Frontiers in Public Health Services and Systems Research

Volume 3 | Number 5 Article 6

December 2014

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Recommended Citation

Smith S, Mays G, Bird TM, Preston MA. Public health system partnerships and the scope of maternal and child services: a longitudinal study. Front Public Health Serv Syst Res 2014; 3(5).
DOI: 10.13023/FPHSSR.0305.06

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Public health system partnerships and the scope of maternal and child services: a longitudinal study

Abstract

Local health departments (LHDs) struggle to serve their communities in the face of ongoing fiscal constraints. Fiscal constraints have led to the elimination and reduction of maternal and child health services (MCH). LHDs have used various strategies to minimize the negative impact fiscal constraints of elimination or reduction of services provided to their communities. Many LHDs have used strategies such as developing partnerships. While these strategies are assumed to increase the delivery of services and improve outcomes, there is limited research on the type of partnerships needed to service delivery. Our interest was identifying the type of partnerships associated with an increase in MCH service delivery. We found that our method for identifying partnership types was effective, and that partnerships types are associated with the delivery of maternal and child services. The next step in our work is to conduct in-depth analysis with LHDs to understand the partnership characteristics and MCH services and practices they use to increase service delivery and achieve exceptional health outcomes.

Keywords

Public health system partnerships, social network analysis, maternal and child health

Cover Page Footnote

This research was funded by the Robert Wood Johnson Foundation's Public Health Services and Systems Research National Coordinating Center Junior Investigator Award

This Article is available in Frontiers in Public Health Services and Systems Research: https://uknowledge.uky.edu/frontiersinphssr/vol3/iss5/6

Despite major advances in medical care, critical threats to maternal, infant, and child health exist in the United States (US).[1;2] Among the Nation's most pressing challenge is reducing the infant mortality rate, which in 2011 remained higher than the infant mortality rates in 46 other countries.[3] One approach for addressing the pressing challenge of reducing the US infant mortality rate is to improve the well-being of women and infants.[3] Improving the well-being of women and infants may help address future public health challenges for families, communities, and health care systems. To address future public health challenges, local health departments (LHDs) offer a wide range of interventions and public health services for women and infants before pregnancy, during pregnancy, and after delivery. These services include hypertension and cardiovascular, diabetes, sexually transmitted diseases, tobacco and alcohol use prevention programs for women before and after pregnancy women, and nutritional services such as WIC, educational programs, immunizations, surveillance and treatment services for women during and after pregnancy and infants.[3] Although LHDs offer a variety of maternal and child health (MCH) services, the cause of infant mortality are complex and often intertwined, making it challenging to develop public health approaches that will successfully reduce infant deaths.[4] One approach to addressing challenges is for LHDs to form collaborations with partners to enhance and coordinate activities targeted at assuring healthy women, infants, and families. Partnerships among LHDs and community organizations (COs) may enhance and coordinate activities targeted at assuring healthy women and infants. To assure partnerships address the health of women and infants, it is important to determine what partnership structures have the most impact on the health of women and infants. However, public health system partnerships (PHSPs) may experience structural changes over time. Examining structural changes may provide a better understanding of what types of partnerships are more effective in providing services and interventions.

This study examined whether structural changes in PHSPs are associated with the delivery of MCH services.

Methods

We used data from the 2006 and 2012 national longitudinal study of public health agencies (NLSPHA) coupled with 2005 and 2010 national profile of county and city health official (NACCHO) profile of local public health departments to examine the impact of PHSPs structural changes on maternal and child health services. We linked these data with contemporaneous information on community and state characteristics from other data sources. The study identified PHSPs structural change and examined the characteristics of PHSPs that experienced structural changes from 2006 to 2012. To examine the characteristics of PHSPs, the study used univariate and social network analysis. Social network analysis was used to characterize the PHSPs based on density and centrality. Density is the number of partners given the possible number of partners. Centrality is the position of the public health system in the partnership. PHSPs were classified in four categories of structural changes including diffuse and contracting, centralizing and contracting, diffuse and expanding, and centralizing and expanding (Table 1). Univariate analyses on categorical data were performed by using a 2-tailed Pearson X2 or Fisher's exact test wherever appropriate. Partnerships characterized as diffuse and contracting were used as the reference group.

RESULTS

Table 2 shows MCH services such as cardiovascular disease screening, tobacco control, injury prevention, immunizations, sexually transmitted diseases (STD) treatment and population characteristics such as number of uninsured and income per capita are the only characteristics that are significantly different across the four categories of structural change. MCH service delivery, population characteristics, and LHDs characteristics were very similar across these four categories. However, centralizing and expanding PHSPs offered a larger scope of tobacco control, injury prevention, and STD treatment services compared to diffuse and contracting PHSPs. Also, expanding and diffuse PHSPs offered a larger scope of STD treatment services as well as served a population with fewer uninsured and a higher income per capita compared to diffuse and contracting PHSPs. In addition, centralizing and contracting PHSPs offered a large scope of cardiovascular disease screenings, tobacco control services, and adult immunizations compared to diffuse and contracting PHSPs. Centralizing and Expanding PHSPs may be more effective in providing MCH services aimed at reducing the US IMR.

Table 1. Categories of Change in PHSP Density and Centrality

Categories	Characteristics
Centralizing/Contracting	Less Dense public health system (PHS) and a more Centralized PHS (A decrease in the number of partners and an increase in PHS centrality)
Centralizing/Expanding	Denser PHS and More Centralized PHS (An increase in partners and PHS centrality)
Expanding/Diffuse	Denser PHSP and Less Centralized PHS (An increase in the number of partners and a decrease in PHS centrality)
Diffuse/Contracting	Less Dense PHS and Less Centralized PHS (A decrease in the number of partners and PHS centrality)

Table 2: Scope of Maternal and Child Health Services and Public Health System Partnerships

Variables		Diffuse/ Contracting (n=103)		Centralizing/ Expanding (n=30)		Expanding/ Diffuse(n=4)		Centralizing/ Contracting (n=94)
Scope of Maternal and Child Preventive Services	**N**	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**
Prenatal care	96	.43 [.49]	29	.48(.50)	4	.5 (.58)	91	.43(.49)

Well-Child Visit	97	.02(.14)	30	-		-	91	.03(.17)
Cardiovascular Disease screenings	94	.32(.46)	27	.41(.50)	4	.5 (.57)	90	.47(.50)**
Diabetes screenings	96	.43(.49)	25	.57 (.50)	4	.5 (.57)	90	.47(.50)
Tobacco Control	96	.73		.75*	4	.75		.84*
Injury prevention	95	.47 (.50)	28	.71(.46)**	4	.5 (.57)	90	.58(.49)
Childhood immunization	97	.98 (.10)	30	.97(.18)	5	1	90	1(0)
Adult Immunizations	97	.08	30	.97 (.18)	4	1	91	.93(.24)**
STD screenings	97	.04	30		4	.25	91	.05
STD treatment	97	0.94	30	0.80**	4	1**	91	0.92
Obstetrics	96	.01(.10)	28	-	4	-	90	.01(.11)
Population Characteristics								
Percent of Non-White	97	.28(.18)	29	.30(.19)	5	.36(.22)	94	.26(.15)
Number of Uninsured	75	15.66(4.72)	25	14.21	5	13.23(1.96)*	72	15.79(5.67)
Income Per Capita	103	33377.86	25	34255	5	53415(20283)*		45262.28
Population	97	373,363.02	30	699,425	4	288,4341	91	422,444
Local Health Departments Characteristics								
Full-Time Employee	95	59.47(84.94)	29	49.22(28.19)	4	45.06 (25.04)	87	52.26(32.41)
Expenditures Per Capita (log)	90	3.72(.87)	29	3.67(.76)	5	3.76(.70)	85	3.84(.69)

Notes: table presents mean and standard deviations [in brackets]: Significance: *10%, **5%, ***1%

IMPLICATIONS

While a previous studies examination of partnership efforts found that partnerships increase reach of public health services and activities, limited research has been done to characterize partnerships and determine the type of partnership associated with an increase in public health services and activities.[5] The empirical method used in this study characterized PHSPs and examined the number of MCH services provided in each category of PHSPs. Agencies characterized as centralized and contracting were more likely to provide a larger scope of MCH services compared to agencies characterized as diffuse and contracting. A limitation of this study is that additional partnerships characteristics such as frequency of interactions, trust, and shared missions and goals are not measured. Another limitation is that only the perspective of the public health agency is included in analysis. These limitations and findings call for additional research to identify and examine partnership characteristics and the perspective of all partners. Additional research through semi-structured online surveys and analyses will identify partnership characteristics and MCH outcomes achieved by the PHSPs.

SUMMARY BOX:

What is Already Known about This Topic? Public health system partnerships may increase the provision of public health services.

What is Added by this Report? Defining and characterizing public health system partnerships may explain the provision of maternal and child services.

What are the Implications for Public Health Practice, Policy, and Research? Policymakers may allocate funding to support the establishment of public health system partnerships with specific goals and practices that address public health concerns such as maternal and child health services delivery.

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DOI: 10.13023/FPHSSR.0305.06