Public Health Services

Attempt to define **types** of services provided in public health settings.  
**10** essential types of services mapped to the 3 core functions.




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## Essential Public Health Services

- Core Function: **ASSESSMENT**
- Essential Services
  - #1: **Monitor** health status to identify community health problems
    - Ex: disease and injury registries; vital statistics; epidemiology
  - #2: **Diagnose & investigate** health problems and health hazards in community
    - Ex: STD & TB services; asbestos detection; infectious & chronic disease screening



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## Essential Public Health Services

- Core Function: **POLICY DEVELOPMENT**
- Essential Services
  - #3: **Inform, educate, & empower** people about health issues
    - Ex: nutrition education; population-based health promotion programs
  - #4: **Mobilize community partnerships** and action to identify and solve health problems
    - Ex: Forming community partnerships to solve health problems (CHIP); SD County Childhood Obesity Initiative
  - #5: **Develop policies** and plans that support individual & community efforts
    - Ex: Draft legislation (smoking; pollution; nutrition info)



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## Essential Public Health Services

- Core Function: **ASSURANCE**
- Essential Services
  - #6: **Enforce laws** and regulations that protect health and ensure safety
    - Ex: housing; food quality; sanitation
  - #7: **Link** people to needed personal health services and assure the provision of health care when otherwise unavailable
    - Ex: CA Healthy Families Program; STD clinics
  - #8: **Assure competent** public and personal health care workforce
    - Ex: Draft legislation (smoking; pollution; nutrition info)



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## Essential Public Health Services

- Core Function: **ASSURANCE**
- Essential Services
  - #9: **Evaluate** effectiveness, accessibility, and quality of personal and population-based services
    - Ex: Task Force on Community Preventive Services; evaluation of public health programs
  - #10: **Research** for new insights and innovative solutions to health problems
    - Ex: Health services research; clinical research



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## PUBLIC HEALTH ORGANIZATIONS



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## Public Health Organizations

- Federal
- State
- Local
- International



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## Federal Public Health Agencies

- Document health status in U.S. (collect data)
- Formulate national objectives and H policy
  - ensure personnel & other resources to achieve national goals and objectives
- Coordinate &/or provide services to certain population subgroups
  - provide grants to state & local govmts
- Oversee Medicare and Medicaid programs
- Other agencies with special, narrow interests
  - Indian health service, VA, military med. facilities, etc
- Policy development & oversight of health reform



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## Selected Federal Agencies

- Central federal PH agency: Department of Health and Human Services (DHHS): [www.hhs.gov](http://www.hhs.gov)
  - Centers for Disease Control and Prevention (CDC): [www.cdc.gov](http://www.cdc.gov)
    - Established 1946
  - National Institutes of Health (NIH): [www.nih.gov](http://www.nih.gov)
  - Centers for Medicare and Medicaid Services (CMS): [www.cms.gov](http://www.cms.gov)
  - Food and Drug Administration (FDA): [www.fda.gov](http://www.fda.gov)
  - National Center for Health Statistics (NCHS): [www.cdc.gov/NCHS](http://www.cdc.gov/NCHS)



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## Other Federal Agencies With Public Health Activities

- Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov)
- Occupational Safety and Health Administration (OSHA): [www.osha.gov](http://www.osha.gov)
- Department of Agriculture (USDA): [www.uds.gov](http://www.uds.gov)
- National Highway Traffic Safety Administration (NHTSA): [www.nhtsa.gov](http://www.nhtsa.gov)




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## Notable Successes of CDC

- **1955:** Identifies contaminated batch of polio vaccine
  - Problem corrected and polio campaign resumed
- **1957:** Surveillance to trace massive influenza epidemic.
  - Developed national guidelines for influenza vaccine.
- **1970s**
  - Key role eradicating smallpox; identified Legionnaire's disease.
- **1980s**
  - Identify cause of toxic shock syndrome.
  - Remove lead from gasoline.
- **1990s**
  - "Prevention" added to name; reflects broader role and vision
    - Full title: Centers for Disease Control *and Prevention*
- **2000-present**
  - Important role emergency preparedness
  - Immunization advocacy




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## National Institutes of Health (NIH)

- Most efforts: basic science research & translation of research to clinical practice.
- 17 separate institutes, including
  - National Cancer Institute (NCI)
  - National Heart, Lung, & Blood Institute (NHLBI)
  - National Institute on Aging (NIA)
  - National Institute of Mental Health (NIMH)
  - National Institute of Allergy & Infectious Diseases (NIAID)
  - National Library of Medicine (NLM)

See: <http://www.nih.gov/icd/index.html>




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## Centers for Medicare & Medicaid Services (CMS)

- Oversight & coordination of Medicare and Medicaid Programs
- Sets payment and other rules for providers and insurance companies
- Monitors quality of care provided to beneficiaries
- Provides funds to investigate efficiency and equity of current programs



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## State Health Agencies

- Coordinate activities of local health agencies
- Provide funding of local health
- May provide services where no viable local entity or where statewide oversight necessary
- Collect and analyze data on H status of public
- Maintain State labs to conduct tests
- Manage Medicaid program
- License and certify medical personnel, facilities, and services



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## California Health and Human Services Agency (<http://www.chhs.ca.gov/>)

- Many Departments
  - Dept. of Public Health
  - Dept. of Health Care Services
  - Others Departments include:
    - Aging; Alcohol & Drug Programs; Mental Health, Rehabilitation
    - Managed Risk Medical Insurance Board (MRMIB)
    - Office of Statewide Health Planning & Development (OSHPD)
- Responsibilities:
  - California's Medicaid Program (Medi-Cal)
  - License providers (e.g., MDs, nursing homes, etc.)
  - Collect and analyze hospital and other health data



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## Local (County) Public Health Agencies

- County and city health departments
- Basic (“core”) public health functions
  - Often may have responsibility for providing medical care to low income and others needing services
- Funding sources vary
- Report to elected officials
  - City/county politicians often not understand importance or nature of core functions
- May be responsible for some PH mandates
  - may receive partial funding from state & federal governments
  - Ex: provide care for medically indigent population




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## San Diego Health & Human Services Agency (HHSA)

- Integrates Dept. of Health & Dept. of Social Services Department into a single agency
  - 6 geographic regions
    - “no wrong door” approach
    - integrates resources & services to treat families for all problems.
  - Director reports to Board of Supervisors
- Home page: [www2.sdcountry.ca.gov/hhsa/default.asp](http://www2.sdcountry.ca.gov/hhsa/default.asp)
- List of services: [www2.sdcountry.ca.gov/hhsa/services.asp](http://www2.sdcountry.ca.gov/hhsa/services.asp)




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## Selected SD HHSA Programs

- |  |  |
|--|--|
| • Border Health                          | • HIV/AIDS Epidemiology                |
| • California Children Services           | • Immunization Program                 |
| • Child Health and Disability Prevention | • Maternal, Child, and Family Health   |
| • Childhood Lead Poisoning Prevention    | • Office of Violence Prevention        |
| • Chronic Disease & Health Disparities   | • Office of Vital Records & Statistics |
| • Community Epidemiology                 | • PH Nursing                           |
| • Community Health Statistics            | • PH Lab                               |
| • Emergency Medical Services             | • STD & Hepatitis Prevention           |
|  | • Tobacco Control                      |
|  | • Tuberculosis Control                 |




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## Examples of Nongovernmental Public Health Organizations

- Disease-specific organizations
  - American Cancer Society, American Heart Assoc., American Lung Assoc.
- Specialty health personnel organizations
  - American Medical Association (AMA), American Public Health Association (APHA), National Association of County and City Health Officials (NACCHO)
- Nonprofit Community-Based Organizations
  - San Diego Council of Community Clinics; organizations targeting specific races or ethnicities
- Private Philanthropic Health Foundations
  - Robert Wood Johnson Foundation (RWJ), Kaiser Family Foundation (KFF), Bill and Melinda Gates Foundation
  - In California: The California Endowment, California Wellness Foundation, California HealthCare Foundation




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## HEALTHY PEOPLE 2020



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## Healthy People 2020

- Published Dec 2010; Comprehensive set of national health objectives for next decade
- Designed to measure progress over time
- Includes list of health objectives & health measures
- Identifies sources of data to measure progress in achieving objectives




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## Evolution of Healthy People

Target Year	1990	2000	2010	2020
				
<b>Overarching Goals</b>	<ul style="list-style-type: none"> <li>Decrease mortality: infants &amp; adults</li> <li>Increase independence among older adults</li> </ul>	<ul style="list-style-type: none"> <li>Increase span of healthy life</li> <li>Reduce health disparities</li> <li>Achieve access to preventive services for all</li> </ul>	<ul style="list-style-type: none"> <li>Increase quality and years of healthy life</li> <li>Eliminate health disparities</li> </ul>	<ul style="list-style-type: none"> <li>Attain high-quality, longer lives free of preventable disease, disability, injury, &amp; premature death</li> <li>Achieve health equity; eliminate disparities</li> <li>Create social and physical environments that promote good health</li> <li>Promote quality of life, healthy development, healthy behaviors across all life stages</li> </ul>
<b># Topic Areas</b>	15	22	28	42
<b># Objectives</b>	226	312	467	> 580

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## Healthy People 2020 Topic Areas

- |   |  |
|---|--|
| 1. Access to Health Services                            | 8. Diabetes                                  |
| 2. Adolescent Health **                                 | 9. Disability and Health                     |
| 3. Arthritis, Osteoporosis, and Chronic Back Conditions | 10. Early and Middle Childhood **            |
| 4. Blood Disorders and Blood Safety **                  | 11. Educational and Community-Based Programs |
| 5. Cancer   | 12. Environmental Health                     |
| 6. Chronic Kidney Disease                               | 13. Family Planning                          |
| 7. Dementias, Including Alzheimer's Disease **          | 14. Food Safety                              |
|   | 15. Genomics**                               |



\*\* denotes focus area **added** in 2020.

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## Healthy People 2020 Topic Areas

- |  |  |
|--|--|
| 16. Global Health **                                     | 23. Immunization and Infectious Diseases                           |
| 17. Healthcare-Associated Infections **                  | 24. Injury and Violence Prevention                                 |
| 18. Health Communication and Health Info. Technology     | 25. Lesbian, Gay, Bisexual and Transgender (LGBT) Health Issues ** |
| 19. Human-Related Quality of Life **                     | 26. Maternal, Infant and Child Health                              |
| 20. Hearing and Other Sensory or Communication Disorders | 27. Medical Product Safety   |
| 21. Heart Disease and Stroke                             | 28. Mental Health and Mental Disorders **                          |
| 22. HIV  |  |



\*\* denotes focus area **added** in 2020..

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## Healthy People 2020 Topic Areas

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| 29. Nutrition and Weight Status    | 36. Respiratory Diseases             |
| 30. Occupational Safety and Health | 37. Sexually Transmitted Diseases    |
| 31. Older Adults **                | 38. Sleep Health **                  |
| 32. Oral Health                    | 39. Social Determinants of Health ** |
| 33. Physical Activity              | 40. Substance Abuse                  |
| 34. Preparedness **                | 41. Tobacco Use                      |
| 35. Public Health Infrastructure   | 42. Vision and Hearing               |



\*\* denotes focus area **added** in 2020..

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## Example of Objectives

([www.healthypeople.gov/2020/topicsobjectives2020](http://www.healthypeople.gov/2020/topicsobjectives2020))

### **Focus Area 41:** Tobacco Use

**Objective TU-11.3:** Reduce the proportion of nonsmokers 18 years and older exposed to environmental tobacco smoke.

— Baseline = 37.6%; 2020 target = 33.8%

### **Focus Area 1:** Access to Quality Health Services

**Objective AHS-3:** Increase the proportion of people with a usual primary care provider

— Baseline = 76.3%; 2020 target = 83.9%




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## Healthy People 2020 Website

<http://www.healthypeople.gov/2020>

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## THE U.S. HEALTH CARE SYSTEM, PUBLIC HEALTH INSURANCE PROGRAMS, AND HEALTH EXPENDITURES



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### Distinguishing Characteristics of US Health Care Delivery System

- **No central agency oversight** using global budgets with controls on what technology is available and what services are offered.
- **No universal access to care**
  - Based largely on insurance
    - Many different types of insurance & public programs
  - Safety net for uninsured
- **Not complete information** (on price, value, etc.)
- **Legal risk of malpractice** affects decisions
  - Defensive medicine; increases costs



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### Distinguishing Characteristics of US Health Care Delivery System

- **Insurance companies** ("third party") act as **intermediaries** between financing and delivery
  - Affects judgment by patient (not pay directly)
  - Generally not pay 100%
- **Multiple payers** (insurance companies, government programs, health plans, etc.) rather than single payer
  - Differences among payers
  - Increases complexity & administrative costs
- **Few constraints on development of costly technology**
  - Recover costs through greater utilization



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## Financing Medical Care in the U.S.

- Most Americans provided health insurance by **employer**
  - Growth after WWII (unionization); **Tax exempt** fringe benefit
  - Historically: small or no premium; small deductible & copayments
    - Led to large increase in health expenditures
- Care provided to **uninsured**
  - “charity care”; community health centers; public clinics (especially to treat communicable diseases)
  - Still approximately 20% uninsured (under age 65)



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## Public Health Insurance Programs

- Medicare
- Medicaid
  - Called “Medi-Cal” in California
- SCHIP (State Children’s Health Insurance Program)
  - Called “Healthy Families” in California
    - Recent State budget deal eliminates Healthy Families; transitions children to Medi-Cal over next several years
- Others
  - Workers’ Compensation
  - Military Health System & Veterans Health Administration



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## Medicare

- Title 18 of Social Security Act (1965)
- Funded & administered by **federal** govt.
  - Recipients pay small amount when receive services
- Eligibility
  - 65+ years of age & worked 10 years paid coverage
  - Disabled individuals entitled to Social Security payments
  - People with End Stage Renal Disease (ESRD)
- Cost Sharing
  - May involve monthly premium & copayment for services
  - varies for different parts of Medicare



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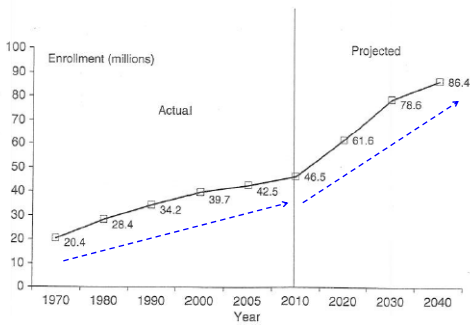
## Medicare

- Medicare composed of 4 parts
  - **Part A** (primarily hospital inpatient)
    - no cost to beneficiaries for Part A insurance
    - Pay approximately \$1000 per hospital admission
  - **Part B** (MD services, hospital outpatient, lab, etc.)
    - Optional (although > 90% enroll in it)
    - Pay monthly premium; also copayments for services
  - **Part C** (Medicare Advantage Plans)
    - Encouraged HMOs and other managed care plans to compete for Medicare patients
  - **Part D** (Prescription Drug Benefit)

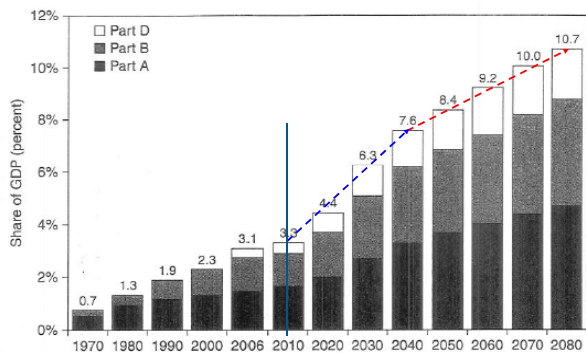


## Projected Number of Medicare Beneficiaries

The number of people Medicare serves expected to nearly double in next 30 years.

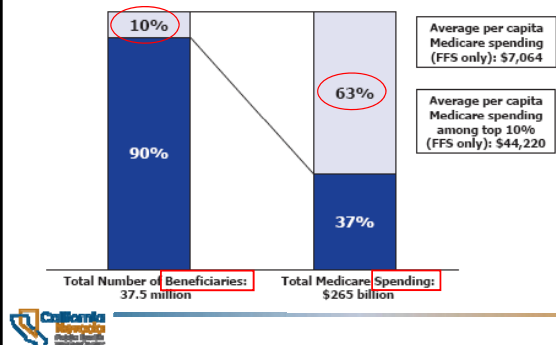


## Future Medicare Spending as % GDP





## Fee-For-Service Medicare Beneficiaries: 10% Account for Almost 2/3 of Medicare Spending




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## Medicaid

- Title 19 of Social Security Act
- Targets primarily low-income individuals
- **Jointly** funded by **federal** and **state** governments
  - Roughly 55% by federal government
- **Administered** by **state** governments
- Eligibility and services covered determined by states; also varies across states (some states more generous)
  - Federal minimum eligibility & services required by all states




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## Medicaid Recipients & Payments

Medicaid Recipient	% of all Recipients	% of all Medicaid Payments
Blind & Disabled	14.8%	43.7%
Age 65 +	7.8%	23.7%
Children	47.8%	17.1%
Adults with dependents	22.2%	11.4%
Other	7.5%	4.1%

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## National Health Expenditures

- Health Expenditures
  - What types of health services were purchased in 2010?
  - How have health expenditures changed last 50 years?
- What are sources of funds (i.e., who pays for services)?
- What are reasons for increase in health expenditures?
- How have funding sources changed?

Source for all data: Centers for Medicare and Medicaid Services (CMS)

[[www.cms.hhs.gov/NationalHealthExpendData/02\\_NationalHealthAccountsHistorical.asp](http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp)]



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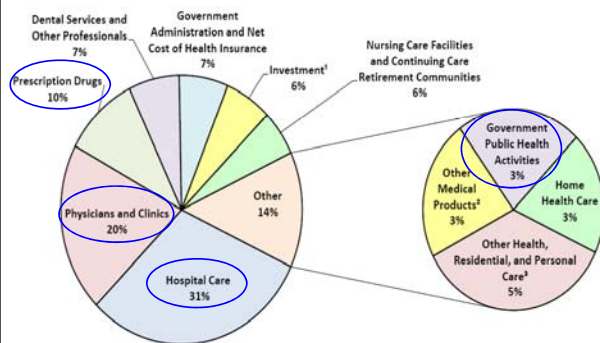
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## The Nation's Health Dollar in 2010: Where it Went




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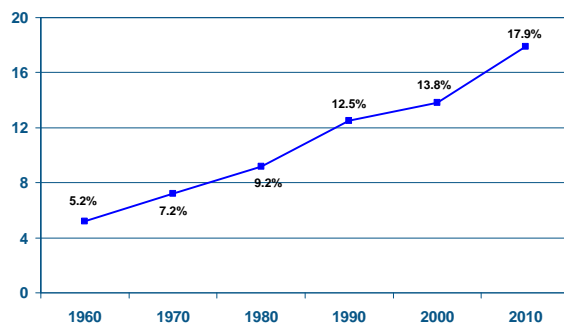
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## Health Expenditures as Share of Gross Domestic Product (GDP)




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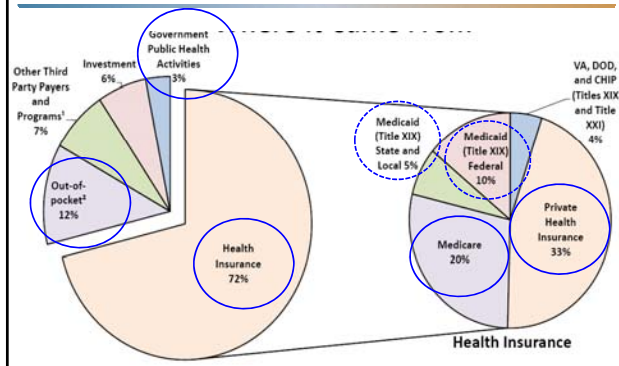
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## The Nation's Health Dollar in 2010: Where it Came From




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## HEALTH DISPARITIES, SOCIAL DETERMINANTS OF HEALTH, AND HEALTH EQUITY



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## Health Disparities

- What is a health disparity?
  - An observable **difference** in
    - (a) health condition,
    - (b) access to care, or
    - (c) health outcome
- that appears to be **linked** to membership in a **specific population subgroup**
  - Exs: gender, race, ethnicity, socio-economic status




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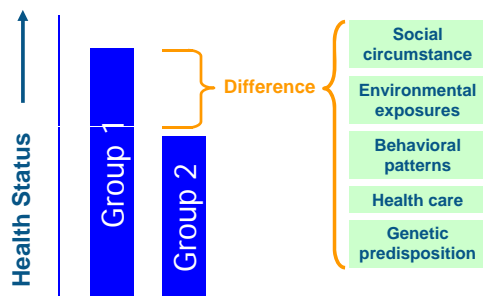
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## Health Disparities

- Individuals with disparities
  - Consistently poorer health outcomes for certain groups.
    - Ex.: higher incidence of specific disease for racial and ethnic minorities compared to non-Latino White persons;
    - Women compared to men.

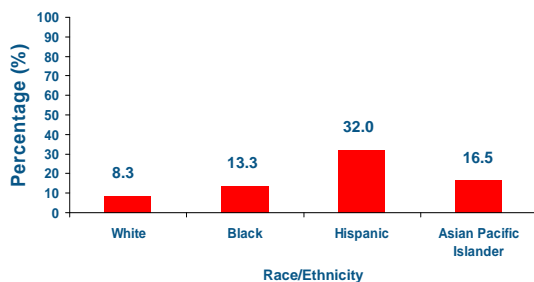


## Differences in Health Status and Causes of Health Disparities



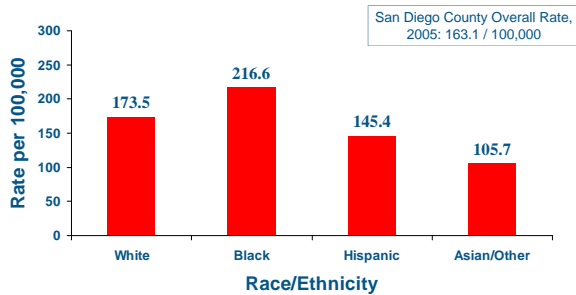
Courtesy of Dr. Wilma Wooten, San Diego County Health Officer, 2008.

## Adults Without Health Insurance by Race/Ethnicity, 2005



Source: 2005 California Health Interview Survey (CHIS).

## All Cancer Deaths by Race/Ethnicity, 2005



Note: All rates are adjusted to 2000 Standard U.S. Population.  
Source: California Death Statistical Master File; SANDAG January 1, Population Estimates.

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## Health Disparities & Social Determinants of Health

- Most important predictor of health is socioeconomic status (SES)
  - Health status decreases as SES falls
- Other characteristics that affect health
  - Gender
  - Marital status
  - Race and ethnicity
  - Culture
  - Place (i.e., location of residence)




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## Psychological Factors That Affect Health

- Stress
  - Stress increases risk of heart disease, common cold, other health problems.
  - Long-term stress is detrimental to overall health - Allostatic load.
- Social support
  - May be successful in decreasing effects of stress
    - Individuals able to handle stress without adverse health consequences.




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## Possible Policies to Reduce Health Disparities

- Improve income and reduce wealth inequalities
  - raise minimum wage; protect against layoffs; training for the unemployed; social assistance benefits
- Improve social inclusion
  - Reduce social inequality; struggle against discrimination; strengthen participation in community organizations
- Promote racial justice
  - Strengthen & enforce anti-discrimination laws; build diverse neighborhoods
- Improve schools
  - Smaller class sizes; increase teacher pay & training




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## Possible Policies to Reduce Health Disparities

- Promote better working conditions
  - Flexible work hours; job security; hire locally; strengthen occupational safety laws; reduce job stress
- Improve conditions for children
  - Increase social support for families: child support payment, paid family leave, low-cost day-care, etc.
- Improve the physical environment
  - Reduce pollution, more parks and green spaces, promote fresh produce in stores, reliable & low-cost public transit, more pedestrian-oriented communities




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## HEALTH BEHAVIOR SCIENCE



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## The Big 4 Behaviors

- Smoking
- Alcohol
- Physical Activity
- Diet



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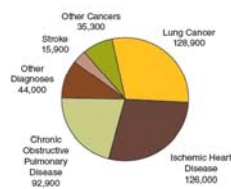
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## Smoking

About 443,000 U.S. Deaths Attributable Each Year to Cigarette Smoking\*



\* Average annual number of deaths, 2000-2004.  
Source: MMWR 2006;57(45):1228-1229.

***Smoking is responsible for 1 in 5 deaths in the US each year.***



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## Alcohol

- Approximately 79,000 deaths attributable to excessive alcohol use each year in U.S.
  - 3<sup>rd</sup> leading lifestyle-related cause of death
- In 2005: > 1.6 million hospitalizations & > 4 million ER visits for alcohol-related conditions



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## Alcohol

### Immediate Risks

- Unintentional Injuries
- Violence
  - 35% of victims report alcohol use in offenders
  - Associated with 67% of intimate partner violence
- Risky sexual behaviors
- Pregnancy complications
- Alcohol poisoning

### Long Term Risks

- Neurological disorders
- Cardiovascular disease
  - Myocardial infarction & hypertension
- Mental Health issues
  - Depression
- Social Problems
  - Unemployment, absenteeism
- Cancer
- Liver Disease
  - Cirrhosis
- Gastrointestinal disorders




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## Diet

- The way food is prepared has changed.
  - increase in fried or deep fried foods.
  - increase in processed, fast foods.
- Pattern of American food consumption has become healthier in some ways.
  - reduced consumption of red meats. – **STILL TOO HIGH**
  - increased consumption of fish/poultry, cereal/grains, and fruits/vegetables. – **STILL TOO LOW**
- Less healthy in other ways
  - increased intake of sugars, **soft drinks**, fats, and oils
  - decreased consumption of essential nutrients




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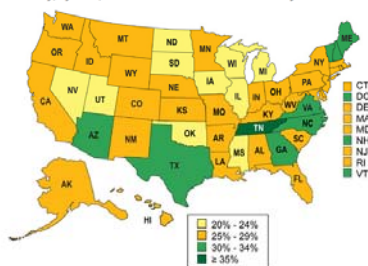
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## Diet

Map 3 of 3: Percentage of U.S. adults aged ≥ 18 years who consumed vegetables three or more times per day, by state, Behavioral Risk Factor Surveillance System 2007




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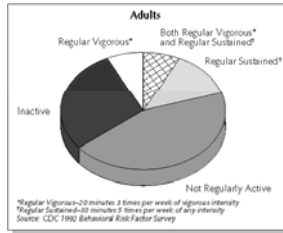
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## Physical Activity

- More than 60 percent of U.S. adults do not engage in the recommended amount of activity.
- Approximately 25 percent of U.S. adults are not active at all



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## Why Activity?

- Benefits of exercise
  - increases metabolism
  - Increases calorie expenditure
  - Aids in maintaining weight loss
  - Promotes cardiovascular health
  - Improves stress (psychological) response
  - Improves mental health
  - Improves skeletal health




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## Understanding Health Behaviors

The Behavioral Epidemiology Framework:

1. Establish links between behavior(s) and health.
2. Develop methods to accurately assess behavior.
3. Identify factors that influence behavior.
4. Evaluate interventions the seek to modify behavior.
5. Translate the research into practice.



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## Social Ecological Model

- Multiple levels of influence.



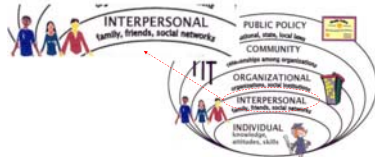
## Social Ecological Model

- Individual level influences:
  - Knowledge
  - Attitudes
  - Self-efficacy



## Social Ecological Model

- Interpersonal level influences:
  - Social support
  - Social influence



## Social Ecological Model

- Organizational, community and policy level influences:

- Worksite environment
- Home environment
- School environment
- Built environment
- Social environment




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## ENVIRONMENT & HEALTH



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## Environmental Health

- Concerned with providing and protecting:
  - Safe water
  - Safe air
  - Safe food
  - Safe products
  - Safe home and work environments



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## Role of the government

- Providing Direct Services
  - Water treatment
  - Sewage disposal/treatment
  - Food/food service inspection
  - Identification of hazards
  - Pharmaceutical safety
  - Product safety
- Regulation
  - Air quality standards
  - Car emission standards
  - Auto safety standards
  - Water quality standards (drinking & waterways)
  - Dumping regulations
  - EPA
  - OSHA



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## Setting standards

- Occupational Safety & Health Act (1970)
  - Sets Federal standards for workers' exposure
- Toxic Substances Control Act (1976)
  - Federal law requires testing of potentially hazardous substances
- Federal insecticide, Fungicide & Rodenticide Act (1947) plus amendments
  - Federal government must approve pesticides
- Clean Air Act (1970 & 1990)
  - Sets emission limits on major pollutants



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## The Built Environment

- How does your environment impact you health?
- How do the things we use and see every day support or deter from our health?



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## Built Environment: Example

### In South Los Angeles, New Fast-Food Spots Get a 'No, Thanks'

"If people don't have better choices or don't have the time or knowledge or curiosity, they are going to take what's there," said [Jan Perry](#), a city councilwoman who represents part of South Los Angeles and pushed for the regulations. "To say that these restaurants are not part of the problem would be foolish."



The city is effectively banning new fast-food places in South Los Angeles, which has much higher rates of poverty and obesity than other areas.



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## Findings from Research

- Built environment can have profound impact on health and health behaviors:
  - Access to nutritious food
  - Access to public spaces for activity
  - Access to public transportation
  - Access to safe walking/biking areas



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## Building Health Environments

- Now city and commercial planners incorporate health concerns in planning communities
  - Number of intersections
  - Mixed use development
  - Sidewalks and bikeways
  - Greenspace



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## EMERGENCY PREPAREDNESS



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## Defining Emergencies

- Disaster
  - Sudden disruption exceeding the capacity of the affected community. It involves injury to human beings and destruction of property.
- Common Disasters
  - Earthquake
  - Fire
  - Hurricane
  - Drought



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## Elements of a Disaster

- Environmental Effects
- Medical Effects
- Economic, social, and political consequences
- Administrative and managerial effects



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## Disaster Management Cycle

- Prevention
  - Elimination of hazard that causes disaster
- Mitigation
  - Measures to minimize effects of disaster
    - Earthquake proof buildings
- Preparedness
  - Developing response plans.
  - Identification of resources and needs across community



## Disaster Management Cycle

- Disaster Impact
  - Assessment of deaths, injuries, and destruction
- Response
  - Systems of relief and assistance
- Recovery
  - Attempt to restore to pre-disaster conditions



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## San Diego Emergency Preparedness

- ReadySanDiego.org
  - Collaboration between SD County Emergency Services and Department of Homeland Security
- Provides information and tools to help individuals prepare
- AlertSanDiego
  - Sends emergency alerts to email or phone
  - <http://www.readysandiego.org/alertsandiego/>



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## GLOBAL/BORDER HEALTH



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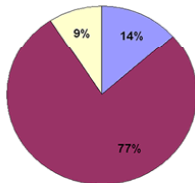
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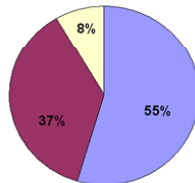
## Global Health

### Deaths by Broad Cause Group

Developed Regions



Developing Regions



■ Communicable diseases ■ Noncommunicable conditions □ Injuries



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## World Health Organization (WHO)

- 192 Member States
- Normative declarations
- Surveillance and response to epidemics
- Multinational governance
  - Treaties
  - Consensus



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## WHO & GOARN

- Global Outbreak Alert and Response Network
- Established by WHO in 2000
- Primary aims:
  - Assist countries with disease control efforts
  - Investigate emerging epidemic disease threats
  - Support national outbreak preparedness
- Has responded to 50 epidemics in 40 countries
- Critical role in H1N1 pandemic



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## Border Health

- San Ysidro Border is the busiest border crossing in the world
  - Over 15 million cars per year
  - Over 50 million people per year



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## Border Health

- San Diego and Tijuana have history of shared TB outbreaks
  - California has double national rate of TB
- Clinics funded by Mexican and US government are showing positive results
- Researchers exploring new issues related to border health
  - Exposure to pollutants at crossings
- See California Office of Binational Border Health for more
  - <http://www.cdph.ca.gov/programs/cobbh/Pages/default.aspx>



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## SAN DIEGO PUBLIC HEALTH



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## San Diego HHSA

- One of five groups of the San Diego County government.
- Different service units
  - Public Health
  - Aging and Independence
  - Children's Mental Health
  - Adult & Older Adult Mental Health
  - Alcohol and Drug
  - Child Welfare
- Supports and facilitates a number of health campaigns and programs



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## SD HHSA Program Example

- Up2sd.org
- An \$8.4 million campaign and program of support for San Diego mental health services
- Designed to help individuals talk about get support for mental illness
- Launching online chat and sms support options soon



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## LiveWell San Diego

- A 10-year Health Strategy Agenda
- Focus on the 3-4-50 concept
  - 3 Behaviors (that are preventable)
    - Poor Nutrition, physical inactivity, tobacco use
  - 4 Diseases
    - Heart disease and stroke, cancer, type 2 diabetes, respiratory conditions (e.g., asthma)
  - 50 % of Deaths



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## LiveWell San Diego

- Focus on four major areas
  - Building a Better System
    - Examining how the country delivers health services
  - Supporting Healthy Choices
    - Information and education to residents
  - Pursuing Policy Changes
    - Changing the community to support health
  - Improving the Culture Within
    - Supporting a healthy San Diego County workforce



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## Examples of LiveWell San Diego

- Fresh Funds Program
  - Provides cash assistance to WIC/CalFresh recipients at local farmers markets for produce purchases
    - 5,000 people and \$110,000 used
- Bike to Work Day/Month
  - 50 organizations & 5,000 people = 84,000 miles traveled in May 2011
- Learn more by reading the first annual report:
  - [http://www.sdcounty.ca.gov/dmpr/gfx/Live\\_Well\\_Annual\\_Report/](http://www.sdcounty.ca.gov/dmpr/gfx/Live_Well_Annual_Report/)



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[www.CaNvPHTC.org](http://www.CaNvPHTC.org)

**THANK YOU!**

**Please Complete Evaluations**



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