Public Health Research Implementation and Translation

Evidence from Practice-Based Research Networks

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Background: Research on how best to deliver efficacious public health strategies in heterogeneous community and organizational contexts remains limited. Such studies require the active engagement of public health practice settings in the design, implementation, and translation of research. Practice-based research networks (PBRNs) provide mechanisms for research engagement, but until now they have not been tested in public health settings.

Purpose: This study uses data from participants in 14 public health PBRNs and a national comparison group of public health agencies to study processes influencing the engagement of public health settings in research implementation and translation activities.

Methods: A cross-sectional network analysis survey was fielded with participants in public health PBRNs approximately 1 year after network formation (n=357) and with a nationally representative comparison group of U.S. local health departments not participating in PBRNs (n=625). Hierarchic regression models were used to estimate how organizational attributes and PBRN network structures influence engagement in research implementation and translation activities. Data were collected in 2010–2012 and analyzed in 2012.

Results: Among PBRN participants, both researchers and practice agencies reported high levels of engagement in research activities. Local public health agencies participating in PBRNs were two to three times more likely than nonparticipating agencies to engage in research implementation and translation activities ($p<0.05$). Participants in less densely connected PBRN networks and in more peripheral locations within these networks reported higher levels of research engagement, greater perceived benefits from engagement, and greater likelihood of continued participation.

Conclusions: PBRN networks can serve as effective mechanisms for facilitating research implementation and translation among public health practice settings.
(Am J Prev Med 2013;45(6):752–762) © 2013 American Journal of Preventive Medicine

Introduction

Public health and prevention programs remain controversial components of the federal Patient Protection and Affordable Care Act, in large part because of uncertainties about their effectiveness in reducing disease burden and constraining growth in national health spending.[1–3] Achieving meaningful health and economic benefits from investments in prevention and public health requires knowledge about which strategies actually support improved health, at what cost, and how best to deliver these strategies to the populations that can benefit from them.[4] An expanding body of research-tested prevention programs and policies exists, such as those profiled in the CDC's *Guide to Community Preventive Services*,[5] but large gaps persist in the adoption and implementation of these strategies across states and communities.[6–12] Moreover, public health professionals are often called to act against health threats for which few if any evidence-based strategies exist, or to act in settings where evidence-based strategies

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0749-3797/$36.00

http://dx.doi.org/10.1016/j.amepre.2013.08.011

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are logistically, politically, or economically infeasible. In these situations, innovations in public health practice occur but without the comparative research necessary to determine their impact and value.[13]

These missed opportunities for discovery and learning emphasize the need for "delivery system research" that indicates how best to organize, finance, and deliver public health strategies in real-world practice settings.[14,15] The need for delivery system research in public health is particularly acute given that public health strategies are delivered through the combined efforts of multiple governmental agencies and their private-sector and community-based counterparts, through complex relationships and using resources that vary widely across states and communities and that evolve over time.[16–20] Strategies that are easily implemented in one setting often face barriers in other settings.[21] Expanded delivery system research can elucidate which strategies and adaptations work best in which settings and for which populations.

Practice-Based Research Networks

Delivery system research in public health settings requires the active engagement of public health organizations in the design, implementation, and application of these studies, but historically such engagement has been limited. Data from the CDC's National Public Health Performance Standards Program, for example, consistently indicate that state and local public health organizations are much less likely to achieve national standards in research and evaluation than in other domains of practice.[10,11,22,23] Periodic national surveys of governmental public health agencies find similarly low levels of research engagement, particularly at the local level.[24,25] To expand delivery system research in public health settings, the Robert Wood Johnson Foundation (RWJF) launched the Public Health Practice-Based Research Networks Program in 2008.[26] Public health practice-based research networks (PBRNs) bring together public health agencies and academic researchers to study the organization, financing, and delivery of public health strategies in real-world practice settings, with the goal of producing actionable evidence that can be used to improve practice and policy.[27]

Practice-based research networks have been used in medical care research for more than 3 decades to support delivery system research in clinical settings.[28,29] These clinical PBRNs allow community-based healthcare providers and their staffs to collaborate with researchers in designing, implementing, evaluating, and diffusing solutions to real-world problems in clinical practice.[30,31] The experience of the PBRN model in clinical settings suggests that it also may be useful in public health settings to accelerate the production and application of evidence regarding public health delivery.[27] Participating practitioners and researchers collaborate to identify pressing research questions of interest, design rigorous and relevant studies, execute research effectively, and translate findings rapidly into practice.

Beginning in 2008, the RWJF's Public Health PBRN Program supported the development of 12 research networks consisting of local and state governmental public health agencies, community partners, and collaborating academic research institutions. These supported PBRNs are located in Colorado, Connecticut, Florida, Kentucky, Massachusetts, Minnesota, Nebraska, New York, North Carolina, Ohio, Washington State, and Wisconsin. Additional public health PBRNs participate in the program as affiliate members and emerging networks under development, with the affiliate networks in Georgia, Missouri, New Jersey, and Tennessee progressing to the point of receiving research support from the PBRN program. Counting both supported and emerging networks, public health PBRNs are currently operational in 28 states, covering more than 1000 state and local public health agencies and 35 universities across the U.S.[26]

The current analysis examines the experience of PBRNs in engaging public health organizations in the design, implementation, and translation of delivery system research during their initial 2 years of development. Specifically, this analysis (1) examines differences between academic and practitioner PBRN participants in the nature and intensity of engagement in research implementation activities; (2) compares research engagement among local public health practitioners that do and do not participate in PBRNs; and (3) assesses the influence of individual, organizational, and network characteristics on research implementation activities and experiences among PBRN participants. Results offer insight into the current and potential roles of PBRNs in expanding research implementation and translation in public health practice settings.

Methods

Study Population and Sampling

A cross-sectional, self-administered survey was validated and fielded with representatives of public health organizations that participate in one of 14 public health PBRNs. The survey was fielded approximately 1 year after each network formed, with five PBRNs surveyed during 2010–2011, and nine PBRNs surveyed during 2011–2012. A total of 357 people representing these organizations were identified by PBRN leaders as active participants in one of the 14 PBRNs, using a standard case definition of

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