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Local Health Department Collaborative Capacity to Improve Population Health

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Abstract

Local health departments (LHDs) can more effectively develop and strengthen community health partnerships when leaders focus on building partnership collaborative capacity (PCC), including a multisector infrastructure for population health improvement. Using the 2008 National Association of County and City Health Officials (NACCHO) Profile survey, we constructed an overall measure of LHD PCC comprised of the five dimensions: outcomes-based advocacy, vision-focus balance, systems orientation, infrastructure development, and community linkages. We conducted a series of regression analyses to examine the extent to which LHD characteristics and contextual factors were related to PCC. The most developed PCC dimension was vision-focus balance, while infrastructure development and community linkages were the least developed. In multivariate analyses, LHDs that were locally governed (rather than governed by the state), LHDs without local boards of health, and LHDs providing a wider range of clinical services had greater overall PCC. LHDs serving counties with higher uninsurance rates had lower overall PCC. LHDs with lower per capita expenditures had less developed partnership infrastructure. LHD discontinuation of clinical services may result in an erosion of collaborative capacity unless LHD partnerships also shift their foci from services delivery to population health improvement.

Keywords

Public health systems research; partnerships; local health departments; sustainability; collaborative capacity

Local health department (LHD) partnerships with local health, social service, and private organizations are being promoted because they can increase the reach of evidence-based public health interventions.[1] However, because of competing demands and cultural and financial barriers, these partnerships may not always be sustainable.[2] Given the shrinking budgets many LHDs have experienced over the last decade[3], developing and sustaining partnership collaborative capacity (PCC) have been even more challenging.

Alexander et al. identified important precursors to the sustainability of collaborative capacity[4]: outcomes-based advocacy, vision-focus balance, systems orientation,

infrastructure development, and community linkages (Table 1). These dimensions of collaborative capacity were identified through a grounded theory examination of qualitative data from four partnerships from the Community Care Network Demonstration Program. Local culture, political environment, physical environment, and the economic environment were found to facilitate and impede the development of collaborative capacity. Our study is the first to empirically assess the relationship between LHD collaborative capacity for local public health partnerships and the organizational and contextual factors that influence this capacity. Clarifying the factors that shape PCC can enable stakeholders to address barriers to LHD partnership sustainability and augment facilitators to aid in improving population health.

METHODS

Sources

We analyzed the 2008 National Association of County and City Health Officials (NACCHO) Profile survey because the survey included a special module fielded to one-sixth of LHDs that assessed partnerships structures and community linkages (response rate=83%, n=454). We matched Area Health Resource File (AHRF) data with Profile data by county for LHDs with county jurisdictions. For LHDs with multi-county jurisdictions, we aggregated demographics to the LHD level, weighting per capita characteristics by the relative population size of each county compared to the LHD's total jurisdiction. Using data from the Census Bureau, we matched LHDs with non-county jurisdictions to the county that comprise the non-county jurisdictions and then aggregated these population-weighted characteristics to the LHD. We excluded LHDs (n=14) with non-response on key study variables.

Measures

Using the NACCHO Profile data, we constructed an overall measure of LHD PCC comprised of the five dimensions of collaborative capacity identified by Alexander et al.[4]: 1) *outcomes-based advocacy*, measured by the extent to which LHD staff reviewed the effectiveness of public health interventions provided by partners, 2) *vision-focus balance*, measured by whether the LHD conducted a community health assessment and implemented a community health improvement plan by participating in a coalition, 3) *systems orientation*, measured by whether the LHD undertook initiatives with organizational partners that involved addressing the largest contributions to morbidity, 4) *infrastructure development*, measured by the extent that LHD collaborations with partners involved exchange of information, shared personnel/resources and ongoing relationships, and 5) *community linkages*, measured by the extent to which LHD has collaborated with other organizations from medical, social service, and educational organizations in the community. To construct the PCC composite (α=0.78), we calculated a summary score for each of the five dimensions, and then calculated the unweighted average of the five dimensions to develop the composite. PCC measure construction is described in Table 1. Further details on measure construction, including coding methods, are available upon request from the authors.

Larger LHD jurisdictions and higher LHD expenditures per capita have been linked with local public health system effectiveness, so we measure the extent to which these LHD characteristics influence the development of PCC. LHD involvement in the provision of clinical services may also influence PCC because LHD stakeholders need to interface with community partners to refer to these services. Using LHD responses to a set of 29 clinical services,[5] we calculated the number of clinical services provided by the LHD directly or through a contractual arrangement. Contextual factors can also facilitate or impede the development of PCC; we proxied these through: percent non-White (culture), centralized LHD governance and existence of local board of health (political environment), rural residents (physical environment), and physicians per population, percent uninsured residents, and percent residents at or below the federal poverty level (FPL) (economic environment).

Analyses

We conducted regression analyses to examine the extent to which LHD characteristics and contextual factors were related to PCC. Six multivariate linear regression models were estimated: one regression for the overall PCC composite and a regression for each of the five PCC dimensions. The regression models additionally controlled for Census region (South, Northeast, Midwest, West) to account for differences in PCC based on geographical influences. As a sensitivity analysis, state fixed effects were included in the regression models in lieu of regional effects to account for state-specific factors influencing the development of PCC.

RESULTS

The mean PCC score was 50.6 out of 100 (standard deviation (SD)=19.7, range: 0–97.1). The most developed PCC dimension among LHDs was vision-focus balance (Mean=69.7, SD=32.3), while infrastructure development (Mean=46.4, SD=16.4) and community linkages (Mean=20.8, SD=16.5) were the least developed. In multivariate analyses, LHDs that offered a greater number of clinical services (β =9.11, $p<0.001$), LHDs without local boards of health ($\beta=-6.21$; $p<0.01$), and LHDs with decentralized (vs. state) governance ($\beta=-7.68$, $p<0.01$) had greater PCC. In terms of contextual influences, LHDs serving counties with lower proportions of uninsured residents ($\beta=-5.57$, $p<0.001$) had greater PCC. In adjusted analyses, LHDs with lower expenditures per capita ($\beta=-2.25$, $p<0.01$), centralized (state) governance ($\beta=-10.83$, $p<0.001$), and with a local board of health ($\beta=-6.06$, $p<0.01$) had less developed infrastructure for community health partnerships. Larger LHD jurisdictions had more community linkages (β =2.08, $p<0.01$). Sensitivity analyses using state fixed effects yielded similar effect sizes, but some effects were not statistically significant due to collinearity.

IMPLICATIONS

LHD PCC varied widely across jurisdictions. The strongest LHD influences on PCC were the number of clinical services offered by the LHD directly or through contracts and contextual influences, including county uninsurance rates. Given that most LHDs are reorienting away from the provision of clinical services per the Institute of Medicine vision

on the future of public health[5] and that LHD provision of a greater number of clinical services is associated with greater PCC, the trend of LHD discontinuation of clinical services may result in an erosion of collaborative capacity unless LHD partnerships also shift their foci from services delivery to population health improvement. Jurisdictions serving counties with high uninsurance appear to be less capable of developing and sustaining multisector partnerships for population health improvement. With the rollout of the Affordable Care Act (ACA), our findings caution that jurisdictions with high proportions of uninsured residents that do not qualify for insurance as part of the ACA may experience an underproduction of community health partnerships and existing organizational partnerships may be challenged in these communities.

Our results also highlight that LHDs with decentralized (vs. state) governance and LHDs with greater per capita expenditures were more likely to engage in partnerships that involve exchanging data and sharing personnel resources. Local control of jurisdiction health policies and practices may give community stakeholders more latitude in developing their capacity for collective action. Our findings should be viewed in light of the facts that the data are from a stratified random sample of 1/6 of LHDs and that they are cross-sectional and may not be indicative of a causal relationship.

Policy makers in states with centralized LHD governance may improve collaborative capacity through sponsorship of initiatives that invest in LHD multi-sector partnership infrastructure and community linkages. LHD partnership resources can strengthen collaborative capacity and aid in translating collaborative action into measurable population health improvement.

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SUMMARY BOX

What is Already Known about This Topic?

Local health department (LHD) partnerships with health, social service, and private organizations are being promoted because they can increase the reach of evidence-based public health interventions.

What is Added by this Report?

A multi-item survey-based composite measure of LHD partnership collaborative capacity (PCC) was developed. LHD and contextual factors that related to PCC were examined. A key finding is that LHDs offering fewer clinical services and with high levels of community uninsurance had lower PCC, including less investment in infrastructure for organizational partnerships.

What are the Implications for Public Health Practice, Policy, and Research?

Jurisdictions with high proportions of uninsured residents that do not qualify for insurance as part of ACA implementation may experience an underproduction of organizational partnerships for population health improvement. As most LHDs are discontinuing clinical services with the rollout of the ACA, organizational partnerships will need to redirect their foci from clinical services provision to population health improvement.

Table 1

Variation in Partnership Collaborative Capacity across Local Health Departments, 2008

Dimension of Partnership Collaborative Capacity	Definition (from Alexander et. al.[4] 2003)	NACCHO Profile Questions Assessing the Dimension of Partnership Collaborative Capacity (% of LHDs indicating activity)	Mean Score, Standard Deviation, and Range
Outcomes-based advocacy	"Ability of partnership to effectively identify and communicate specific short-term, sometimes symbolic, achievements of the partnership to internal and external stakeholders"	**1** Whether LHD staff has reviewed the effectiveness of public health interventions provided by partners (38.9%) **2** Provided data to partners on the community's health (79.1%)	Mean= 59.0 SD= 36.6 Range=0–100
Vision-focus balance	"Ability of the partnership to come to agreement on a broad, long-term vision of community health, and then to commit to a series of specific actions/initiatives designed to move the partnership toward that vision"	**1** Develop community health assessment and planning in a coalition w/in last 3 years (65.5%) **2** Whether implemented community health improvement plan by participating in coalition, developed or strengthened relationships with community partners, advocated for other community partners to establish or increase activity (88.2%) **3** Whether the LHD in the past year provided training on effective public health practices to partners or discussed public health issues and policy with partners (59.1%)	Mean=69.7 SD=32.3 Range= 0–100
Systems orientation	"Ability of the partnership and its leadership to conceptualize community health problems as the result of multiple interacting forces and to envision the solutions to such problems in terms of a coordinated effort of different sectors and actors within and outside the community"	**1** Whether LHD in past year had community engagement in tobacco prevention & control (63.7%), emergency preparedness (82.5%), influenza (68.0%), obesity (56.1%), indoor air quality (56.1%), land use planning (22.4%) **2** Whether in the past two years to address health disparities, LHD has supported community efforts to change the causes of health disparities (61.3%) **3** Whether the LHD has assured access to health care services in the past year by collaborated with community partners to fill gaps or reduce barriers (73.0%)	Mean=57.3 SD=27.4 Range=0–100
Infrastructure development	"Ability of the partnership to develop internal support systems that foster effective member participation, develop leadership, and avoid overburdening key members"	**1** Extent to which collaborations with other organizations* involve exchange of information **2** Extent to which collaborations with other organizations* involve shared personnel/ resources	Mean=46.4 SD=16.4 Range=0–97.9

Dimension of Partnership Collaborative Capacity	**Definition (from Alexander et. al.[4] 2003)**	**NACCHO Profile Questions Assessing the Dimension of Partnership Collaborative Capacity (% of LHDs indicating activity)**	**Mean Score, Standard Deviation, and Range**
Community linkages	"Ability of the partnership to establish strong, working relationships to institutions and individuals in the community and to be inclusive with regard to direct community input and participation in the partnership"	Extent to which LHD has written agreements or regularly scheduled meetings with other organizations: hospital, physician group, community health center, other health care provider, health insurer, emergency responder, local planning agency, economic development agency, housing agency, utility company, environmental organization, cooperative extension, school, parks and recreation, transportation, faith community, library, university, business, media, tribal government, criminal justice system, health voluntary, and community-based nonprofit.	Mean=20.8 SD=16.5 Range=0–97.9
Overall PCC Score			Mean=50.6 SD=19.7 Range=0–97.1

Source: NACCHO Profile Survey, 2008

Notes:

The overall PCC score is an unweighted average of the scores from each dimension. Dimension-specific scores were calculated by converting each item to a 0–100 scale (e.g., No = 0, Yes = 100) and averaging equally for each question within each dimension—with the exception of systems orientation, where LHD community engagement counted for 50% of the score for that dimension.

* For Infrastructure Development and Community Linkages dimensions, the dimension score was calculated by counting the number of organizations an LHD had partnerships with out of a set of 24 total potential types of potential partners. We then divided this count by the number of types of organizations present in the LHD's jurisdiction. For example, if an LHD exchanges information with 17 different types of organizations and there were no tribal governments in the area, the Infrastructure Development Item 1 score would be 17 ÷ (24−1) = 73.9.

Table 2

Local Health Department and Contextual Influences on Partnership Collaborative Capacity

	Overall Partnership Collaborative Capacity Score		Outcomes-Based Advocacy		Vision-Focus Balance		Systems Orientation		Infrastructure Development		Community Linkages	
	Coef	**t**	**Coef**	**t**	**Coef**	**t**	**Coef**	**T**	**Coef**	**t**	**Coef**	**t**
Local Health Department Characteristics												
LHD total population	1.64	1.85	1.36	0.74	1.17	0.74	2.46*	2.02	1.09	1.43	2.08**	2.71
LHD rural population	−1.32	−1.10	−1.25	−0.50	−3.44	−1.61	−2.01	−1.22	0.14	0.13	−0.09	−0.09
Local board of health	−6.21**	−2.81	−6.10	−1.33	−7.34	−1.86	−5.67	−1.86	−6.06**	−3.17	−6.03**	−3.14
Centralized state governance	−7.68**	−2.81	−6.03	−106	−11.33*	−2.32	−3.79	−1.01	−10.83***	−4.58	−6.98**	−2.93
LHD expenditures per population	−0.93	−1.04	0.47	0.25	−2.71	−1.69	−0.12	−0.10	−2.25**	−2.90	−0.08	−0.10
Number of clinical services offered by LHD	9.11***	8.96	7.35**	3.48	11.54***	6.28	13.29***	9.45	6.92***	7.88	6.02***	6.80
Contextual Factors												
Physicians per population	−1.79	−1.38	−2.90	−1.08	−1.78	−0.77	−1.13	−0.63	−2.44*	−2.17	−0.78	−0.69
Uninsured residents (%)	−4.33**	−3.19	−4.10	−1.46	−5.12*	−2.12	−5.39**	−2.88	−3.80**	−3.25	−3.13**	−2.66
Residents living at or below the federal poverty line (%)	1.86	1.58	2.47	1.01	3.99	1.9	2.01	1.24	0.51	0.50	0.18	0.18
Non-white population (%)	−0.75	−0.77.	−3.19	−1.58	−0.56	−0.32	0.06	0.04	−0.07	−0.08	−0.05	−0.06
Region												
South	(Ref.)	-	(Ref.)	-								
Northeast	−4.61	−1.35	−10.95	−1.54	0.77	0.13	−4.29	−0.91	−2.94	−1.00	−6.08*	−2.04
Midwest	−2.07	−0.77	−0.84	−0.15	−4.66	−0.97	−2.10	−0.57	−0.56	−0.24	−2.86	−1.22
West	3.10	0.98	6.60	1.01	2.04	0.36	3.93	0.90	−0.55	−0.20	3.34	1.22
Constant	58.0***	20.11	66.43***	11.09	78.49***	15.12	63.27***	15.92	54.23***	21.77	28.46***	11.35
Adjusted R^2	*0.27*		*0.08*		*0.13*		*0.28*		*0.21*		*0.21*	

Note: Sample size=440 local health departments;

* p<0.05,

** p<0.01,

***p<0.001;

Continuous measures are standardized so that coefficients represent the effect of 1 standard deviation change in the predictor on the outcome variable.