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Optimizing the Value of Public Health Services: Lessons from Research & Practice

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More than 75% of total U.S. healthcare costs derive from preventable conditions.

Thorpe KE, Ogden L. What accounts for the rise in health care spending? Emory University, 2008.
Less than 3% of total U.S. health expenditures are devoted to public health & prevention.

USDHHS. National Health Expenditure Accounts 2012
Of the $80 Billion in annual governmental public health spending in the U.S.

86% derive from state and local sources.

USDHHS. National Health Expenditure Accounts 2012
More than 78% of local public health delivery costs derive from labor.
U.S. communities that increased public health spending by 10% experienced an 8% reduction in preventable mortality rates over the 1993-2008 period.

Mays GP, Smith SA. Evidence links increases in public health spending to declines in preventable deaths. Health Affairs. 2011
For every $10 of public health spending in the average U.S. community:

was recouped through lower medical care spending over 15 years (1993-2008).

Mays GP forthcoming 2013
The delivery of recommended public health services declined by 5% in the average U.S. community between 2006 and 2012.

Private and voluntary organizations contributed more than 64% of the public health activities performed in the average U.S. community in 2012.

USDHHS Budget Request, 2013

Selected Affordable Care Act spending
Scheduled for 2013-14

$40M  CDC National Public Health Improvement Initiative

$146M  CDC Community Transformation Grants

$1B  CMS Health Care Innovation Awards
    - Better care
    - Lower costs
    - Improved population health
Public Health Delivery by the Numbers

- The public health workforce provides an **engine** for building a higher-performing, equitable, sustainable health system.
- A focus on **catalytic functions** can improve the value of public health delivery.
- **Research** is required to optimize the potential of the workforce to deliver what works in public health.
- Traditional research production models are **inadequate**:
  - Research embedded in real world-practice settings
  - Rapid-cycle research on innovations in practice
  - Accelerated translation, dissemination, and implementation of findings
The health system as a public health threat

![Graph comparing average life expectancy and per capita spending among countries. The graph shows a trend where countries with higher per capita spending do not necessarily have higher life expectancy.](WHO_2010)
The health system as a public health threat

Source: Commonwealth Fund 2012
Resource allocation as a public health threat

>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
Resource allocation as a public health threat

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
The 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
Complex public health delivery systems

Public health system performance

Delivery of recommended public health activities

Organizations engaged in local public health delivery

% Change 2006-2012

-50%  -30%  -10%  10%  30%  50%

Scope of Delivery 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

The seven types of public health delivery systems

<table>
<thead>
<tr>
<th>Breadth</th>
<th>1998</th>
<th>2006</th>
<th>2012</th>
</tr>
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<tbody>
<tr>
<td>High</td>
<td>Mod</td>
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<td>Mod</td>
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<tr>
<td>High</td>
<td>Low</td>
<td>Mod</td>
<td>Mod</td>
</tr>
</tbody>
</table>

Source: Mays et al. 2010; 2012

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Comprehensive

Conventional

Limited

Source: Mays et al. 2010; 2012
The health impact of public health delivery systems

Fixed-effects models control for population size, density, age composition, poverty status, racial composition, and physician supply.

Percent Changes in Preventable Mortality Rates by System Typology

- Infant Deaths/1000 Births
- Cancer deaths/100,000 population
- Heart Disease Deaths/100,000
- Influenza Deaths/100,000
- Infectious Disease Deaths/100,000
Inequities in local public health spending

Gini = 0.485

Expenditures per capita, 2010
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?

Next Generation Public Health Delivery

- Hospital community benefit regs
- Funding constraints
- Accountable care organizations
- Employer wellness incentives
- Patient centered medical homes
- Health insurance expansions
- Health information exchange
- Accreditation
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>
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<tr>
<td>Helping others apply findings</td>
<td>76.5%</td>
<td>18.0%</td>
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<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>
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</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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