University of Kentucky

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Using Practice-Based Research Networks for Next-Generation Public Health

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Practice-Based Research Networks for Next-Generation Public Health

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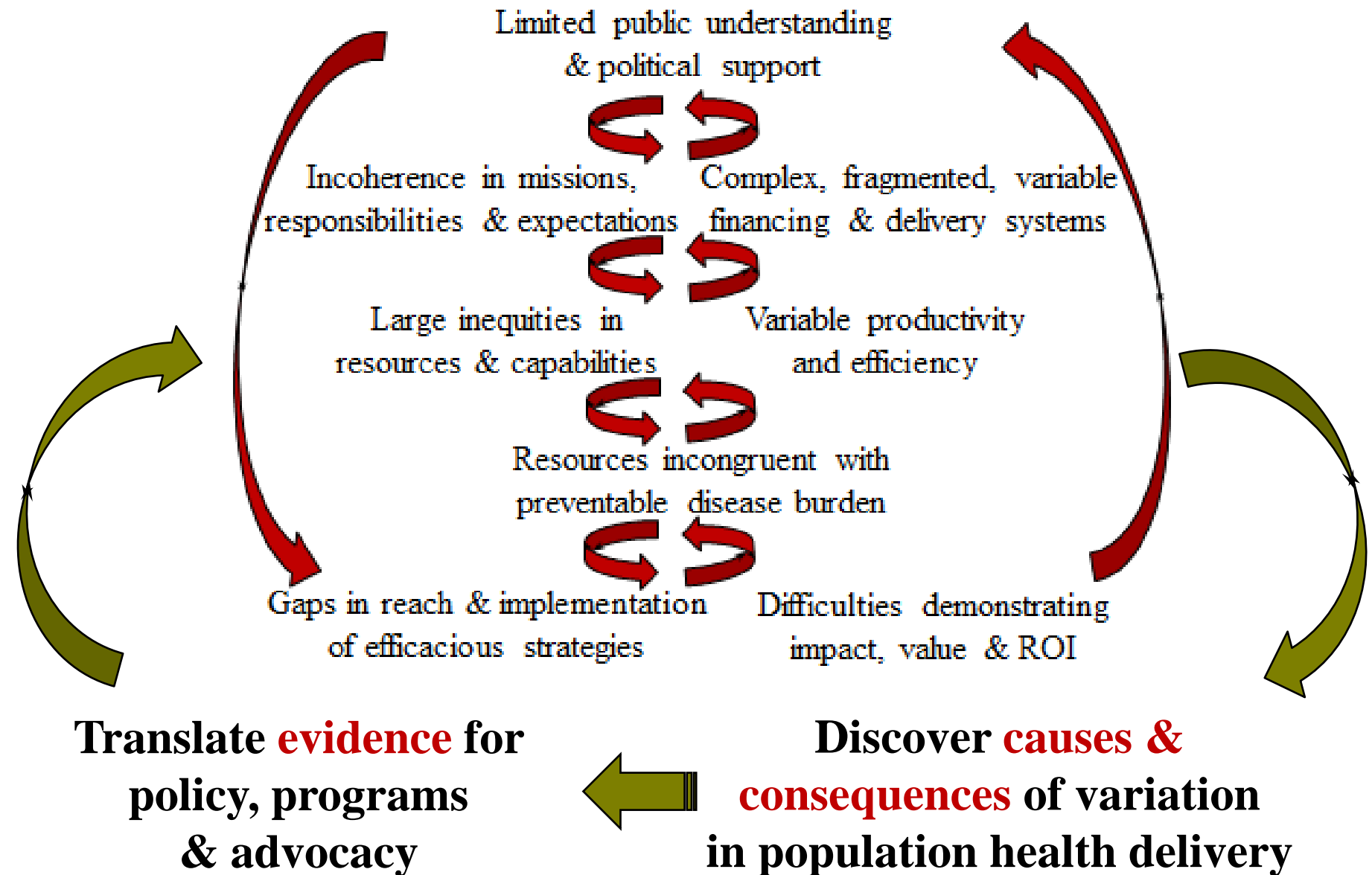
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Missed opportunities in public health delivery

Evidence-based public health strategies reach **less than half** of U.S. populations at risk:

- Smoking prevention & cessation

- Influenza vaccination

- Hypertension control

- Family planning

- Substance abuse prevention

- Interpersonal violence prevention

- Nutrition & physical activity programs

- HIV, STI, Hepatitis prevention/control

- Maternal and infant home visiting for high-risk populations

Vicious cycles to learning systems

Limited public understanding
& political support

Incoherence in missions,
responsibilities & expectations

Complex, fragmented, variable
financing & delivery systems

Large inequities in
resources & capabilities

Variable productivity
and efficiency

Resources incongruent with
preventable disease burden

Gaps in reach & implementation
of efficacious strategies

Difficulties demonstrating
impact, value & ROI

**Translate evidence for
policy, programs
& advocacy**

**Discover causes &
consequences of variation
in population health delivery**

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*

Strategies to promote health and prevent disease & injury on a population-wide basis: programs, policies, administrative practices

Mays, Halverson, and Scutchfield. 2003

What is Practice-Based Research?

- Research that tests effectiveness & impact of public health practices in real-world ***public health settings***

- Research designed to address uncertainties and information needs of real-world public health ***decision-makers***

- Research that evaluates the implementation and impact of ***innovations in practice***

- Research that uses ***observations generated through public health practice*** to produce new knowledge

PBRNs as mechanisms for translational research in public health
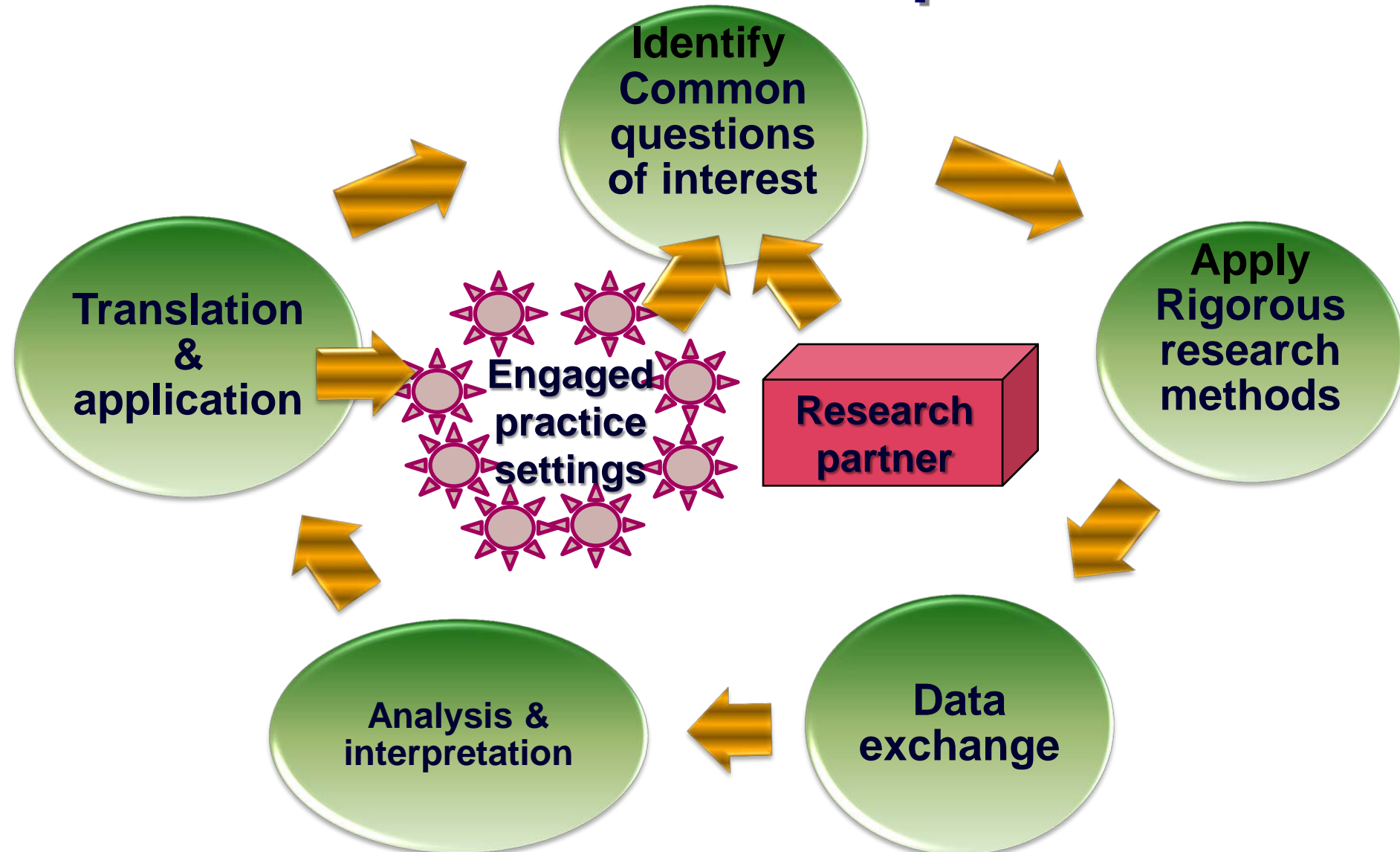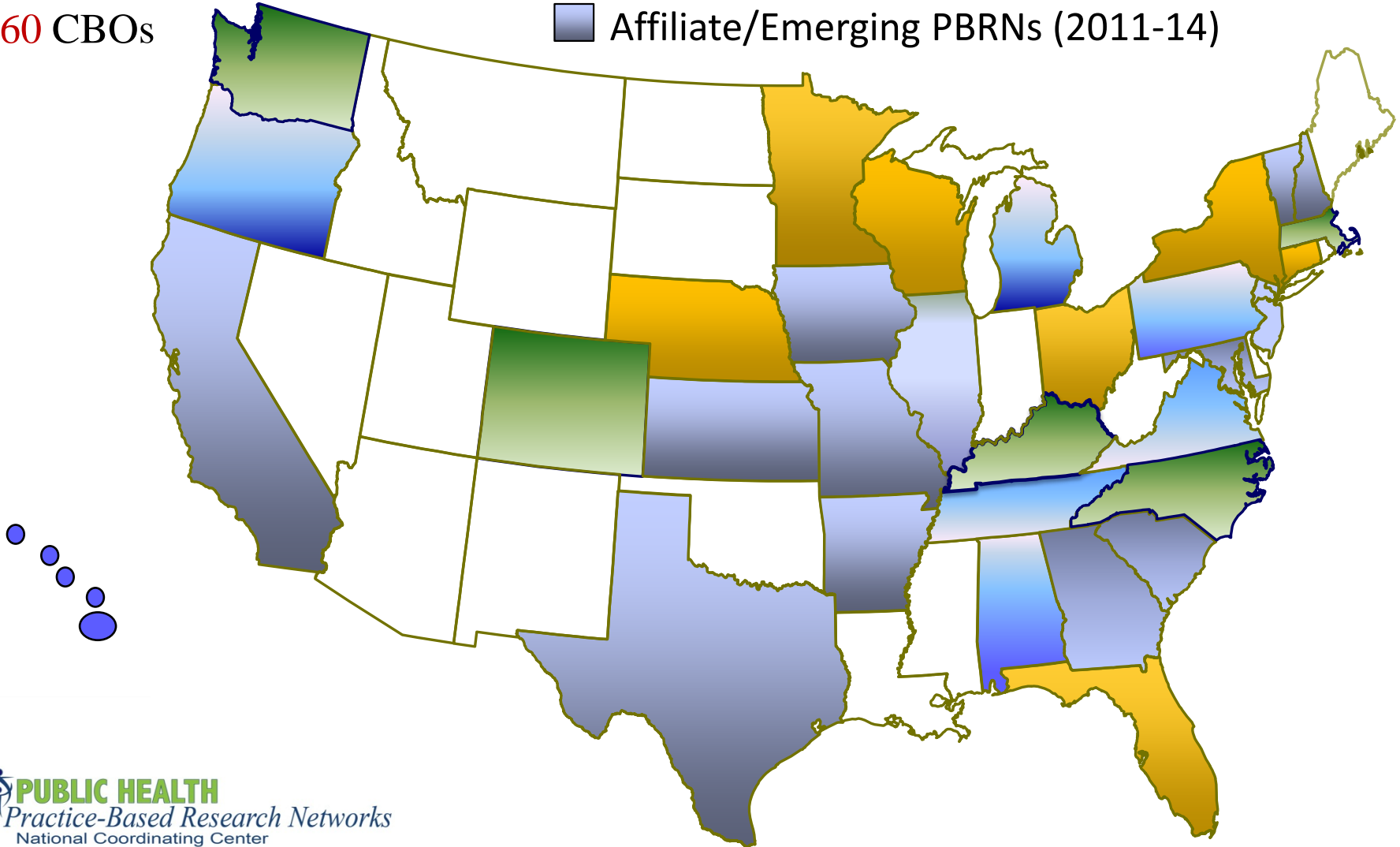
Diffusion of Public Health PBRNs

>1900 public health agencies
56 universities
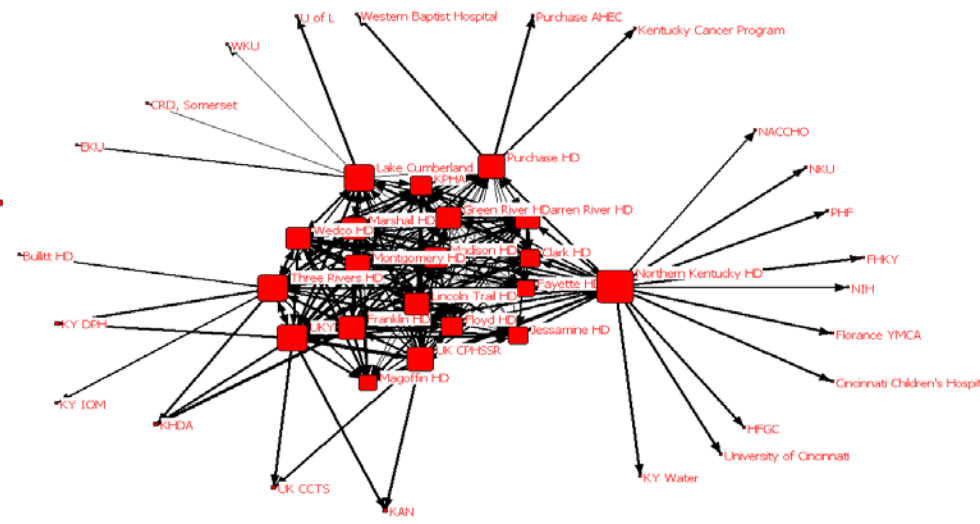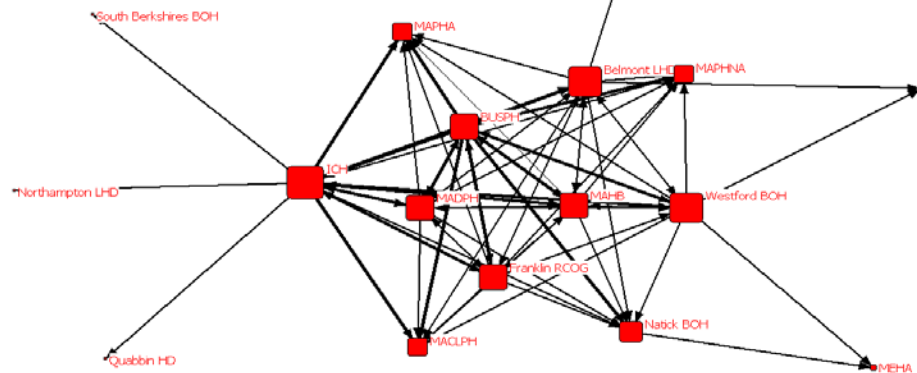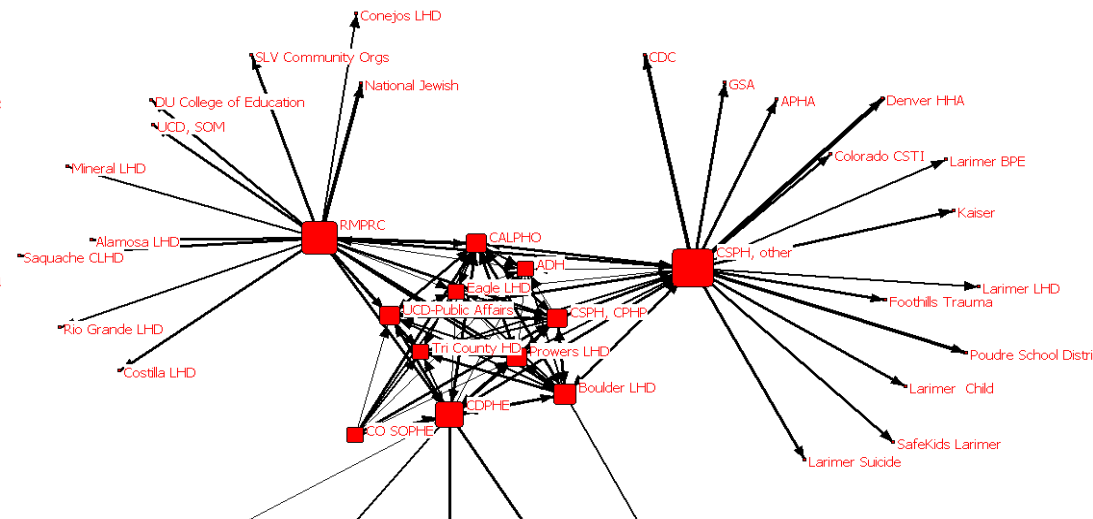>60 CBOs

- First cohort (December 2008 start-up)
- Second cohort (January 2010 start-up)
- Affiliate/Emerging PBRNs (2011-14)

PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

PBRNs as Research Mechanisms

- Baseline network analysis with 14 PBRNs to examine *network structures* for evidence production and translation
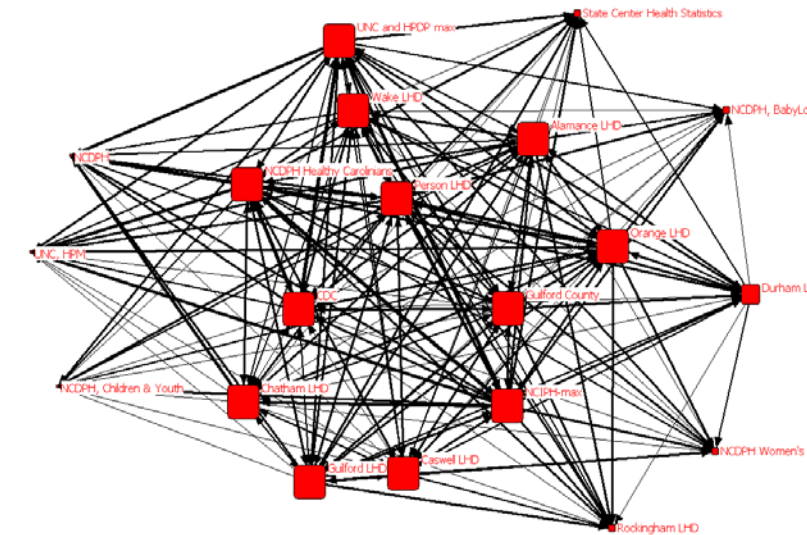
Studying PBRNs as Mechanisms
Roles played by participants in PBRN activities

Mays et al. Am J Prev Med. 2013 Dec;45(6):752-62

Studying PBRNs as Mechanisms

Network Structures Associated with Perceived Benefits

Characteristic	Perceived Benefit Rating	
	Coeff.	S.E.
Network density	0.341	0.112**
Network centrality	-0.521	0.227**
History of collaboration	0.148	0.108
Practice orientation	0.283	0.144*

Estimates from ordered logit model controlling for PBRN random effects   **p<0.05   *p<0.10

PBRNs and Delivery System Change

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

Activity	PBRNs %/Mean		National %/Mean		
Identifying research topics	94.1%		27.5%		***
Planning/designing studies	81.6%		15.8%		***
Recruitment, data collection & analysis	79.6%		50.3%		**
Disseminating study results	84.5%		36.6%		**
Applying findings in own organization	87.4%		32.1%		**
Helping others apply findings	76.5%		18.0%		***
Research implementation composite	84.04	(27.38)	30.20	(31.38)	**
N	209		505		

Reach by the numbers

- **139** competitively awarded research projects

- **104** articles in peer-reviewed journals

- **244** presentations and conferences & meetings

- **51** reports & tools in the grey literature

- **>2000** organizations engaged in PBRNs

- **>39,000** downloads of *Frontiers in PHSSR* articles

- **>8,000** downloads from Research Archive

- **>9,000** page views on ***PublicHealthEconomics.org*** blog

Key elements of success with community engaged scholarship & collective action

- Clear goals

- Congruence between resources & objectives

- Explicit incentives & constraints

- Monitoring mechanisms

By John Kania & Mark Kramer
| 65 | Winter 2011

- Small wins

- Conflict resolution mechanisms

- Effective communication and information flow

- Nested & embedded activities

Can PBRNs help transform public health to Next-Gen Population Health?

- 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

  - Usual and unusual suspects

Mays GP. Governmental public health and the economics of adaptation to public health strategies. **IOM Population Health Roundtable**. 2014.
http://iom.edu/Global/Perspectives/2014/EconomicsOfAdaptation.aspx

What Makes Population Health Strategies So Hard?

GOVERNING the COMMONS

ELINOR OSTROM

The Evolution of Institutions for Collective Action

2009 Nobel Prize Winner

Political Economy of Institutions and Decisions

- 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
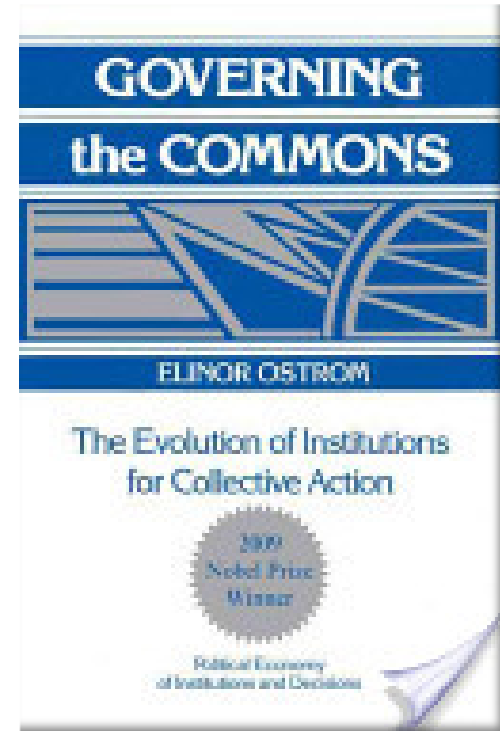
# PBRNs and D&I Science

Successful strategies to scale up and spread complex community-level interventions require an understanding of the resources required for implementation, how best to distribute them among supporting institutions, and how resource consumption and distribution varies across settings.
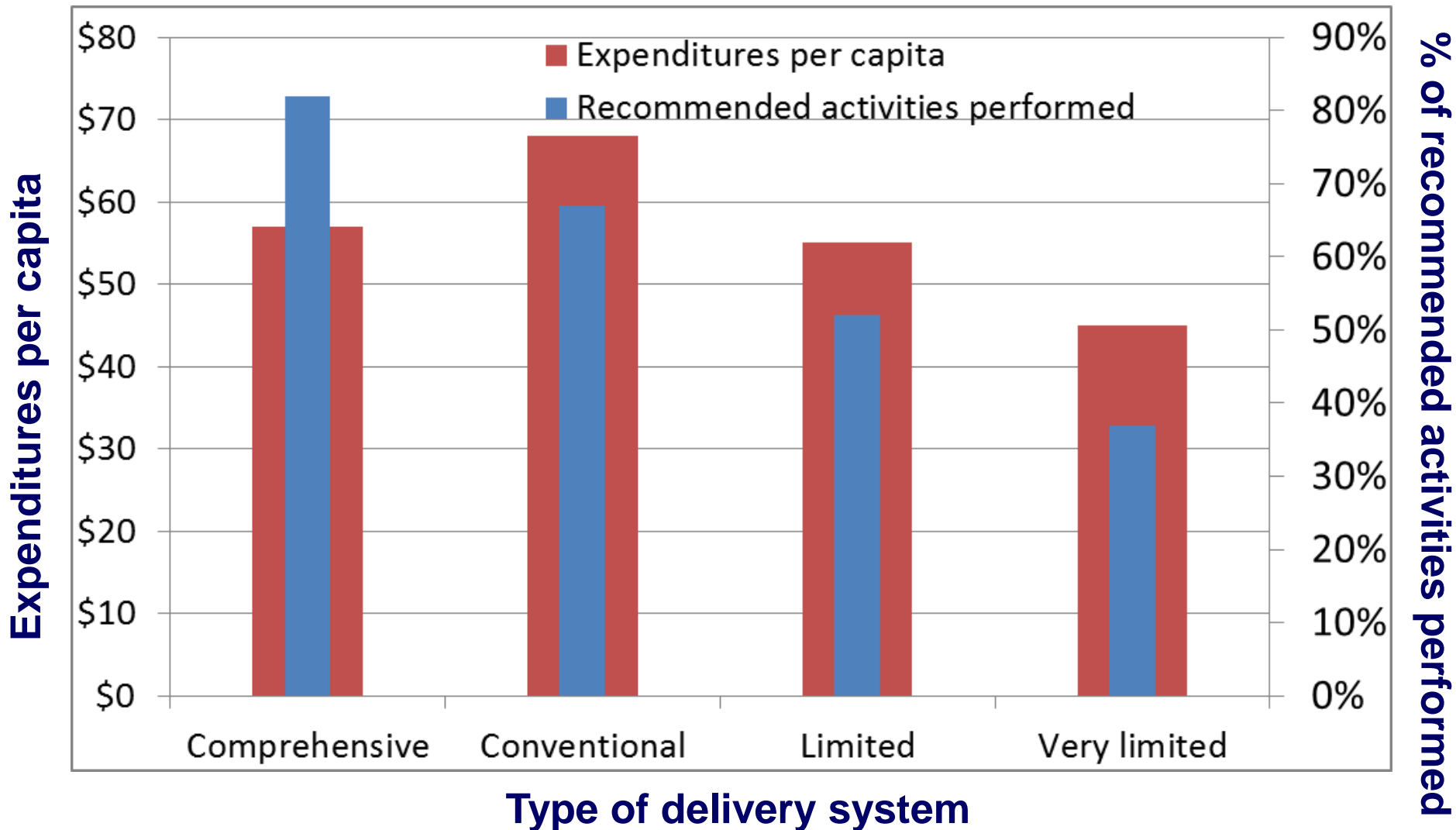
Overall Patterns of Variation in Local Public Health Implementation

Results from Multi-Nework Practice and Outcome Variation Study (MPROVE)
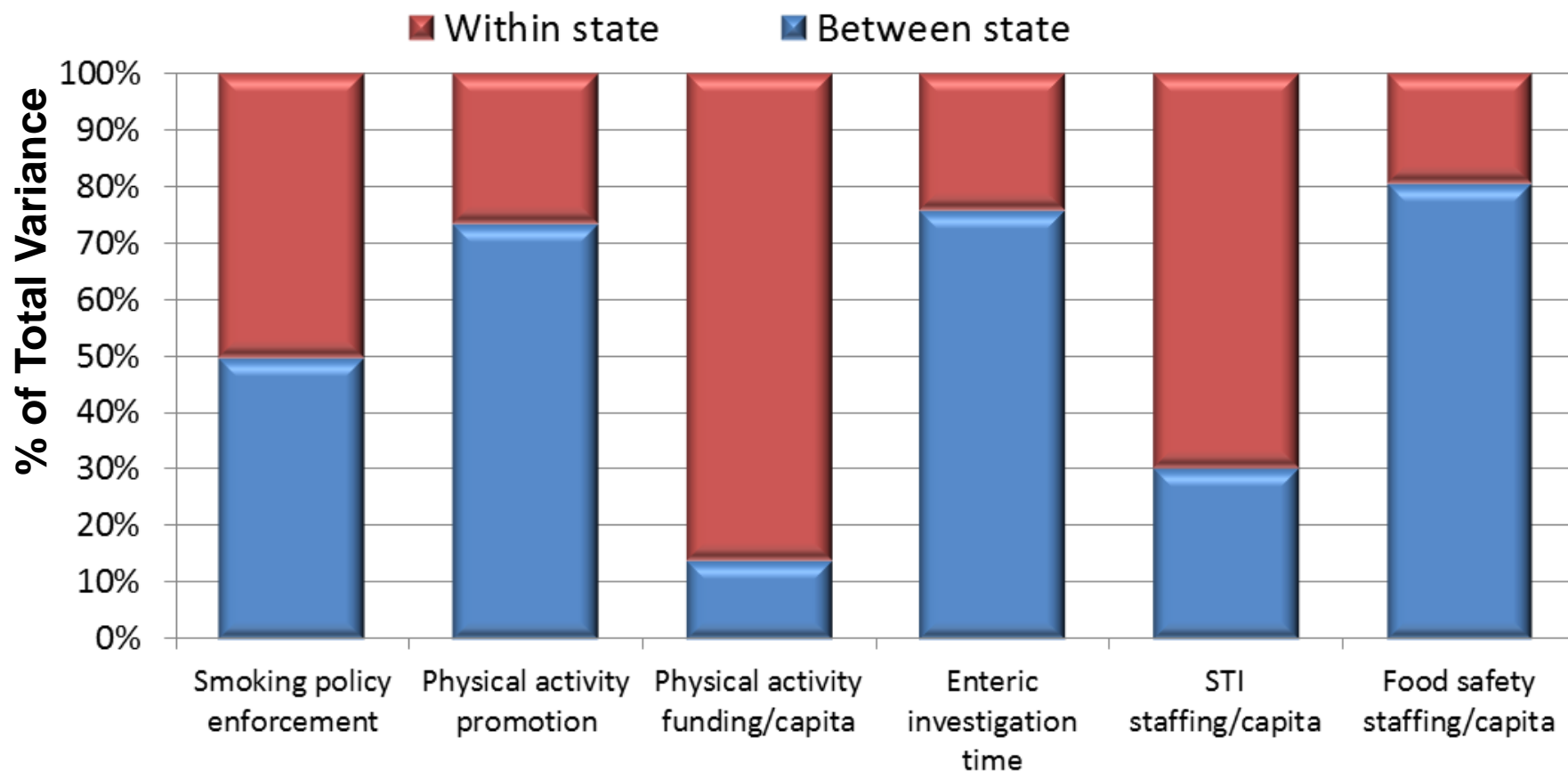
Estimates from random effects regression models

Integrated public health systems do more with less

National Longitudinal Survey of Public Health Systems, 1998-2012

Why next-gen now?

Hospital community benefit regs

Innovation Center Funding

Funding constraints

ACOs and PCMHs

Value-based payment

Next Generation Population Health Improvement

Employer wellness incentives

Health insurance expansions

Community Transformation Grants

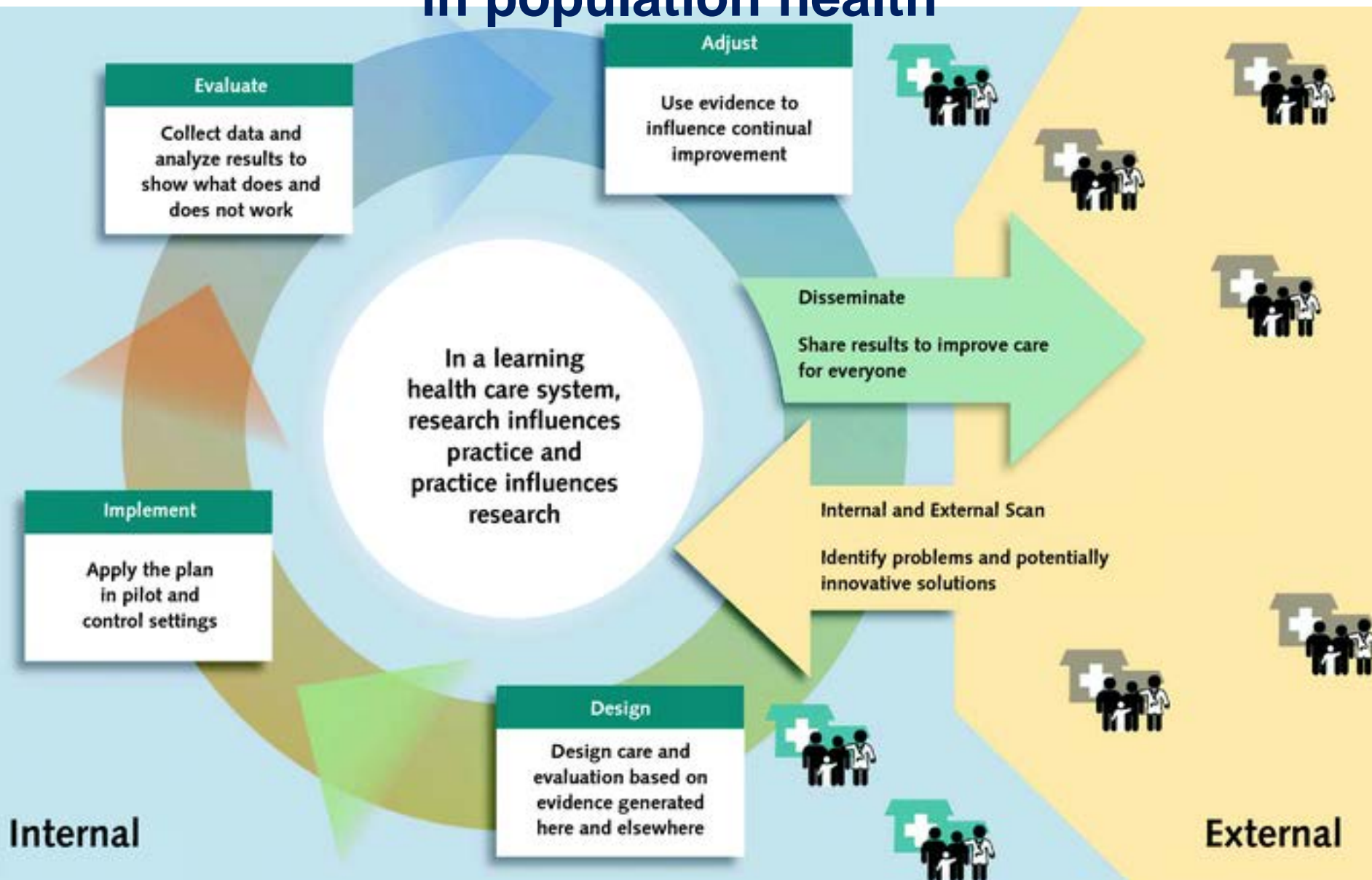Health information exchange

Public health Accreditation

How can practice-based research help?

- Identify common interests, incentives & problems

- Mitigate asymmetries in power & information

- Use theory, evidence & experience to design strategies with high probability of success

- Measure progress & provide feedback

  - Fail fast

  - Continuously improve

- Evaluate health & economic impact

Toward a "rapid-learning system" in population health

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

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

Internal and External Scan
Identify problems and potentially innovative solutions

Implement
Apply the plan in pilot and control settings

Design
Design care and evaluation based on evidence generated here and elsewhere

Internal

External

Green SM et al. *Ann Intern Med*. 2012;157(3):207-210

More Information - Always Open

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