An Old Saying

The federal government has most of the money; the states have most of the authority; and local governments have most of the responsibility to carry out public health programs.
OVERVIEW

- What is public health?
- Structure and organization
- Legal authority
- Financing
- Current issues
  - Public Health and Health Reform
  - Health System Preparedness for Threats
  - Immunization Update
WHAT IS PUBLIC HEALTH?
Definitions

The mission of public health is to “fulfill society's interest in assuring conditions in which people can be healthy.” Institute of Medicine

Public health is “the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society.” World Health Organization (WHO)

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” WHO
The Public Health Approach

Focus on populations rather than individuals

Non-medical determinants of health; the daily conditions under which one lives and works or goes to school

- Gender, race, and ethnicity
- Income and occupation
- Educational level
- Socioeconomic status (SES), a combined metric
- Environment
- Health literacy
- Access to health care
- Others
## The Prevention Continuum

<table>
<thead>
<tr>
<th>Absence of disease or of risk factors</th>
<th>Asymptomatic disease, or presence of risk factors</th>
<th>Symptomatic disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY PREVENTION</td>
<td>SECONDARY PREVENTION</td>
<td>TERTIARY PREVENTION</td>
</tr>
<tr>
<td>Community-based prevention</td>
<td>Clinical preventive services</td>
<td>Disease treatment</td>
</tr>
<tr>
<td>Influenza</td>
<td>Immunization</td>
<td>Antiviral drugs</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td><em>Causation not well understood</em></td>
<td>Screening mammography</td>
</tr>
<tr>
<td>Smoking-related illnesses</td>
<td>Tobacco taxes, smoke-free laws</td>
<td>Reimbursement for smoking cessation</td>
</tr>
</tbody>
</table>

**Source**: Developed by Congressional Research Service.
The 10 Essential Public Health Services

Source: “Public Health in America,” statement of the Core Public Health Functions Steering Committee (reps. from federal agencies and national organizations), 1994.
STRUCTURE AND ORGANIZATION
Federal Structure and Organization

Each branch of government plays a role.

Executive branch departments and agencies include:

**HHS**: assistance to states, disease surveillance, health research, medical products and food safety regulation, health care safety net programs

**EPA**: enforcement of clean air and clean water laws, regulation of pesticides and hazardous materials

**USDA**: inspection of meat and poultry products, tracking of animal illnesses that can affect humans

**DHS**: help with border screenings to prevent introduction of diseases; coordination of biodefense detection activities.
State Health Agencies

Each state has a state health agency (SHA) and a state health official (SHO), the lead official for public health.

SHAs *vary considerably* in the scope of public health activities performed.

SHOs may be appointed by elected officials, may have short tenures.
State Health Agency Activities

Most SHAs conduct the following public health activities:

- Childhood vaccine programs, registries
- Testing for bioterrorism agents, foodborne illnesses
- Vital (birth and death) records
- Surveillance and epidemiology of diseases, injuries, and behavioral risk factors
- Newborn disease screening
- Tobacco control
- Prevention activities, including education
- Bioterrorism preparedness and response
- Services for children with special health care needs
- Women, Infants, and Children (WIC) program
- Others

Some SHAs also conduct these public health activities:

- Emergency medical services
- School health services
- Poison control
- Private water supply safety
- Indoor air quality enforcement
- Inspections and licensing: e.g., labs, prisons, hospitals
- Health insurance regulation
- Medicaid and CHIP management
- Others
Local Health Departments

Survey of 2,107 local health departments (LHDs)

**Centralized:** LHDs are under state control in 5 states and DC.

**Decentralized:** LHDs are under local control in 27 states (but must abide by and enforce state/federal laws).

**Shared:** LHDs in 3 states share governance between state and local authorities.

**Mixed:** In 13 states, some LHDs are under state control and others are under local control.

**Source:** National Association of County and City Health Officials (NACCHO), 2010 National Profile of Local Health Departments, 2011. HI and RI were excluded.
LEGAL AUTHORITY
Federal Legal Authority

Federalism is key.

Constitution’s enumerated powers most important for public health:

- Power to tax and spend (the “power of the purse”), Art. I, § 8, cl. 1
- Power to regulate commerce between states and with other nations (the Commerce Clause), Art. I, § 8, cl. 3
Federal Legal Authority (2)

These powers and others allow the federal government to:

- spend federal funds to support public health programs.
- impose taxes for public health purposes (e.g., tobacco).
- attach conditions to the use of federal funds (e.g., conditions of participation for Medicare, Medicaid providers and facilities).
- regulate medical products.
- control diseases at borders (e.g., quarantine, compulsory vaccination requirements for immigrants).
- regulate safety of air, water, and food.
Key Federal Public Health Laws

- **Public Health Service Act**: Broad authority of HHS Secretary to study diseases, award grants, cooperate with state and foreign governments. PHSA authorizes many HHS agencies and programs.

- **Federal Food, Drug, and Cosmetic Act**: FDA’s key authorities to regulate food and medical products.

- **Environmental Laws**: Clean Air Act, Clean Water Act, and Safe Drinking Water Act, among others.

- **Occupational Safety and Health Act**

- **Emergency and Disaster Management**: Homeland Security Act and Stafford Act
Legal Authority of States

Broad authority to make laws and regulations to assure the health and safety of citizens.

State “police power” gives states the right to make laws governing health, safety, and general welfare.

Also, under the doctrine of *parens patriae*, states may intervene to protect interests of persons who cannot do so for themselves (e.g., children, persons with mental illness).
These powers allow states to, for example:

- license and oversee health care workers, and compel disease reporting.
- inspect health care facilities and restaurants, to assure healthy and safe conditions.
- compel disease testing, vaccination, quarantine, other control measures.
- use zoning and traffic laws to improve safety of housing and roadways.
State and Local Legal Authority

Local public health activities are often carried out through delegation of state authority.

States and localities vary in the scope, depth, and specificity of public health laws and regulations.
FINANCING
National Health Expenditure Accounts, 2013

National health expenditures (projected, all sources)
- $2.9 trillion total
- $75.4 billion (2.6%) for public health
- Most health spending is for personal health care.

National *public health* expenditures ($75.4 billion)
- Federal: $10.5 billion (14%)
- State and local: $64.9 billion (86%)

Sources of SHA Revenue, FY2011

- Federal funds, 53%
- State/territory general funds, 24%
- Fees and fines, 4%
- Other sources, 9%
- State/territory other funds, 10%

*Note: Not all states provided values for all revenue sources or expenditure categories. Responses range from 35 to 49 states.

Sources of SHA Federal Revenue, FY2011

- USDA, 55%
- CDC, 16%
- HRSA, 10%
- DHS, 7%
- Medicaid, 4%
- EPA, 3%
- Federal indirect, 3%
- Medicare, 2%

*Note: Not all states provided values for all revenue sources or expenditure categories. Responses range from 29 to 46 states.

Sources of LHD Revenue, FY2010

Source: National Association of County and City Health Officials (NACCHO), 2010 National Profile of Local Health Departments, 2011. HI and RI were excluded.
CURRENT ISSUES:
Public Health and Health Reform
Leading Causes of Death by Percent of All Causes, U.S., 2013

- Heart disease, 23.5%
- Malignant cancers, 22.5%
- Chronic lower respiratory disease, 5.7%
- Accidental injuries, 5.0%
- Suicide, 1.6%
- Alzheimer's disease, 3.3%
- Diabetes mellitus, 2.9%
- Influenza and pneumonia, 2.2%
- Kidney disease, 1.8%
- Stroke, 5.0%
- All other causes, 26.5%
What’s a Government to Do About Lifestyle and Behavior?

Live sensibly - among a thousand people, only one dies a natural death, the rest succumb to irrational modes of living.

Maimonides, 12th century rabbi and physician

Same as it ever was.

Talking Heads, 1980
Primary Care and Public Health Integration

- Institute of Medicine (IOM), 2012

Although primary care and public health share a goal of promoting the health and well-being of all people, these two disciplines historically have operated independently of one another.

New or expanded approaches to foster healthcare/public health partnerships, and (in some cases) public health revenue sources. Some examples:

- Primary care coordination
- Payment reforms
- Hospital community benefit standard
- Reducing hospital readmissions
- Accountable Care Organizations (ACOs)
- Demonstration projects
- Others
Payment Reforms

- Fee-for-Service (FFS) incentivizes “more” care, and limits the provider types who can be reimbursed.

- Payment alternatives:
  - Capitated/bundled/episode of care
  - Shared savings
  - Pay for performance

- Alternatives encourage care coordination and use of multidisciplinary teams.
Hospital Community Benefit Standard

• Not-for-profit hospitals must meet a set of “community benefit” requirements in order to merit their tax-exempt status.

• Obligations include a mix of free and discounted care; research; community education and outreach; others.

• New ACA requirement for triennial “Community Health Needs Assessment” (CHNA), which necessitates health department collaboration.

• At this time, no explicit requirement to act upon CHNA findings.
Accountable Care Organizations (ACOs)

A Medicare shared savings approach under ACA, focused on beneficiaries with chronic conditions.

Features:

- Care teams: doctors, nurses, social workers, care managers, dieticians, and educators
- Patient education and “self-efficacy”
- Public health collaboration is not required.
- However, public health can collaborate with ACOs on needs assessment, performance measurement and improvement, health promotion, and patient engagement.
CMS Innovation Center

- Created in ACA “to test innovative payment and service delivery models to reduce program expenditures...while preserving or enhancing the quality of care furnished to” participants in Medicare, Medicaid, and CHIP.

- Funded models include
  - Many involving payment reforms
  - Pre- and post-natal and infant care
  - Chronic disease prevention for Medicaid and CHIP participants

Source: ACA Sec. 3021 and CMS Innovation Center.
CURRENT ISSUES:
Health System Preparedness
Emerging Public Health Threats

Disease outbreaks
- Foodborne illness
- Pandemic influenza
- Ebola, measles

Weather and other natural disasters

Industrial accidents/spills

Many types of terrorism (e.g., CBRNE, cyber)

Conflict
Federal Funding Here and Abroad

**Domestic**

- Discretionary grant funds to health depts. for *flexible* public health and health system preparedness
- Recently, more federal requirements tied to federal reimbursements (Medicare and Medicaid)

**Global**

Assistance for many initiatives involving, e.g.,

- *Flexible* disease control capacity: surveillance, laboratory capability, and community outreach
- Maternal and child health
- Specific diseases: HIV, malaria, TB, others
Domestic Health System Preparedness

The health care market doesn’t favor spending its own time, money, and effort preparing for events that may never occur.

Dedicated discretionary spending doesn’t go far and is “soft.”

Yet, when a single facility fails during a catastrophe, the burden on the health system and emergency management is substantial.
Proposed New Requirements Under Medicare and Medicaid

Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers, CMS proposed rule, Dec. 27, 2013

Four requirements of *all* facilities/providers:

- Emergency plan
- Policies and procedures
- Communication plan
- Training and testing program

CMS’s estimated total annual cost for all facilities/providers to comply = $225 million.
CURRENT ISSUES: Immunization Update
Global Disease Eradication

Terms

- **Elimination**: Absence of the disease in a region.
- **Eradication**: Permanent elimination worldwide.

What Makes a Disease Eradicable?

- Narrow host range (humans or a single class of domestic animals), limited or no wildlife reservoir.
- Easy to detect and diagnose.
- Effective preventive measure(s) exist.
- Other factors.
Disease Eradication: Exceptional Effort, Exceptional Reward

Successes

- *Smallpox*, 1979
- *Rinderpest* (similar to measles in cattle), 2011

Campaigns in progress

- *Polio*: missed 2000 global goal
- *Guinea worm*: favorable
  - No continuous transmission.
  - Periodic introduced outbreaks.
- Several other parasitic diseases.

Why Do Hockey Players Get Mumps?

Waning immunity?:
- Immunity from vaccination weakens over time.

Vaccine exempters?
- Vaccination rates in Canada similar to U.S., low 90s%

No vaccine is 100% effective.

Close contact.

Photo by Michael Miller.
A Hypothetical Mumps Outbreak: Most Cases Are Among Vaccinated

<table>
<thead>
<tr>
<th></th>
<th>Vaccinated</th>
<th>Unvaccinated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sick</td>
<td>29</td>
<td>15</td>
<td>44</td>
</tr>
<tr>
<td>Not sick</td>
<td>921</td>
<td>35</td>
<td>956</td>
</tr>
<tr>
<td>Total</td>
<td>950</td>
<td>50</td>
<td>1,000</td>
</tr>
</tbody>
</table>

This outbreak among 1,000 people assumes 95% vaccination rate, 90% vaccine effectiveness, and attack rates of 30% among unvaccinated and 3% among vaccinated.

Why Do American Children Get Measles?

Repeated introductions and spread of the disease.

Current outbreak:
- More than 100 cases
- Most unvaccinated
- 17 states
- One initial source
State Vaccination Requirements and Exemptions

All states require childhood vaccines for school entry.

Exemptions provided in state laws:

- Medical (all=51)
- Religious (49/51)
- Philosophical/personal belief (20/51)

State Non-Medical Exemptions from School Immunization Requirements, 2015

Source: National Conference of State Legislatures.
Immunization Rates, U.S., 2013

Percent Coverage Among Young Children

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMR</td>
<td>82</td>
</tr>
<tr>
<td>DTP/DTaP</td>
<td>91</td>
</tr>
<tr>
<td>Polio</td>
<td>82</td>
</tr>
<tr>
<td>Hib</td>
<td>89</td>
</tr>
<tr>
<td>HepB</td>
<td>83</td>
</tr>
<tr>
<td>Varicella</td>
<td>83</td>
</tr>
<tr>
<td>Pneumo</td>
<td>90</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>70</td>
</tr>
<tr>
<td>HepA</td>
<td>76</td>
</tr>
</tbody>
</table>

Measles Outbreak: Observations

- Because measles is so highly contagious, a single spreader in a crowded, cosmopolitan environment can launch a multistate outbreak.

- Because measles is so highly contagious, exposed unvaccinated persons are very likely to become ill.

- Vaccine exempters live in clusters, which facilitates the spread of measles.
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