Building the Science of Delivery: Advances in Public Health Services and Systems Research

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Building the Science of Public Health Delivery:
Public Health Services & Systems Research

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Fundamental failures in health system performance

WHO 2010
Fundamental failures in health system performance

Source: Commonwealth Fund 2012
>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
Public health services & systems research

A field of inquiry examining the organization, financing, and delivery of public health services at local, state and national levels, and the impact of these activities on population health

Mays, Halverson, and Scutchfield. 2003
PHSSR’s place in the continuum

**Intervention Research**
- What works – proof of efficacy
- Controlled trials
- *Guide to Community Preventive Services*

**Services/Systems Research**
- How to organize, implement and sustain in the real-world
  - Reach
  - Enforcement/Compliance
  - Quality/Effectiveness
  - Cost/Efficiency
  - Equity/Disparities
- Impact on population health
- Comparative effectiveness & efficiency
Subtitle D—Support for Prevention and Public Health Innovation

Patient Protection and Affordable Care Act of 2010

SEC. 4301. RESEARCH ON OPTIMIZING THE DELIVERY OF PUBLIC HEALTH SERVICES.

(a) IN GENERAL.—The Secretary of Health and Human Services (referred to in this section as the “Secretary”), acting through the Director of the Centers for Disease Control and Prevention, shall provide funding for research in the area of public health services and systems.

(b) REQUIREMENTS OF RESEARCH.—Research supported under this section shall include—

(1) examining evidence-based practices relating to prevention, with a particular focus on high priority areas as identified by the Secretary in the National Prevention Strategy or Healthy People 2020, and including comparing community-based public health interventions in terms of effectiveness and cost;

(2) analyzing the translation of interventions from academic settings to real world settings; and

(3) identifying effective strategies for organizing, financing, or delivering public health services in real world community settings, including comparing State and local health department structures and systems in terms of effectiveness and cost.
Complex production processes

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 interventions
- Health education and communication
- Environmental health monitoring and assessment
- Enforcement of health laws and regulations
- Inspection and licensing: food, facilities, services
- Inform, advise, and assist school-based, worksite-based, and community-based health programming

...and roles in assuring access to medical care
Geographic variation in public health spending: What Would Wennberg Do?

Gini = 0.485

Expenditures per capita, 2008

Mays et al. HSR 2009
Determinants of public health spending variation

- Population needs and risks
- Economic and fiscal capacity (income & housing wealth)
- Efficiency & uncertainty

Mays et al. HSR 2009
Economic Shocks and Public Health Delivery

Delivery of recommended public health activities

% of activities

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

1998 2006 2012

↑ 10%
↓ 5%

Assurance  Policy  Assessment

Organizations engaged in local public health delivery

<table>
<thead>
<tr>
<th>% Change 2006-2012</th>
<th>Scope of Delivery 2012</th>
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<tr>
<td>-50%</td>
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- Local health agency
- Other local government
- State health agency
- Other state government
- Hospitals
- Physician practices
- Community health centers
- Health insurers
- Employers/business
- Schools
- CBOs

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

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**
- Internal and External Scan
- Identify problems and potentially innovative solutions

**External**

Public Health Practice-Based Research Networks (PBRNs)

- First cohort (December 2008 start-up)
- Second cohort (January 2010 start-up)
- Affiliate/Emerging PBRNs (2011-13)
For More Information

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