Trends in Health Care Delivery Systems: Implications for Cancer Prevention and Control

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Issues for us to consider

- How are the delivery systems for health care and public health changing?
- What factors are driving these changes?
- What impact are these changes having on access, quality, efficiency, & disparities?
- How will these changes affect cancer prevention, diagnosis, treatment and outcomes?
Figure 1. There are large differences in life expectancy and health care spending across OECD countries 2008¹

1. Or latest year available.
Source: OECD Health Data 2010.
U.S. Men and Women Under Age 65 Have Higher Rates of Potentially Preventable Deaths
Slowest Rate of Improvement, 1999–2007

Amenable mortality, men ages 0–64

Amenable mortality, women ages 0–64

Age-standardized death rate/100,000

1999 2007

FRA  GER*  UK  US

FRA  GER*  UK  US

* Data for Germany are 1999 and 2006.
Delivery system failures

Premature Deaths per 100,000 Residents

Commonwealth Fund 2012
Health care delivery systems defined

The full constellation of organizations and professionals that contribute to the delivery of health services and supports for a defined population

- Medical care
- Public health
- Social services & supports
- Prevention
- Diagnosis
- Treatment
- Management
Why delivery systems often fail

Medical Care
- Fragmentation
- Duplication
- Variability in practice
- Limited accessibility
- Episodic and reactive care
- Insensitivity to consumer values & preferences
- Limited targeting of resources to community needs

Social Supports

Public Health
- Fragmentation
- Variability in practice
- Resource constrained
- Limited reach
- Insufficient scale
- Limited public visibility & understanding
- Limited evidence base
- Slow to innovate & adapt

Inefficient delivery

Inequitable outcomes

Limited population health impact
Why delivery systems should integrate medical, social and public health services?

- Unmet social needs have large effects on medical resource use, prevention, and health outcomes.
- Most physicians lack confidence in their capacity to address unmet social needs.
- Linking people to needed health and social support services is a core public health function requiring public health infrastructure:
  - Surveillance
  - Assessment
  - Planning
  - Health education
  - Community mobilization
  - Policy development
What makes delivery system integration so hard?

- Incentive compatibility → public goods
- Concentrated costs & diffuse benefits
- Time lags: costs vs. improvements
- Uncertainties about what works
- Asymmetry in information
- Difficulties measuring progress
- Weak and variable institutions & infrastructure
- Imbalance: resources vs. needs
- Stability & sustainability of funding
Population health and integrated delivery system strategies

- Designed to achieve **large-scale** health improvement: neighborhood, city/county, region
- Target **fundamental** and often **multiple** determinants of health
- Mobilize the **collective actions** of multiple stakeholders in government & private sector
  - Align incentives
  - Align systems

The Affordable Care Act and Health System Reform

- Insurance coverage expansion
  - Insurance markets: pricing and underwriting
  - Individual and employer mandate
  - Subsidies and Medicaid expansion

- Health care delivery system reforms
  - Organization & delivery
  - Payment

- Population health system reforms
  - Hospital community benefit
  - Prevention & Public Health Fund
  - Wellness & prevention incentives
Kentucky’s ACA status

413,000 enrolled through Kynect
- 330,615 Medicaid
- 82,792 private insurance
- \( \approx 75\% \) previously uninsured
- \( \approx 52\% \) under age 35

Organization and payment demonstrations
- ACOs
- Bundled payment
- Comprehensive primary care (PCMH)
- FQHC Advanced Primary Care Practice (PCMH)
- Start Strong MCH
- State Innovation Model

Uninsured: 20.4% → 9.0%
Prevalence of ACO’s in 2015

Source: Leavitt Partners Center for Accountable Care Intelligence
Population covered by ACOs in 2015

Source: Leavitt Partners Center for Accountable Care Intelligence
Primary Care Delivery Models

- Traditional practice
- Patient-Centered Medical Home
- Nurse-Managed Health Center

Staffing per 10,000 patients:
- MD: 6.9; NP+PA: 2.6
- MD: 6.1; NP+PA: 3.7
- MD: 0.8; NP: 10.4

Prevalence:
- 84%
- 15%
- 0.5%

Source: Auerbach Health Affairs 2013
Projections of PCMH and NMHC growth to 2025

PCMH to 45%  NMHC to 5%

New models do not diffuse  Both models diffuse  ...and PCMH panel size increases 20%

Source: Auerbach Health Affairs 2013
What about public health and prevention delivery systems?

- Which organizations contribute to the implementation of public health activities in local communities?

- How do these contributions change over time? Recession, recovery, ACA implementation?

- How do patterns of interaction in public health production influence quantity, quality, cost & population health?
Mapping U.S. public health delivery systems

National Longitudinal Survey of Public Health Systems

Node size = centrality of organization in network
Line size = % activities jointly contributed (tie strength)

Mays et al. Preventing Chronic Disease 2010
Understanding variation in delivery system performance
National Longitudinal Survey of Public Health Systems

Percent of U.S. communities

Percent of activities performed

National Longitudinal Survey of Public Health Systems, 2014
Variation and Change in Delivery
Delivery of recommended public health activities, 2006-12

Quintiles of communities
-40% -20% 0% 20% 40% 60% 80% 100%
Q1 Q2 Q3 Q4 Q5

2012
Δ 2006-12

% of recommended activities performed

Δ 2014:
-4.5% -1.2% +0.5% +2.6% +5.1%

Quintiles of communities
### Classifying delivery system configurations in public health


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<th>Scope</th>
<th>Centralization</th>
<th>Integration</th>
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Mays et al. *Milbank Quarterly* 2010
Bridging capital in public health delivery systems
Trends in betweenness centrality

* Change from prior years is statistically significant at p<0.05
Estimating value: Comprehensive delivery system partnerships do more with less

National Longitudinal Survey of Public Health Systems, 2014

Mays et al. forthcoming 2015
Models also control for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects.

N=779 community-years  **p<0.05   *p<0.10

Mays et al. forthcoming 2015
The case for equity: larger gains in low-resource communities

Effects of Public Health System Capital in Low-Income vs. High-Income Communities

Log IV regression estimates controlling for community-level and state-level characteristics

Mays et al. forthcoming 2015
Innovations in system alignment
Hennepin Health ACO

- Partnership of county health department, community hospital, and FQHC
- Accepts full risk payment for all medical care, public health, and social service needs for Medicaid enrollees
- Fully integrated electronic health information exchange
- Heavy investment in care coordinators and community health workers
- Savings from avoided medical care reinvested in public health initiatives
  - Nutrition/food environment
  - Physical activity
Innovations in system alignment
Massachusetts Prevention & Wellness Trust Fund

- $60 million invested from nonprofit insurers and hospital systems
- Funds community coalitions of health systems, municipalities, businesses and schools
- Invests in community-wide, evidence-based prevention strategies with a focus on reducing health disparities
- Savings from avoided medical care are expected to be reinvested in the Trust Fund activities
Innovations in alignment
Arkansas Community Connector Program

- Use community health workers & public health infrastructure to identify people with unmet social support needs
- Connect people to home and community-based services & supports
- Link to hospitals and nursing homes for transition planning
- Use Medicaid and SIM financing, savings reinvestment
- ROI $2.92

Source: Felix, Mays et al. *Health Affairs* 2011

www.visionproject.org
Implications for Cancer Registries

- Large gaps in cancer prevention, screening, and treatment persist
- Delivery system change: organizations are renegotiating roles and responsibilities in cancer care delivery
- Improvements in delivery system coordination and integration are imperative
- Cancer registries can provide the information to monitor progress and mobilize alignment
How Can Evidence & Applied Research Help?

- Identify common interests, incentives & problems
- Mitigate gaps in information and evidence
- Use theory, evidence & experience to design strategies with high probability of success
- Measure progress & provide feedback
  - Fail fast
  - Continuously improve
- Evaluate health & economic impact
Finding the system connections

- Act on aligned incentives
- Exploit the disruptive policy environment
- Innovate, prototype, study – then scale
- Pay careful attention to shared governance, decision-making, and financing structures
- Demonstrate value and accountability to the public
Toward a “rapid-learning system” in population 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.

- **Adjust**
  - Use evidence to influence continual improvement.

- **Disseminate**
  - Share results to improve care for everyone.

- **Implement**
  - Apply the plan in pilot and control settings.

- **Design**
  - Design care and evaluation based on evidence generated here and elsewhere.

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

- **External**
For More Information

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