

Public Health Regionalization Study National Overview

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1 **Executive Summary**

This paper is part of a larger study aimed at answering questions about the organization of public health service delivery. In particular, the study will explore the potential impact of regionalizing public health services in Kansas and Massachusetts. This paper investigates the financial and economic facets of regionalization in several other states. The goal is to provide study participants with a shared starting point for future discussion about regionalization. Key points are listed below.

- There are no universally accepted standards for the best way to organize the delivery of public health services. Regionalization is one organization structure that may help localities do more with their limited budgets.
- The analysis of regionalization options is an important part of the fulfillment of the ten essential public health services.
- Traditional economic and finance theory holds that many activities can be performed more efficiently when done on a larger scale. Studies of local public health agencies find that agencies with larger populations provide a broader range of services.
- The funding formulas through which states calculate contributions to local public health agencies may impact the attractiveness of regionalization.
 - Utah, Missouri and Connecticut increase state funding to localities that deliver services through regional affiliations. The incentive can be as high as \$2.33 per capita on top of state monies that would flow to those same localities had they not regionalized.
 - Wisconsin employs a unique funding mechanism that effectively puts the delivery of public health services up for bid. To the extent that free market competition encourages companies to operate more efficiently, some localities might find regionalization to be the answer.
- The use of funding formulas can sometimes have unintended consequences. In Georgia, a de facto hold-harmless means that counties with growing populations see a proportionate decrease in funding per capita.
- States might be able to increase the appeal of regionalization by offering significant financial incentives, and by giving localities flexibility with how the money is spent.
- The growing interest in accreditation presents a powerful incentive to explore the potential for regionalization to enable local public health agencies to provide the full range of services in a cost effective manner.

This paper demonstrates that, while regionalization is not necessarily a panacea for all public health funding challenges, it is worth consideration.

2 Introduction

Public health agencies are vitally important to the nation's well being. "A strong public health infrastructure is essential for preventing, preparing for, and responding to health threats on a population-wide basis" (Mays, Halverson, Baker, Stevens and Vann, 2004). Public health can be one of the most cost effective uses of healthcare dollars. Compare, for example, the small cost of nutrition education offered by many public health agencies with the huge expense of caring for obesity-related maladies, such as diabetes. Alternatively, look at the small cost of an epidemiologist identifying the source of a tuberculosis outbreak to the additional cases that their work helps prevent.

Public health is, by nature, publicly funded. As such, elected officials ultimately control how much money is spent on public health. In a time of increasing pressure on government spending, many are looking to insure that public dollars are spent wisely. Consider, for example, Medicare's pay-for-performance plan, wherein hospitals must demonstrate quality care in order to receive higher reimbursement. Alternatively, consider the 'no child left behind' education initiative which requires public schools to prove their worth through academic testing. In effect, politicians are looking for some evidence base to insure that public money is well spent.

Unfortunately, there is no universally accepted approach to ensure "that the money spent on public health programs is being used in the most effective ways" (Levi, Segal, Juliano & Earls, 2006). This means, among other things, that there is no strong evidence informing the industry about the best ways to organize the delivery of public health services at the local level.

This paper is part of a larger study aimed at answering questions about the organization of public health service delivery. In particular, the study will explore the potential impact of regionalizing public health services in Kansas and Massachusetts. This paper explores the financial and economic facets of regionalization in several other states. The goal is to provide study participants with a shared starting point for future discussion about regionalization.

This paper proceeds as follows. Section 3 starts with background on the need to at least consider the potential benefits of regionalization, some economic principals behind the potential for cost savings, and an overview of the many ways in which public health services are organized. Section 4 describes how funding formulas affect regionalization incentives in six states. Section 5 explores the ways in which accreditation may encourage regionalization and describes some of the unintended consequences of funding formulas. Section 6 summarizes reasons for the serious consideration of the financial and economic consequences of regionalization.

3 Background

3.1 Core Functions

It is worth reviewing the core functions of public health to place this paper in perspective (see Exhibit 1).

Exhibit 1. Ten Essential Public Health Services.
1. Monitor health status and understand health issues facing the community.
2. Protect people from health problems and health hazards.
3. Give people information they need to make healthy choices.
4. Engage the community to identify and solve health problems.
5. Develop public health policies and plans.
6. Enforce laws and regulations.
7. Help people receive health services.
8. Maintain a competent public health workforce.
9. Evaluate and improve programs and interventions.
10. Contribute to and apply the evidence base of public health.
Data source: NACCHO, 2005

Program evaluation and improvement (function 9) calls on public health agencies to “evaluate the effectiveness and quality of all [local health department] programs and activities, and use the information to improve [local health department] performance and community health outcomes” (NACCHO, 2005). Although it might seem obvious, it is worth stating the one of the fundamental goals of this project is the improvement of public health performance. To the extent that regionalization may enable localities to do more with their constrained resources, the health of all state residents will benefit.

Given this perspective, this project is just part of local public health agencies fulfilling their core functions. Whatever comes of regionalization possibilities, it is important for local agencies to occasionally review such options to see if community health status can be improved through cooperation.

3.2 **Economic Rationale**

Beyond the responsibility to consider regionalization implied under the core functions, it makes simple business sense. In order to survive, any business will look for ways to do the most with their limited resources. A car maker will not use five workers to attach doors if four can do it just as effectively and safely. Nor will a farmer till a field twice if once is all that is needed.

One standard theory holds that economies of scale occur in a process when the cost per unit decreases as more units are produced (Getzen, 2004). For example, it may take a nurse ten minutes to do just one immunization. This includes time spent getting the vaccine from storage, prepping the patient, administering, and then re-storing supplies and vaccines. But if nurse does 20 vaccines at a time, it may take just five minutes a patient since she doesn't have to waste time taking vaccines to and from storage for each patient. So the time spend, thus salary cost, per patient was cut in half because she was doing more. Scale efficiencies won't go on forever. For example, if 10 patients are in one county and 10 in another, any time saved by 'batching' patients will be more than lost to transportation time between sites. One goal of this analysis of regionalization alternatives is to help determine whether such scale economies are present and, if so, are localities getting the most out of them.

Prior research provides evidence of scale economies, noting that the "proportions of public health activities performed were significantly higher in communities with larger populations" (Mays, Halverson, Baker, Stevens and Vann, 2004). The authors explain that because "small systems typically operate with fewer total dollars and staff, they may lack sufficient resources to support the specialized public health infrastructure and diversified workforce needed to achieve high levels of performance-such as information and communication systems and professionals trained in epidemiology, biostatistics, and health education" (Mays, McHugh, Shim, et al, 2006). That same study, based on the NACCHO survey of local public health agencies nationwide, concludes that "reconfiguring the organization and financing of public health systems in some communities-such as through consolidation and enhanced intergovernmental coordination-may hold promise for improving the performance of essential services" (Mays, McHugh, Shim, et al, 2006).

Public health often has many features of what economics calls a "public good" (Getzen, 2004). For example, a patient education seminar costs just as much to present, whether for one person or 20. Public service announcements, and even emergency bulletins, are other examples. Regionalization already happens with many such services, wherein one locality may develop a public service announcement and share it freely with others. Since so much of public health involves information, which is virtually free to share once developed, this project may identify more ways to reduce duplication and improve the quality and quantity of information available to state residents.

Although healthcare is different from most other businesses, there is no reason why the same principals should not be applied. Granted, quality is a much more important consideration, but that does not change the basic model. And just because public health is often delivered by the government, there is still no reason why basic business models won't hold. The fundamental goal is to do as much as possible with the limited funding available. Many public health agencies already know this instinctively. For example, many private practice physicians do not employ a single nurse in their practice. This is an example where some in private industry may be 'penny wise and pound foolish', focusing on the higher wages for nurses, but blind to their unique skills and ability to improve patient care. Public health agencies already know how cost effective nurses can be in handling a wide range of activities. Hopefully, this project will find other ways for public health agencies to do more with their limited funds.

3.3 Public Health Structure

Public health regionalization is not a new idea. In a 1990 Profile of State and Territorial Public Health Systems, the CDC identified four broad categories of state and local public health structures (Forums Institute, 2000):

- Centralized systems, in which the local public health agency is operated by the state health agency and functions under its authority;
- Decentralized systems, in which local governments have "home-rule" or direct authority over local health agencies;
- "Mixed" systems, in which state and local health services are provided by a combination of state agencies, local government, and boards of health and health departments;
- "Shared" systems, in which the local public health agency operates under the shared authority of the state health agency, the local government and local boards of health.

The National Association of County and City Health Officials (NACCHO) conducted a study to focus on state-local structure topology (Forums Institute, 2000). In its findings:

- Decentralized systems were the most common (50 percent or 26 states);
- 25 percent (or 13 states) reported centralized systems;
- 17 percent had mixed systems and
- 4 percent reported shared systems.
- An "other" category was created for the states of Hawaii and Rhode Island in that they each reported that they had no local public health agency equivalents.
- In most systems the lowest level of governmental infrastructure is at the county level.

Kansas and Massachusetts are, then, not unusual. Like half of all states, local governments hold most of the authority and responsibility for public health. And while Kansas is similar to other states in that local agencies exist at the county level, Massachusetts' localities are defined at a much lower level.

With control resting at the local level, state funding in decentralized states is generally low. For example, in Missouri, which has a decentralized public health structure, the state contributes just 5 percent of total local funds, with 57 percent raised locally (Bernet, 2007).

Decentralization and heavy reliance on local funding present both opportunity and challenge. This combination "is rooted in local communities and potentially vulnerable to shifting local priorities and economic fortunes" (Wall, 1998). To the extent that regionalization may help spread some of these risks, localities will have to balance their desire to maintain autonomy with their duty to get as much as possible from their local funding. Ironically, regionalization can mean that one of the best ways get the most for local populations is to give up some of that local autonomy.

4 State Funding Formulas

A number of states foster the regionalization of local public health activities. Some states employ a ‘carrot’ in the form of financial incentives, offering higher state contributions to local public health agencies that engage in some form of regionalization. Although none of the states described in this section use the ‘stick’ approach of explicitly penalizing local public health agencies (LPHAs) that do not regionalize, several employ tools that encourage localities to balance the desire for autonomy with financial constraints. One state uses the introduction of simple economic market forces, and another employs centralized financial control aimed at minimizing total expenditures. This section provides a glimpse into the details behind various options through the experiences of Utah, Missouri, Connecticut, Wisconsin, Georgia and Florida.

Before moving into a description of regionalization in various states, it is important to mention that many local public health agencies do some degree of regionalization already. This might be something as simple as subcontracting inspection services to a neighboring county if they have too few facilities requiring certification to justify their own inspector. Or it could be the formation of emergency preparedness districts, then sharing the cost of planning among individual LPHAs. Most local agencies are free to subcontract services, and the arrangements might be as formal as a county code or as informal as a handshake. Unfortunately, there is no comprehensive data on such arrangements, which is another reason why the focus of this section is on the state level.

4.1 Utah

Utah encourages the regionalization of local public health services by basing about one quarter of state funds on such activities (Utah, 2002a). State contributions to local public health agencies (LPHAs) are computed using a formula based on population, poverty, land area and regionalization (see Exhibit 2).

Utah's state contributions to local public health agencies for FY2002 totaled \$2,132,700 (Utah, 2002b). Given this amount, two independent counties operating as separate LPHAs could see their total state public health funding increase \$55,877 ($.0262 * 2,132,700$) if they combine into a single LPHA. The actual figures might not match this example because the Utah funding formula also includes a hold-harmless, wherein an LPHA can not receive less than it received in the prior year.

Exhibit 2. Utah state LPHA funding formula		
Factor	Weight	Example
Population Factor: percentage of the total state population living within the geographical boundaries of the LPHA	28.04%	LPHA with 10% of state population gets 2.804% of total state funding ($.10 * .2804$)
Poverty Population Factor: percentage of the total poverty population of the state living within the geographical boundaries of each LPHA.	23.34%	LPHA with 5% of state's poverty population gets 1.167% of total state funding ($.05 * .2334$)
Square Mile Factor: percentage of the total square miles in the state lying within the geographical jurisdiction of each LPHA.	23.33%	LPHA with 12% of state's land area gets 2.7996% of total state funding ($.12 * .2333$)
District Incentive Factor: local public health agencies consisting of at least two counties shall receive a share in accordance with the number of counties within the geographical boundaries of the LPHA as follows:	26.20%	LPHA consisting of 3 counties gets 3.49% of total state funding.
0	0.00%	
2	2.62%	
3	3.49%	
4	4.36%	
5	5.23%	
6	6.11%	

There is an interesting interplay between the formula factors.

- An urban county with a large share of the state's population will also likely have a large share of the state's total poverty population. Even without regionalizing, they may be getting 30% of the state's total allocation. Regionalizing would bring another 2.62 share, for an increase of 9% ($.0262 / .30$).
- A rural county with a small share of total population and poverty may still have a large share of the state's land area. Without regionalization, they may be getting 10% of the state's total allocation. Regionalization would bring another 2.62 share, for an increase of 26% ($.0262 / .10$).
- While the change in share of total was the same for both the urban and rural counties, the percentage increase in state funds was very different. Rural counties would see a significant 26 percent increase in total state funding, which is hard to ignore.

The scale of the regionalization incentive will be larger for counties with lower relative shares of population, poverty, or land area. While rural counties may have land, their share of population and poverty are generally low. This is not to say that poverty does not exist in rural areas; it just means that the number of poor people in a rural county is small compared to the number in urban counties (note the focus is on number of people and not poverty rate). The incentive encourages regionalization into districts that will have larger populations. Recall that public health agencies with larger populations generally provide a wider range of public health services (Mays, McHugh, Shim, et al, 2006).

Utah does not require that regionalization incentives be spent entirely on district administrative expenses. However, because the district becomes the legally recognized public health provider for all participating counties, there will be district-level administrative staff. Regionalization is voluntary on the individual county's prerogative. Obviously, choosing not to regionalize means no regionalization payment. Of Utah's 29 counties, only 6 have chosen to remain independent (UDOH, 2007). The manner in which regionalization incentive funds are divided among the district counties is a matter of agreement among the counties. If a county is dissatisfied with their share, they may leave the district, but would forgo their share of regionalization incentives.

Overall, the Utah regionalization incentive provides counties with a fair degree of flexibility. It will be most attractive to counties with low populations. It gives counties a financial incentive to regionalize, though means some loss of autonomy for individual counties.

4.2 Missouri

Missouri, like Utah, encourages the regionalization of local public health services by basing a portion of state funds on regionalization (MDOH, 1999A, MDOH, 1999B, Diehl, 2005). State contributions to local public health authorities (LPHAs) are computed using a formula based on population, poverty, local public health tax rates and regionalization (see Exhibit 3). Counties receive points based on each factor. Total points are summed for all counties, and each county's state contribution is based on the county's total share of points. The tax rate factor is seen as an encouragement to counties to raise more public health funding on their own (MDHSS, 2002). In effect, the state will pay more to counties that are willing and able to tax themselves more.

Missouri's state contributions to local public health agencies for FY2005 totaled \$8.6 million. Of that, only \$565,000 of the total appropriation is allocated by formula (MDHSS, 2006A). The rest is based on historical allocations (a form of hold-harmless). The way the formula works out, regionalization points are worth about \$15,000. If the two smallest counties combined (for a total population of 7,800), the most the award could come to is \$2.00 per person. Since there is no increment in the 'multi-county' award for larger populations, this \$2.00 per person is an upper limit.

Exhibit 3. Missouri public health funding formula	
Component	Score
Population	
0 - 20,000	1
20,001 - 40,000	2
40,001 - 80,000	3
80,001 - 160,000	4
160,001 - 240,000	5
240,001 - 320,000	6
320,001 - 400,000	7
over 400,001	7 + additional point per 100,000
Poverty	1 point for every 20,000 people in poverty (up to a maximum of 8 points)
Local tax resource	
0.00 - 0.05	0.0
0.05 - 0.09	0.5
0.10 - 0.14	1.0
0.15 - 0.19	1.5
0.20 - 0.24	2.0
0.25 - 0.29	2.5
0.30 - 0.34	3.0
0.35 and over	3.5
Multi-county	
If locality forms a single agency to serve residents of two or more counties.	1

As in Utah, the scale of the regionalization incentive will be larger for counties with lower relative shares or population, poverty and lower local tax rates. Given the lower population and smaller tax base of most rural counties, Missouri's regionalization incentive is more attractive to rural areas.

Similar to Utah, Missouri does not require regionalization incentives be spent entirely on district administrative expenses, but there are likely to be such expenses because the district becomes the legally recognized public health provider for all participating counties. Regionalization is voluntary on the individual county's prerogative. Obviously, choosing not to regionalize means no regionalization payment. Of Missouri's 115 LPHAs, only 3 have chosen to regionalize (MDHSS, 2006A). The manner in which regionalization incentive funds are divided among the counties is a matter of agreement among the counties. If a county is dissatisfied with their share, they may leave the district, but would forgo their share of regionalization incentives.

Overall, Missouri's regionalization incentive provides counties with a fair degree of flexibility. It will be most attractive to counties with low populations. It gives counties a financial incentive to regionalize, though means a slight loss of autonomy for individual counties.

4.3 Connecticut

Connecticut has a program to encourage local public health agencies to regionalize services (Connecticut General Law, 2001). Unlike Utah and Missouri, which incorporate regional incentives into a general funding formula, Connecticut has a separate program aimed specifically at regionalization. The details are summarized in Exhibit 4 and detailed below:

- The State provides funding for regional operations in the amount of \$2.33 per person for LPHAs with populations under 5,000, and \$1.99 per person for LPHAs with populations of 5,000 or more.
- In addition, each LPHA must contribute at least \$1.00 per person (regardless of LPHA population) to the region. This money is in addition to LPHA share of district public health functions that simply replace LPHAs.

Exhibit 4. Connecticut regionalization incentive formula		
LPHA population	State payment per capita	LPHA contribution per capita
Up to 4,999	\$2.33	\$1.00
5,000 and above	\$1.99	\$1.00

LPHAs choose whether or not to voluntarily form regions (called ‘districts’ in Connecticut). Once an LPHA joins a region, all responsibilities and employees of the LPHA are transferred to the region. Though it technically still exists, the LPHA is effectively closed, with all local authority passed up to the region. While authority is shared among participating counties in Utah and Missouri regions, the locus of authority lies much more with the region in Connecticut.

The cost of providing public health services that had been done by LPHAs (and now done by districts) is shared by all participating LPHAs. Costs are allocated based on the population of each LPHA. This can result in a redistribution of expenses, an increase in total public health spending, or both.

The state money, which would not otherwise go to public health, comes with a few requirements. Regions must be governed by boards composed of representatives from member localities (the LPHAs that merged to form the region). Board representation increases with population, with one board representative for every 10,000 people, up to a limit of 5 representatives per LPHA. Regions must divide costs equally, based on population. And, among other things, region administrators must meet certain education and experience qualifications.

Of Connecticut’s 81 health departments, 20 are regionalized health districts. Those districts were formed from the regionalization of two to 18 LPHAs (CDPH, 2007). As such, the effort to promote regions in Connecticut has been fairly popular.

If there are no economies of scale or synergies from regionalization, total costs will naturally rise, as demonstrated in the hypothetical example in Exhibit 5. This example shows spending by four sample localities (LPHAs A, B, C and D) before and after regionalization. It assumes that the LPHAs come together to form a region, and that this region has new administrative costs that will be supported by ‘brand new money’ from state and local contributions. This table has 3 basic sections:

- Spending on services previously provided by localities.
 - This section shows the computation of spending per capita on services that had historically been done directly by LPHAs.
 - The ‘before regionalization’ numbers simply show what LPHAs had been spending on their own.
 - The ‘after regionalization’ numbers show how costs are allocated among LPHAs. In this example, total costs for all LPHAs remain the same under regionalization. Costs within region are allocated based on share of total region population. This may mean a change in spending by LPHAs. For example, LPHA B spent \$60,000 before regionalization and \$69,000 after. The increase can be explained as follows:
 - Before regionalization, LPHA B spent \$10.00 per capita.
 - Total region expenditures come to \$11.50, meaning that LPHA B was spending less per capita than the region average.
 - Since all LPHAs share total costs after regionalization, LPHA B will start paying \$11.50 per capita, so will see total expenditures increase.
- Spending on region-level activities
 - This section shows the additional expenditures for region-level expenses, such as administration, that did not exist prior to regionalization.
 - State contributions are computed using the Connecticut formula. LPHAs with smaller populations get \$2.33 per capita and others get \$1.99 per capita. In addition, there is an assumed \$1.00 per capital contribution from LPHAs.
 - For example, LPHA C has a population of 21,000, which results in state contributions of \$41,790 (at \$1.99 per capita). LPHA C pays an additional \$21,000 (\$1.00 per capita) towards region-level expenses.
 - Note that all monies in this section are ‘new’. That is, the region-level superstructure comes with new costs. State and local contributions are meant to cover these new costs.
- Total spending by localities
 - This section summarizes the net impact on LPHAs. For example, LPHA D originally spent \$80,000 (or \$10.00 per capita). After regionalization, their local costs increased to \$11.50 per capita (in line with region averages), increasing spending on local activities to \$92,000. LPHA D also had to contribute another \$8,000 (\$1.00 per capita) toward region-level activities. The net effect is a rise in total spending from \$80,000 to \$100,000 (\$10.00 to \$12.50 per capita).

The example in Exhibit 5 shows that total public health expenditures by localities would increase from \$437,000 to \$475,000 if there were no synergies from consolidation. This means that LPHAs in this example region now pay \$38,000 more than they used to, with that extra money going to support region-level administration. In addition, the state is now contributing \$76,640 in regional incentives, bringing total extra expenditures to \$114,640.

Note also that because LPHAs now share costs, there can be some redistribution of expenses. In the example in Exhibit 5, LPHA B used to spend \$10.00 per capita before regionalization. But they joined a region with an average spending of \$12.50 per capita, meaning they now have to spend more. LPHA A, however, would see spending decrease from \$15.00 to \$12.50 per capita. Such redistributions are an important consideration when evaluating the political feasibility of district formation. It is much more likely that LPHAs with similar spending per capita will consider such mergers.

Exhibit 5. Connecticut regionalization example with no synergy						
Zero-sum game	Locality				District	Notes
	A	B	C	D		
Spending on services previously provided by localities						
Before regionalization						
Population	3,000	6,000	21,000	8,000	n/a	[1]
Expenditures	45,000	60,000	252,000	80,000	n/a	[2]
Expenditure per capita	15.00	10.00	12.00	10.00	n/a	[3] = [2] / [1]
After regionalization						
Population					38,000	[4] assumed no change from [1]
Expenditures					437,000	[5] assumed no change from [2], simply totaled
Expenditure per capita					11.50	[6]
Expenditure allocated to locality	34,500	69,000	241,500	92,000		[7] = [6] * [1]
Spending on region-level activities						
Before regionalization						
	0	0	0	0		[10] no region yet
After regionalization						
State contribution per capita	2.33	1.99	1.99	1.99		[11] \$2.33 population under 5,000. \$1.99 population over 5,000
State contribution total	6,990	11,940	41,790	15,920	76,640	[12] = [11] * [1]
Locality contribution per capita	1.00	1.00	1.00	1.00		[13] = \$1.00 per person
Locality contribution total	3,000	6,000	21,000	8,000	38,000	[14] = [13] * [1]
Total spending by localities						
Before regionalization						
Total	45,000	60,000	252,000	80,000	437,000	[15] = [2]
Per capita	15.00	10.00	12.00	10.00		[16] = [3]
After regionalization						
Total	37,500	75,000	262,500	100,000	475,000	[17] = [7] + [14]
Per capita	12.50	12.50	12.50	12.50		[18] = [17] / [1]
Change						
Total	-7,500	15,000	10,500	20,000	38,000	[19] = [17] - [15]
Per capita	-2.50	2.50	0.50	2.50		[20] = [19] / [1]

If regionalization brings about no economies of scale (as in Exhibit 5), then it amounts only to extra spending for region level administration. If, however, regionalization is done intelligently, there is the potential to fulfill public health responsibilities more efficiently and effectively. The example in Exhibit 6 builds on the previous example, but assumes that scale efficiencies can save 10% of the monies previously spend at the LPHA level (see “% saved through regionalization” highlighted below). While this number might seem large, recall that a number of LPHA responsibilities, such as planning and monitoring, will now be transferred to the region level. Under these assumptions, total spending by LPHAs actually decreases (even after including the ‘mandatory’ LPHA contribution to the new region) from \$437,000 to \$431,300. Note also that this decrease it at least partly due to the state’s willingness to invest in region level infrastructure (\$76,640 in new spending by the state).

Exhibit 6. Connecticut regionalization example with synergy						
Synergy savings	Locality				District	Notes
	A	B	C	D		
Spending on services previously provided by localities						
Before regionalization						
Population	3,000	6,000	21,000	8,000	n/a	[1]
Expenditures	45,000	60,000	252,000	80,000	n/a	[2]
Expenditure per capita	15.00	10.00	12.00	10.00	n/a	[3] = [2] / [1]
After regionalization						
Population					38,000	[4] assumed no change from [1]
% Saved through synergy					10%	[5] assumed savings
Expenditures					393,300	[6] = [2] total * [5]
Expenditure per capita					10.35	[7]
Expenditure allocated to locality	31,050	62,100	217,350	82,800		[8] = [7] * [1]
Spending on region-level activities						
Before regionalization						
	0	0	0	0		[10] no region yet
After regionalization						
State contribution per capita	2.33	1.99	1.99	1.99		[11] \$2.33 population under 5,000. \$1.99 population over 5,000
State contribution total	6,990	11,940	41,790	15,920	76,640	[12] = [11] * [1]
Locality contribution per capita	1.00	1.00	1.00	1.00		[13] = \$1.00 per person
Locality contribution total	3,000	6,000	21,000	8,000	38,000	[14] = [13] * [1]
Total spending by localities						
Before regionalization						
Total	45,000	60,000	252,000	80,000	437,000	[15] = [2]
Per capita	15.00	10.00	12.00	10.00		[16] = [3]
After regionalization						
Total	34,050	68,100	238,350	90,800	431,300	[17] = [7] + [14]
Per capita	11.35	11.35	11.35	11.35		[18] = [17] / [1]
Change						
Total	-10,950	8,100	-13,650	10,800	-5,700	[19] = [17] - [15]
Per capita	-3.65	1.35	-0.65	1.35		[20] = [19] / [1]

This example demonstrates the promise of regionalization. By working together, LPHAs may be able to achieve savings that they could not otherwise attain working separately. The nice thing about this model is that state spending increases, but it helps localities save.

4.4 Wisconsin

Wisconsin does not have explicit regionalization incentives in its public health funding formula. In 2000, Wisconsin began an innovative approach to funding public health to help “restore the link between price and product” (Chapin & Fetter, 2002). Like many areas of governmental spending, politicians wanted to insure that they were getting the most for their public health dollars.

Wisconsin employs a five-factor allocation formula outlined in Exhibit 7. This formula is not as simple as it seems, as it is only used to frame a starting point for negotiations. Through these negotiations, the state attempts to get the lowest price possible, after assuring certain minimums are met.

Exhibit 7. Wisconsin state public health funding formula	
Factor	Example
Service level: three levels of service based on the range of services offered	LPHA that performs 6 of the 10 essential services might get 1 ‘point’, while one that performs all 10 gets 3 ‘points’.
General population: Total population.	LPHA with higher population should get more money.
Target population: Vulnerable populations, such as aged, poor.	LPHA with higher poverty rate should get more money.
Risk factors: Such as sexually transmitted disease rates, obesity rates.	LPHA with higher HIV rate should get more money.
Geographic factors: Land area.	LPHA with more land area and lower density should get more money.

The formula in Exhibit 7 is only a rough outline. Specific formulas are developed for each public health program. “Program advisory committees of five to 15 members, representing the LPHDs, nonprofit organizations, academia, and the DPH program staff, determine the formula factors and recommend weights for each variable” (Chapin & Fetter, 2002). This five-factor summary, then, is just the tip of the iceberg. Although the formula development process is involved, and certainly sounds complex, it seems clear that Wisconsin is trying to be as precise as possible.

Once the formula establishes a starting price, negotiations between state and local authorities begin. The “state buys only those services it wants, and the locals can decide on the type and level of services that they wish to provide at a mutually negotiated price... if the state does not buy what the LPHD offers it, the state must find another local provider to accept the funds and provide program services. With nonpublic providers, however, the state must go through a prescribed RFP process” (Chapin & Fetter, 2002). One of the most important components of this process is the possibility that private for-profit companies might replace local governmental authorities if they can provide services for less money.

As discussed earlier, the inclusion of a component giving weight to land area has implications for regionalization. By acknowledging the special problems that large area and low population density present to public health authorities, such formula factors may actually make it a bit easier for rural areas to maintain independence. Without the higher state funding, rural areas might feel the need to merge with other nearby authorities just to survive.

Although there is no explicit financial endorsement of regionalization in the Wisconsin plan, the use of open market mechanisms certainly encourages it. The ultimate form of competition or cooperation is up to the individual LPHAs. If LPHAs choose to stay independent, they may be subject to poaching, wherein a neighboring LPHA may attempt to under-bid them. For example, a suburban LPHA may feel it has excess capacity, perhaps in the form of inspectors and planners who don't quite have enough work to keep them fully busy. Since they are already paying an annual salary, the suburban LPHA sees the opportunity to get some money for their slack time by 'selling' it to a neighboring poorer, rural LPHA. The rural LPHA may not be able to underbid, since the suburban competitor is engaging in marginal pricing. In effect, the suburban LPHA would then assume responsibilities of the rural LPHA.

If LPHAs wish to protect themselves from being under-bid out of existence, then regionalization is a good alternative. Rather than competitively bid against neighbors, individual LPHAs could voluntarily form cooperative agreements under which they share certain services. Many rural LPHAs already share inspectors and planners, for example. To the extent that these regions are formed to accomplish real savings, the members are effectively insulating themselves from outside competitors.

By bringing in market mechanisms, the Wisconsin model creates an interesting perspective on autonomy. If local authorities treasure their autonomy too tightly, they may be under-bid out of existence. If local authorities, instead, see autonomy as the right to partner with whom they choose, they may be in a much better position to withstand competition. As discussed before, one of the best ways to maintain autonomy may be through giving some of it away.

Though the formula development and subsequent negotiation processes seem complex, the ultimate goal is to "make the state a buyer of public health output and outcomes" (Chapin & Fetter, 2002). Wisconsin's effort might be seen as opening the door to privatization of public health. Until recently, it was unthinkable to privatize public services such as national defense or schooling. But those practices are now common, albeit not without controversy. Whether or not such privatization efforts last, Wisconsin's plan might best be viewed as a wakeup call for agencies that are not operating efficiently.

4.5 Georgia

Georgia does not have financial incentives for regionalization built into state public health funding formulas. Their funding formula was originally developed in the early 1970s, and is summarized in Exhibit 8 (GDHR-DPH, 2006B).

Exhibit 8. Georgia state public health funding formula	
Tax base share	
	$= \frac{\text{Population}^2}{\sum \text{Population}^2} \cdot \frac{\text{Gross Digest}}{\sum \text{Gross Digest}}$
Population share	
	$= \frac{\text{Population}}{\sum \text{Population}}$
Allocation share	
	$= \frac{(\text{Tax base share} + \text{Population share})}{\sum (\text{Tax base share} + \text{Population share})}$
Where	
	Population is county population
	Gross digest is the county property tax base gross of any exceptions
	Σ represents the sum over all counties

Although the "specific rationale behind this formula is apparently lost to time," (GDHR-DPH, 2006A), the general intent seems to be as follows. The population share component gives more money to counties with higher population. Basically, they have more people to care for, so need more. The tax base share component acknowledges that poorer counties will have a harder time funding their own public health activities, or that poorer counties will have a disproportionate share of public health problems in the first place. Unfortunately, each county's relative share of the total state public health budget was frozen in 1971, meaning that a county getting 2% of total 1971 allocations now gets 2% of 2006 allocations. Although total state budgets have increased, relative shares have not.

If the state share of total local public health funding was small, the inflexible shares might not be an issue. However, in FY2004, the state contributed about \$60 million, compared to the locally-raised \$51 million. So with the state providing such a large portion of public health funds, there have been discussions about changing the distributions.

One of the biggest problems with the Georgia formula is not in the mechanics. Population and poverty are reasonable variables included in many other state funding formulas. However, the relative share of total funding for each county was frozen years ago. If a county had 10 percent of total state population in 1971, they'd fairly get 10% of the population share. But over time, that county may have grown to 15 percent of total state population. Yet they still receive just 10 percent of the funds. In effect, this freeze actually penalizes growth in the very areas the formula was meant to reward.

Georgia public health does have regions, but they are used mostly as a distribution channel for state funds. The regions are normally based in the department of health of one of the larger counties in a region, and do not have authority over county agencies. That said, Georgia local public health agencies occasionally ‘regionalize’ services. But these are more in the shape of voluntary arrangements between counties, for example, to share the cost of an inspector when neither needs a full-time one of their own.

In terms of informing the analysis of regionalization, Georgia’s example is more important in demonstrating the unintended consequences of hold harmless provisions in funding formulas. While fixing relative shares at 1971 levels was mainly a political decision, it had the effect of punishing counties that saw growth in relative share of population or poverty. This is not intended to imply that all hold harmless provisions are bad, since there are good reasons to try to dampen dramatic drops in funding. But such provisions should be carefully thought through to avoid such funding inequities.

4.6 Florida

Florida's public health system is highly centralized. Each county has a local public health agency, but financially and administratively they report primarily to the state (Potter & Fitzpatrick, 2006). The counties are assigned to regions, which provide administrative support to local agencies. These assignments are made by the state.

Regionalization occurs as a natural by-product of state-level administrators trying to best organize public health services to insure efficient and effective use of state funds. For example, if the state sees that a rural county needs more inspectors due to growth, they will decide on the best way to do that. They may have neighboring counties 'lend' their own inspectors for a day a week, or they may decide to hire a new part-time inspector. Since the state is paying the bills, the state can decide when and how regionalization takes place.

While local public health agencies don't have much autonomy, local funds are not supporting the bulk of public health operations. It's a bit like interstate roads. While localities can petition for new roads or modifications, it is the state and federal government that ultimately pay the bills. So they get to make many of the decisions.

Given that Florida public health has been centrally funded and organized almost from the start, there was not a strong 'home rule' tradition that had to be overcome. As such, this case is presented just to demonstrate the range of regionalization efforts exercised in states, and is in no way intended as a realistic alternative for states with strong local organizations.

5 Other Considerations

5.1 Accreditation

Movement towards requiring accreditation for public health agencies is coming from two fronts. From a core functions perspective, the IOM believes that "greater accountability is needed on the part of state and local public health agencies with regard to the performance of the core public health functions of assessment, assurance, and policy development and the essential public health services" (Thielen, 2004). And from a public spending perspective, legislators are under constant pressure to assure citizens that they are receiving value for their tax dollars. Accreditation has potential to meet both needs. On the core functions side, accreditation could be seen as similar to licensing doctors and hospitals, requiring certain minimums in order to assure conditions in which people can be healthy. And on the political side, accreditation represents a defined standard, much like school districts must include reading and math in their core curriculum.

Although accreditation is not technically a formal part of any state's funding formula, experience in other states makes it important to consider the impact of such requirements when evaluating funding formulas.

Missouri has a voluntary LPHA accreditation program administered by the Missouri Institute for Community Health (MICH) (MICH, 2004, Butler et al, 2007). Like accrediting bodies for hospitals and universities, MICH operates independent of state and local governments. MICH's mission is to facilitate and promote excellence in community systems for health and quality of life (MICH, 2004). Though LPHA accreditation is currently voluntary, "a portion of any increases in core public health function funding could be set aside creating a pool to reward agencies that become accredited." (MICH, 2004)

Michigan requires accreditation of its LPHAs (Thielen, 2004). Standards include health assessment, policy development, health promotion and protection, and evaluation of workforce competencies. It also includes benchmarks such as the ten essential public health services. Although funds can be withheld if standards are not met, remediation has helped avoid that necessity to-date.

Washington set standards that parallel many of the ten essential services, including assuring a safe and healthy environment, promoting healthy living and helping people get the services they need (Thielen, 2004). Their standards are set flexibly to allow for continuous improvement. Funding is not specifically tied to 'accreditation'. The entire process is, instead, more aimed at improving accountability.

North Carolina has a mandatory accreditation program that "focuses on a set of minimal standards that must be provided to ensure the protection of the health of the public" (Butler et al, 2007). Though the benchmarks applied are similar to NACCHO's operational definitions, North Carolina has customized the requirements in line with specific practices of LPHAs in their state.

The Illinois Project for Local Assessment of Needs is a mandatory community health assessment and planning process for local health agencies (Thielen, 2004). This process leads to certification, which is required to receive state funds. Assessment is grounded in the ten core public health functions. The state and LPHAs are considering expanding this into a more rigorous accreditation with more focus on standards and accountability (Landrum et al, 2007).

As discussed previously, Florida is a centralized system, with LPHAs run as 'divisions' of the state agency. Each site is reviewed using process and outcomes measures (Thielen, 2004). Their top-down approach leads to mutual negotiations between local commitments and state obligations.

New Jersey has adopted 16 performance standards with 53 indicators of performance upon which all local health agencies must report (Thielen, 2004). Though not specifically tied to funding or formal accreditation, state legislators have expressed a desire to make such linkages in the next generation of accountability. The measures have resulted in some funding redistribution, but this is driven more by relative imbalances than by success or failure on a particular measure.

Ohio sets LPHA 'improvement standards' employing 25 standards with up to 180 optimal measures (Thielen, 2004). Participation is required for state funding, though specific scores on various measures may not influence amounts. Interestingly, Ohio solicited LPHA administrators in developing standards and has been rewarded with wide general acceptance of their program.

Research shows that LPHAs with larger populations are more likely to offer the full range of essential public health services (Mays, Halverson, Baker, Stevens and Vann, 2004). This means that if accreditation standards are based on essential services, many smaller LPHAs are not currently ready. With the possibility that state and federal funds will someday be conditioned on accreditation, such smaller LPHAs have the ultimate financial incentive to regionalize - their very existence.

With accreditation requirements moving forward in many states, LPHAs have to consider if it will be less expensive for them to meet the full range of essential services on their own, or if it will be cheaper for them to share certain services through regional cooperation. Most of the states listed in this section do not explicitly require that each individual LPHA directly provide the full range of services - only that they've 'arranged for' such services to be available. So, LPHAs will still be able to maintain autonomy on some services, but may find it financially advantageous to share the fulfillment of other obligations through regional cooperation.

With efforts towards accreditation likely growing faster and stronger in the coming years, LPHAs that start regionalizing today will likely be in better shape once standards are enforced and funding is made contingent. This gives LPHAs time to shop around for partners with whom they work well and develop the inter-agency trust needed when some degree of autonomy is lost.

5.2 Unintended Consequences

The use of a funding formula "facilitates informed debate about the allocation process by providing documentation of assumptions and computations" (Jabine, Louis & Schirm, 2001). However, the authors go on to warn that "when funds are allocated according to a formula, there is no guarantee that objectives will be fully met". The results of the de facto hold harmless in Georgia (discussed in more detail in section 4.5), wherein counties with a growing share of population saw a relative decrease in funds, show that formulas can actually penalize the very factors they wished reward.

Other perverse outcomes can arise from poorly conceived formulas. "If formula for a prevention program is based on cases of the disease or condition targeted for prevention, a successful program may be penalized: Successful prevention program → fewer cases of disease → lower funding allocation → decrease in funds → possible increase in cases due to diminished support for prevention." (Buehler, 2006)

Although formulas should be specific in order to be fairly implemented, this does not mean that funds need to be designated for specific activities. An OIG study found that "block grants increase administrative efficiency and integration, and did not replace state funds." (IOM, 2002) The IOM recommends that governments "experiment with clustering or consolidation of categorical grants for the purpose of increasing local flexibility to address priority health concerns and enhance the efficient use of limited resources." (IOM, 2002) Pairing this with possible introduction of financial incentives to encourage public health regionalization, it warns states that it may not be a good idea to require that such payments be spent solely on specific functions. For example, a state's incentive payment might require a region to spend its entire \$100,000 incentive on regional headquarters staff only. This takes away the ability of the localities to accomplish more with the same money. The region might have been able to do the same for \$80,000 by drawing on the expertise spread through several of their participating counties. They'd then have \$20,000 left over to do improve education or assessment services region-wide.

Public health agencies, like any business, respond to financial incentives. LPHAs are most responsive when states tie funding for discretionary or block programs to accrediting and standard setting (Thielen, 2004). Public health administrators at both the state and county level stress the importance of making regionalization incentives large enough to get noticed¹. The above discussion of plans in various states showed Connecticut paying up to \$2.33 per capita for regionalization incentives. Missouri's formula only comes close if the smallest counties merge. For larger counties, the amount could be as low as \$0.25 per capita, which barely seems worth the trouble. States have to recognize that regionalization means some loss of local autonomy, and while localities may be resistant, adequate funding might be the sugar needed to swallow some of their pride.

¹ Based on the experience of this study's author, through meetings and conversations with numerous state and local public health officials in several states. Being government employees, most officials are required to support official state policy on the record. In order to insure this researcher's continued access to candid information, subject identities are withheld and their comments are considered off the record.

6 Conclusion

"There are two contradictory approaches to describing public health. One is the oft repeated cliché that 'if you have seen one health department, you have seen one health department.' The other is the extensive work, and almost universal acceptance, that public health indeed involves core functions and services" (Thielen, 2004). Embedded in the first part of Thielen's statement is the implication that the word 'local' in local public health agency is extremely important both to those who provide the services and for those that receive them. LPHAs value their independence for a variety of reasons. First, most of the people protected are local. For example, while inspections will benefit anyone remotely connected to a locality, even passers-thru, the people who would most likely be impacted are the local residents themselves. Second, state level administrators can not be everywhere at once, so will not understand individual markets the way local managers do. Further, most LPHAs are run under city, county or township government, so their allegiance is appropriately to their own residents.

That an LPHA is loyal to local residents should not, however, interfere with the serious consideration of possible advantages to regionalization. The potential economic and financial impacts of public health regionalization are significant. Regionalization can offer localities a way of doing their job more efficiently and effectively, with no loss in quality of care. It is, in fact, the responsibility of any LPHA to consider anything that may help them do more with their limited resources, as it could ultimately benefit the health of their communities.

A number of states already have financial incentives that explicitly encourage public health regionalization. Utah, Missouri and Connecticut pay as much as \$2.33 per capita from state funds to LPHAs that form regions. Wisconsin effectively puts local public health up for bid, making regionalization a possible consequence of simple market forces. Florida, with its centralized structure, demonstrates that states will look to regionalization when they pay for most public health services, simply to insure cost efficiency. And Georgia's hold harmless shows how formulas can sometimes work contrary to original goals.

Other unintended consequences of public health funding formulas serve as a reminder that the use of any formula to promote regionalization must be carefully considered. The likelihood of success is raised with active participation of local agencies in the development of funding mechanisms. And while local agencies may have to give up some autonomy to the region, the state should grant the region some autonomy in deciding how to best apply funds.

Finally, growing interest in requiring public health agency accreditation may be the 800-pound gorilla that provides the last bit of incentive needed for LPHAs to seriously consider regionalization. Money is one of the most important reasons why any LPHA, even the smallest, may not meet accreditation on its own. Even a remote rural clinic could find a nurse if they were able to pay what might be considered an extremely high salary. Unless localities are willing and able to spend their way into compliance, the best alternative might be regionalization. If localities find that they can meet accreditation standards jointly at less cost than they could alone, regionalization might be the most logical choice.

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