Next Generation Public Health Delivery: Optimizing Health and Economic Impact

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Failures in health system performance

WHO 2010
Failures in health system performance

Deaths per 100,000 Population
U.S. Average = 103 Deaths per 100,000

Source: Commonwealth Fund 2012
Resource allocation & health system failures

>75% of national health spending is attributable to conditions that are largely preventable

- Cardiovascular disease
- Diabetes
- Lung diseases
- Cancer
- Injuries
- Vaccine-preventable diseases and sexually transmitted infections

<5% of national health spending is allocated to public health and prevention

CDC 2008 and CMS 2011
Governmental Expenditures for Public Health Activity, USDHHS National Health Expenditure Accounts

- Percent of NHE (x100)
- Percent of GDP (x1000)
- Per capita ($100s nominal)
- Per capita ($100s constant)

U.S. Centers for Medicare and Medicaid Services, Office of the Chief Actuary
Who pays for public health?

Governmental Expenditures for Public Health Activity, USDHHS National Health Expenditure Accounts

- State and local
- Federal

U.S. Centers for Medicare and Medicaid Services, Office of the Chief Actuary
Mismatch between resources & responsibilities

Organized programs, policies, and laws to prevent disease and injury and promote health on a population-wide basis

- Epidemiologic surveillance & investigation
- Community health assessment & planning
- Communicable disease control
- Chronic disease and injury prevention
- Health education and communication
- Environmental health monitoring and assessment
- Enforcement of health laws and regulations
- Inspection and licensing
- Inform, advise, and assist school-based, worksite-based, and community-based health programming

...and roles in assuring access to medical care
Challenges in public health delivery

- Lack of clear, coherent mission and expectations
- Complex, fragmented, variable delivery systems
- Resources ≠ preventable disease burden
- Large inequities in resources & capacity
- Variable productivity and efficiency
- Gaps in evidence base for public health delivery
- Inability to demonstrate value/return on investment
Public health delivery systems

National Longitudinal Survey of Public Health Systems

Delivery of recommended public health activities

<table>
<thead>
<tr>
<th>Year</th>
<th>Assurance</th>
<th>Policy</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
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</tbody>
</table>

↑ 10%  
↓ 5%

Organizations engaged in local public health delivery

% Change 2006-2012

Local health agency
Other local government
State health agency
Other state government
Hospitals
Physician practices
Community health centers
Health insurers
Employers/business
Schools
CBOs

Scope of Delivery 2012

Seven types of public health delivery systems

<table>
<thead>
<tr>
<th>Scope</th>
<th>High</th>
<th>High</th>
<th>High</th>
<th>Mod</th>
<th>High</th>
<th>Low</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralization</td>
<td>Mod</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Integration</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Mod</td>
<td>Mod</td>
<td>Low</td>
<td>Mod</td>
</tr>
</tbody>
</table>

Source: Mays et al. 2010; 2012
Changes in health associated with delivery system

Percent Changes in Preventable Mortality Rates by System Typology

Fixed-effects models control for population size, density, age composition, poverty status, racial composition, and physician supply.
Variation in Local Public Health Spending

Gini = 0.485
Changes in Local Public Health Spending
1993-2010

- 62% growth
- 38% decline
Mortality reductions attributable to local public health spending, 1993-2008

Hierarchical regression estimates with instrumental variables to correct for selection and unmeasured confounding

Mays et al. 2011
Medical cost offsets attributable to local public health spending, 1993-2008

For every $10 of public health spending, ≈$9 are recovered in lower medical care spending over 15 years

Economies of scale and scope in public health delivery systems

Source: 2010 NACCHO National Profile of Local Health Departments Survey
Economies of scale and scope in public health delivery

Mays et al. 2013
Gains from regionalizing public health delivery

Mays et al. 2013
Next generation public health delivery

Public health agency as chief health strategist

- Articulate population health needs & priorities
- Engage community stakeholders
- Plan with clear roles & responsibilities
- Recruit & leverage resources
- Develop and enforce policies
- Ensure coordination
- Promote evidence-based practices
- Monitor and feed back results
- Mobilize performance improvement
- Ensure transparency & accountability: resources, results, ROI
Why change now?

Hospital community benefit regs

Funding constraints

Accountable care organizations

Patient centered medical homes

Employer wellness incentives

Health insurance expansions

Health information exchange

Accreditation

Next Generation Public Health Delivery
Toward a “rapid-learning system” in public health

In a learning health care system, research influences practice and practice influences research.

- **Evaluate**: Collect data and analyze results to show what does and does not work.
- **Implement**: Apply the plan in pilot and control settings.
- **Design**: Design care and evaluation based on evidence generated here and elsewhere.
- **Adjust**: Use evidence to influence continual improvement.
- **Disseminate**: Share results to improve care for everyone.
- **Internal and External Scan**: Identify problems and potentially innovative solutions.

Public Health Practice-Based Research Networks (PBRNs)

- First cohort (December 2008 start-up)
- Second cohort (January 2010 start-up)
- Affiliate/Emerging PBRNs (2011-13)
# PBRNs and Delivery System Change

## Local Health Departments Engaged in Research Implementation & Translation Activities During Past 12 months

<table>
<thead>
<tr>
<th>Activity</th>
<th>PBRN Agencies Percent/Mean</th>
<th>National Sample Percent/Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying research topics</td>
<td>94.1%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Planning/designing studies</td>
<td>81.6%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Recruitment, data collection &amp; analysis</td>
<td>79.6%</td>
<td>50.3%</td>
</tr>
<tr>
<td>Disseminating study results</td>
<td>84.5%</td>
<td>36.6%</td>
</tr>
<tr>
<td>Applying findings in own organization</td>
<td>87.4%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Helping others apply findings</td>
<td>76.5%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Research implementation composite</td>
<td>84.04 (27.38)</td>
<td>30.20 (31.38)</td>
</tr>
<tr>
<td>N</td>
<td>209</td>
<td>505</td>
</tr>
</tbody>
</table>
The bottom line

- Business as usual is increasingly not an option
- Someone must assume responsibility for leading the public health delivery system
- A focus on catalytic functions can improve public health delivery
- Fundamentally, it’s about equity in public health protection
- If not governmental public health, then who?
For More Information

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