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Explaining Consolidation Decisions: Motivations for Recent Local Health Department Consolidations in Ohio

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Abstract

Recent studies suggest that consolidating Local Health Departments (LHDs) may improve public health services, increase efficiency, and reduce public health expenditures. To identify factors motivating LHD consolidations that may enhance public health service provision, we investigate potential factors motivating LHD consolidations in Ohio since 2000. Using logistic regression analysis and interviews with local health officials, we find that the financial condition of cities involved in consolidations and the presence of a "Strong Mayor" municipal government system are strong predictors of consolidation decisions in Ohio between 2001 and 2013.

Because of variations in LHD governance arrangements across states, further research is needed to determine whether the drivers of consolidation identified here apply in other states. In addition, testing these results in models with variables representing a more expansive array of potential driving factors for LHD consolidation may help verify and/or build upon the initial findings presented here.

Introduction

Recent studies from across the nation indicate that consolidating Local Health Departments (LHDs) may improve public health services,[1] increase efficiency,[2-4] and reduce expenditures.[5] While these studies suggest potential public health benefits of LHD consolidations, no studies that we are aware of have examined both community and organizational factors motivating the decision to consolidate among jurisdictions that have actually undertaken this form of organizational restructuring.

Ohio provides a rich environment to study this movement toward LHD consolidation, as the number of LHDs in the state has declined from 154 in 1988 to fewer than 125 today. Of these consolidations, more than 20 have occurred since 2000. In this study, we address determinants of recent decisions to consolidate LHDs in Ohio.

Methods

Using a mixed methods approach, we examined factors motivating the decision to consolidate LHDs in Ohio between 2001 and 2013. Our analytical strategy consisted of a regression based quantitative approach that drew on secondary data on community and organizational characteristics while a parallel effort involved conducting semi-structured interviews with key local health officials (LHOs) from LHDs that had undergone consolidation. The results of these two complimentary approaches were then compared and integrated to develop a richer understanding of LHD consolidation in Ohio.

Through discussions with knowledgeable public health officials and the Ohio Department of Health (ODH), we identified 21 voluntary LHD consolidations that took place in Ohio between 2001 and 2013. For the quantitative component of our analyses, our sample universe included all LHDs from Ohio counties that had at least one independent city LHD in addition to the county LHD. Because all of the LHD consolidations in Ohio during the study period involved city and county health departments and none involved county to county consolidations, this was the appropriate frame for understanding the motivations of LHD consolidations during this time period. This sample included a combined total of 78 city and county LHDs tracked over the study period (2001 – 2013).

Data for the quantitative analysis were drawn from existing sources, with LHD financial data obtained from the ODH Annual Financial Reports (AFRs) and city government financial data provided by the Ohio State Auditor's Office. Information on the structure of local governments was obtained from the Ohio Municipal League. Community population data were retrieved from the U.S. Census Bureau. Necessary data were available for 49 of the possible 78 LHDs with 12 of the 21 consolidations included in the final logistic regression model. Analyses of missing data indicated no significant difference in characteristics of included and excluded LHDs in terms of government structure or population measures. We were unable to assess differences in relation to the financial metrics as it was nearly universal that if a community was missing one of the financial measures, it was missing both.

Only one study that we could identify directly seeks to explain LHD consolidation. Bates and colleagues' (2011)[6] work differ from ours in that they introduce community race and age characteristics and tax burden as determinants of consolidation while we incorporate

organizational factors like financial condition and form of local government leadership. Prust et al[7], in their study of local public health's response to budget cuts in Connecticut, indicated that jurisdictional consolidation is one strategic response to reduced revenues. Drawing on insights from existing studies[2,4,6,7] and consultations with knowledgeable public health practitioners regarding their perceptions of factors driving LHD consolidations, we identified five factors as potential drivers of LHD consolidation in Ohio.

1. LHD financial condition, defined as the extent to which the city LHD used reserve funds.

2. Financial condition of city governments, defined by whether the city had run a negative general fund balance during the study period.

3. Presence of a "strong mayor" system of city government, a form of government characterized by an elected mayor who has clear responsibility for city taxes and expenditures. Under this kind of governing arrangement, there is individual accountability for city finances that may motivate needed leadership for LHD consolidation efforts.

4. Total population of the LHD jurisdiction, reflecting opportunities for economies of scale which may motivate consolidation(s).

5. Population density in the LHD's jurisdiction, to control for the potential for differing LHD services mixes in urban versus rural areas and the potential impact of cost structures associated with service mix on the decision to consolidate.

A logistic regression model with robust standard errors was utilized to assess the odds-ratio of a LHD undergoing consolidation controlling for the influence of other variables in the model. All analyses were conducted using STATA version 13.1.

We also conducted interviews with LHOs involved in the consolidations that occurred in Ohio between 2001 and 2013. Of the 21 consolidations that occurred during the study period, 17 of the LHOs talked with us about their LHD's consolidation experience. Through these interviews we ascertained their perceptions of the motivations for the LHD consolidations in which they were involved. Because our interview sample was not limited by data availability, a larger proportion of the identified consolidations were included in this portion of the analysis than in our quantitative analysis. The study design implemented was reviewed and approved by the Institutional Review Boards of Kent State University and the University of Arkansas for Medical Sciences.

Results

The results of our logistic regression model suggest that the strongest predictor of the decision to consolidate is whether a city government that operated a health department had experienced a negative fund balance at any point during the study period. These cities and their corresponding county health departments had odds of consolidation that were 5.43 times greater than other health departments.

The presence of a "Strong Mayor" local government system was also influential, as it was associated with a nearly fivefold increase in the odds of consolidation. An increase in the overall population of the health department service area was also a statistically significant predictor of consolidation, although its effect size appears to be relatively small when controlling for other factors. In contrast, increased population density was associated with a small, but significant decrease, in the odds of consolidation. The financial condition of the health department, as measured by a weighted proportion of years of reserve spending during the study period, was not a statistically significant predictor of the decision to consolidate. The model results are summarized in Table 1.

Table 1
Factors Affecting Decisions to Consolidate Local Health Departments in Ohio, 2001-2013

Predictor Variables	**Odds Ratio**	**P-Value**	**Confidence Interval**	
			Low	High
LHD Reserve Spending	2.8E+16	0.573	5.7E-294	1.4E+162
City General Fund Deficit Spending (Deficit = 1)	5.43	0.037	1.110	26.577
Local Government Type (Strong Mayor = 1)	4.88	0.001	1.229	10.389
Population (logged)	1.00004	0.003	1.00001	1.00007
Population Density	0.997	0.001	0.996	0.999
Constant	.037	0.001	0.005	0.259
Model evaluation		**P-Value**		
McFadden Pseudo R^2	0.4617			
Wald X^2	179.61	> 0.001		
Hosmer & Lemeshow X^2 (8)	20.53	> 0.0085		

*Results of Logistic Regression model indicating odds of health department consolidation.
n= 637

Our interviews with LHOs from consolidated LHDs re-enforce and supplement the results of the logistic regression model. Of 17 LHOs interviewed, 14 (82%) indicated that cost savings were a stated goal of consolidation. Eleven respondents (65%) asserted that service improvement was a stated goal of consolidation. Also, consistent with our initial discussions with knowledgeable public health officials, a majority of the responding LHOs (12/17, 71%) suggested that the cities initiated conversations regarding consolidation.

Discussion

Recent LHD consolidations in Ohio appear to have been driven at least in part by pressures on city governments to control costs, and potentially also by a desire to improve public health services. These findings are consistent with results from a study of Connecticut health departments that indicate that in response to budget reductions, LHDs have consolidated into district level public health agencies, with the selection of these districts being influenced by the relative per capita cost to municipalities to join the district.[7] Our results also suggest that the structure of the local governments involved may be important, as "Strong Mayor" municipal

governance systems are associated with greater odds of consolidation. This may be due to Mayors, in "Strong Mayor" governments, who are responsible for budgetary conditions, being incentivized to provide leadership and advocacy for LHD consolidations. Notably, this result contrasts with previous research on general local government collaborations, which found that "City Manager" forms of local government are most likely to provide collaborative services with other jurisdictions.[8] This suggests that the dynamics of LHD consolidation may differ in some respects from the broader dynamics of local government collaborations.

Implications

As jurisdictions explore LHD consolidation as a means to enhance public health services, increase efficiency, and/or reduce expenditures, this study is valuable because it identifies factors motivating past LHD consolidations. This is particularly significant, given that 77% of the nation's LHDs serve populations below the 100,000 person "minimum efficient scale" for public health services threshold suggested by Santerre.[10, 2]

A limitation of this study is that the regression analysis included 49 of 78 (63%) of LHDs. Although lower than ideal, no significant differences in response rates were observed for the 3 predictor variables that we were able to assess. Additionally, the findings of the regression model are largely supported by the findings of the interviews conducted. A further limitation is that we were unable to obtain data on other potentially influential variables, such as prior successful collaborative experiences and citizen demand.[9] While we believe that our results provide a useful picture of the motives for recent LHD consolidations in Ohio, the diversity of local public health systems across the nation suggests further research be conducted to explore this issue in other states.

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