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Briefing on Local Health Department Consolidation Potential in West Virginia

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1. Introduction

Many of West Virginia’s county-based local health departments (LHDs) have faced growing financial strain as a result of declines in federal, state and local government funding while political, economic and demographic changes have increased the need for the critical services these agencies provide. At the same time, numerous LHDs in the state generate limited amounts of revenue and face high costs for the services that they provide due to an array of human and physical capital resource constraints. Moreover, these health departments face the added difficulty of servicing counties with small, declining or widely-dispersed population bases.

Prior research² suggests that many costs associated with the services that are delivered by local governments—including the provision of public health—can be lessened by dispersing them over a larger or more densely-concentrated population³. As a result, state officials in West Virginia have begun to examine the efficacy of consolidating county-based LHDs into a multi-county regional model that aggregates resources and certain key activities into a centralized location yet maintains some local provision of services.

Ultimately, these consolidated health departments create the potential for lowering system-wide expenditures by eliminating overlapping administrative functions and administrative costs and could also generate additional revenue as areas that once lacked the ability to provide certain services to residents could now do so thanks to the availability of sufficient staff and resources. However, it is crucial to identify the optimal organization of these multi-county health departments as the cost savings potential will be directly affected by service volume and the population’s size and density⁴.

Based upon the cost-savings potential offered by consolidation of West Virginia’s LHDs, Drema Mace, PhD, Executive Director of the Mid-Ohio Valley Health Department developed a generalized model and outline for aggregating the state’s various LHDs in West Virginia into 9 districts and the potential cost savings to the system that might arise from this process. This report will provide a review of her methodology and identify other benefits, costs, national-level trends and other prospective issues that should be examined for a statewide LHD consolidation plan. Finally, we also provide a brief review of academic research concerning LHD consolidation, which includes results from studies of LHD consolidation in other areas and suggestions for other areas research that should be focused upon to garner a more comprehensive understanding of the policy’s potential impact in West Virginia.

² See for example Holzer, Marc and John C. Fry (eds). 2011. *Shared Services and Municipal Consolidation: A Critical Analysis*. Public Technology Institute, Alexandria, VA.

³ Lago-Peñas, S. and J. Martinez-Vazquez (eds). 2013. *The Challenge of Local Government Size: Theoretical Perspectives, International Experience, and Policy Reform*. Cheltenham: Edward Elgar.

⁴ Deller, S.C. 1992. “Production Efficiency in Local Government: A Parametric Approach,” *Public Finance*, 47(1), 32–44.

2. Review of Mace Methodology

COST CONSIDERATIONS FROM REGIONAL MODEL Drema Mace, PhD, Executive Director of the Mid-Ohio Valley Health Department provided a general model of consolidating West Virginia's LHDs into a 9-region system that focused exclusively on the potential personnel cost savings that could be possible as redundant positions across the service area are consolidated to the region's center. Within the analysis, six specific occupations are identified that are considered vital to run a LHD efficiently and effectively. As these positions are centralized to the regional office from their satellite county locations or no longer contractually provided for by other entities or through partnerships, personnel costs would diminish in proportion to the salaries and fringe benefit payments allocated to each position.

Overall, Dr. Mace calculated a gross savings to the system of nearly \$12.5 million, with the recognition that the actual amount would likely vary if more (or fewer) occupations are identified as vital to operations. Also, the choice of salary and fringe base paid for these specific occupations influences the total savings calculation. Dr. Mace uses the Mid-Ohio Valley Health Department's salary/fringe rates as the basis, but given that wages will vary throughout the other 8 regions, the savings could be appreciably lower or higher due to local labor market conditions (i.e. wage rates) as well as the financial conditions of county governments.

Dr. Mace's estimate is fundamentally sound in its scope based upon the conditions she specified and does serve as a good starting point in framing the overall discussion. However, we recommend a more robust and comprehensive analysis. Specifically, further research should take into account additional savings from consolidating back office functions and identify and build on the economies of scale that exist for public health services, including environmental health, epidemiology, public health preparedness and other relevant considerations.

In addition, personnel costs do not constitute the only form of expenditures for LHDs. Aside from their outlays on wages and fringe benefits, LHDs must procure and manage inventories of drugs, medical equipment and a host of other supplies. However, smaller LHDs will likely have to purchase these goods in more limited quantities and face higher unit prices relative to larger LHDs that benefit from volume pricing. Consolidating these procurement services into the larger core regional office would likely enhance overall purchasing power and lower overall expenditures. Given that the magnitude of cost savings realized in West Virginia arising from larger-volume purchases of vaccines and other supplies is unclear at this time, we propose investigating the changes in expenditures for these items in other states both pre- and post-consolidation in order to provide a potential benchmark.

GEOGRAPHIC COVERAGE OF REGIONS In addition to the occupations, another central assumption for the potential cost savings measure is the choice of how regions will be organized. For example, selecting more regions would likely diminish any cost savings potential and would also leave fewer opportunities for expanding the provision of services in regions where services are already limited in the component counties. At the same time, however, creating regions that are too large could yield unintended consequences as programs administered from the main regional office would need to be carried out

over a larger geographic region and likely require additional staff. Participation in health services (including those that generate revenue streams) could also be negatively affected as residents in more distant outlying counties must travel greater distances for care or other services that could not be provided at local offices.

According to research conducted by Santerre (2009)⁵, approximately 100,000 residents in a jurisdiction is estimated as the minimum efficient scale for LHDs in the US. Further, Santerre estimates that per capita cost savings will continue to be realized for LHDs up to 500,000 residents in the jurisdiction. Of course, given West Virginia's geographic considerations and the limited transportation options that exist in parts of the state, distance to services should be included in any model to ensure that services continue to be accessible and personnel time is allocated on an efficient basis.

Dr. Mace's report uses a pre-existing 9-region map and appears to balance concerns that might exist regarding tradeoffs between population size and travel time for residents. Nonetheless, we believe an in-depth empirical analysis is needed to fully assess whether the regional model presented by Dr. Mace should serve as the appropriate geographic grouping of counties selected for consolidating LHDs in West Virginia. Specific factors such as transportation networks, minimum population density, minimum total population, health and socioeconomic characteristics of the population should be considered as key parameters for properly identifying how counties are grouped into a specific region.

Another factor that could also receive consideration when organizing regions is the relative financial and organizational health of county LHDs that comprise a potential regional specification. For example, consolidating multiple LHDs that are struggling financially or dealing with other organizational shortcomings could produce a regional department that suffers from the same issues. Consequently, counties that are identified as likely sites of the main regional office should have the strongest financial and operational characteristics, which would necessitate an assessment of each LHDs strengths and weaknesses across specific financial and operational criteria.

3. LHD Revenue

STATE AND NATIONAL TRENDS Cost savings are often a central focus when consolidating services from multiple locations, both in the public (schools, health departments, etc) and private sector (corporate mergers), but revenue growth can be greatly affected by consolidation efforts. Prior to examining the potential revenue effects of consolidation, we analyze the current revenue-generating capacity of LHDs in West Virginia.

According to self-reported LHD data from the FY 2014 Program Plan database, administered by the West Virginia Bureau for Public Health, the state's LHDs generated approximately \$4.3 million in fee revenue from clinical activities (excluding home health and some miscellaneous services) during fiscal year 2014, or approximately \$2.34 per capita statewide. Among the state's 49 LHDs, the median clinical revenue

⁵ Santerre, Rexford E. 2009. "Jurisdiction Size and Local Public Health Spending," *Health Services Research*, 44(6), 2148-2166.

received was \$1.62 per capita. Fifteen of the state's LHDs received less than \$1 per resident and while the majority of these come from counties with fewer than 30,000 residents, four of these LHDs provide services within counties that contain at least 43,000 residents (with one LHD approaching 100,000 people).

The National Association of County and City Health Organizations (NACCHO) indicates the median LHD nationally earned approximately \$5 per capita in revenue from clinical sources during the 2013 fiscal year (most recent data available)⁶. This figure varies widely based upon the size of the jurisdiction the LHD services. For example, jurisdictions with fewer than 25,000 residents reported the highest median clinical revenue (\$7 per capita), while a median of approximately \$5 per capita was recorded for LHDs servicing between 25,000 and 100,000 residents. At the same time, the reported median of per capita clinical revenue differs significantly based upon LHD governance structure, as those with a shared state-local governance reported the highest median clinical revenue (\$16 per capita) and LHDs managed directly by local governments reported a median of only \$3 per capita.

These estimates suggest that even absent consolidation, many of the state's LHDs have unrealized revenue potential. For instance, if all LHDs generated clinical fee revenue equal to that of the reported national median for locally-governed health departments (\$3 per capita), revenue would expand by \$2.2 million. Of course, higher levels of revenue collection are also possible. Furthermore, should LHDs record clinical fee revenue on a per capita basis at least on par with the Kanawha-Charleston Health Department (\$4.11 per resident), overall revenue within the system would rise by \$3.8 million. Finally, \$7.7 million in additional fee revenue exists if LHDs in West Virginia saw fee revenue collections come in at the rate of Monongalia Health Department (\$6.47 per resident).

LHD BILLING PROGRAMS During a time in which direct state and local government financial support is declining, one mechanism by which LHDs can generate additional revenue is to directly bill third-party payers. According to NACCHO⁷, 90 percent of LHDs in the U.S. bill at least one type of third-party payer (Medicaid, Medicare, private insurers) for services, via in-house mechanisms or contracts with external entities. Among those LHDs that bill one or more third-party payers, roughly two-thirds report that they use their own in-house billing services. The size of the population serviced by the LHD appears to influence the utilization of in-house billing services. Less than 60 percent of LHDs serving areas with fewer than 50,000 residents billed third-party payers while nearly three-fourths of those in areas with more than 50,000 used internal capabilities to bill Medicaid, Medicare or private insurance companies.

⁶ *2013 National Profile of Local Health Departments*. 2014. Washington, DC: National Association of County and City Health Organizations. http://nacchoprofilestudy.org/wp-content/uploads/2014/02/2013_National_Profile021014.pdf. (Accessed January 2016)

⁷ "The Changing Public Health Landscape: Findings from the 2015 Forces of Change Survey." 2015. Washington, DC: National Association of City and County Health Associations. <http://nacchoprofilestudy.org/wp-content/uploads/2015/04/2015-Forces-of-Change-Slidedoc-Final.pdf>. (Accessed January 2016)

EFFECTS OF CONSOLIDATION Many LHDs in West Virginia currently collect relatively limited amounts of fee revenue. In addition, due to a range of resource limitations, many of these departments lack the scale and/or overall level of expertise needed to set up the in-house billing services, or even partner with external agencies, necessary to maximize revenue generated from providing essential services. Consolidation offers an avenue that would enable many of the state's smaller or less resourced LHDs to organize and pool their resources under the umbrella of a larger regional organization that would realize economies of scale and have the critical mass of human and physical capital needed to bill for the essential services they already provide.

At the same time, the process of consolidating LHDs into larger multi-county organizations in West Virginia also creates the opportunity for enhancing fee revenue streams beyond services that are currently available. For example, many LHDs are only able to offer at most a few programs to residents that generate fee revenue because they lack the institutional capabilities (labor, equipment, drug supplies) and must send residents to private service providers or leave them underserved. Consolidating operations into a regional unit would enable LHDs to achieve the critical mass necessary (workforce, facilities, etc) to provide these programs or potentially create new ones.

In order to properly gauge the potential revenue gains created by enhanced provision of services, further study of other states' experiences pre- and post-consolidation, particularly for those with sizable rural populations like West Virginia, should provide some guidelines on expected growth in generated fee revenue.

4. Brief Overview of Other Research on LHD Consolidation

Several studies have been published in recent years that provide empirical evidence supporting the premise that consolidating LHDs increase efficiency, improve the effectiveness of public health services and can also increase the overall level of available services in some areas. For example, Santerre (2009) points to consolidation generating economies of scale for health departments and improve overall cost effectiveness. Mays et al. (2006)⁸ and Hoornbeek et al. (2012)⁹ also report evidence of cost savings and other benefits such as improving the performance of essential health services.

Most recently, Hoornbeek et al. (2015)¹⁰ examined the impacts of LHD consolidation on public health expenditures in Ohio. This study used a mixed methods approach of qualitative and quantitative data analysis of 20 separate LHD consolidation events in Ohio over a 10-year period (2001-2011). The quantitative portion of Hoornbeek et al. controls for potential selection bias that might exist as a result of consolidating LHDs being fundamentally different from those that do not consolidate.

⁸ Mays, GP, et al. 2006. "Institutional and Economic Determinants of Public Health System Performance," *Public Health*, 96(3), 523-31.

⁹ Hoornbeek, John, et al. 2012. *Consolidating Health Departments in Summit County, Ohio: A One-Year Retrospective*. Kent, OH: Kent State University Center for Public Administration and Public Policy.

¹⁰ Hoornbeek, John et al. 2015. "The Impacts of Local Health Department Consolidation on Public Health Expenditures: Evidence from Ohio," *Journal of American Public Health*, 105(S2), S174-S180.

Overall, this study indicates that after correcting for possible selection bias, consolidation reduces total expenditures on a per capita basis by 16 percent. At the same time, however, the article also indicates that LHD consolidation is not conclusively linked to lowering administrative costs measured on a per capita basis. This study focused solely on municipal-county consolidation, so further research is needed to determine whether per capita administrative cost savings would indeed be greater for multi-county consolidation efforts, such as what has been proposed for West Virginia LHDs.

In addition to the quantitative results, the authors provide responses from a survey of local health department officers. These results show LHDs from smaller cities were perceived to have gained the most from consolidation efforts because staff expertise and resources could now be directed from stronger county departments toward jurisdictions that lacked sufficient levels of staffing. While not conclusive, this particular result could inform at least some aspects of the regional model's geographic hierarchy. Specifically, smaller LHDs or those with significant resource constraints should be connected to a larger and/or a more financially viable LHD.

5. Conclusions

This report provides a brief overview and critique of Dr. Drema Mace's methodology on cost savings associated with consolidating LHDs in West Virginia to a defined multi-county regional model. Although we find Dr. Mace's assumptions and results to be logical and easily understood, we have determined additional research should be conducted so as to gain a more comprehensive accounting of all the possible quantifiable benefits and costs that occur as a result of consolidating LHDs into multi-county entities. Specifically, direct cost savings could prove to be significantly higher than these preliminary estimates while consolidating operations also generates the potential for enhanced revenue streams vis-à-vis the expansion of fee-driven public health services.

We also find that further investigation is necessary to determine the proper geographic design by which county LHDs are consolidated by examining transportation issues, demographic and socioeconomic variables as well as the overall financial and organizational health of county LHDs. Finally, we conduct a brief review of academic literature that examines the impacts on expenditures and the effects on health services provision from consolidating LHDs in other states or areas. These reports provide empirical support that consolidation at least reduces total expenditures on a per capita basis and yields improvements in the delivery (and perceived quality) of health services to areas previously suffering from resource constraints. Additional literature review is required to examine the impacts of consolidation in states that are predominantly rural, similar to that of West Virginia.

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