



# Research Brief

## Financial Resources and Workforce Predict LHDs' Use of Evidence-Based Decision-Making Strategies

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Public health departments play a key role in improving the health of populations as a whole contrasted with private medical care that focuses on the health of individuals. Despite great strides in reducing mortality and extending life expectancy, the United States is lagging behind many other countries in meeting population health goals, with large disparities existing between socioeconomic groups, racial and ethnic groups, and between men and women. National health organizations such as the Institute of Medicine have recommended that efforts to improve health and reduce disparities should adopt evidence-based population strategies and approaches.

Population health approaches take into consideration the complex interrelatedness of genetic, biological, behavioral, environmental and social determinants that affect the health of the population. Evidence-based approaches systematically apply data and scientific research on what actually works to improve population health. Local health departments (LHDs) often serve as the conveners and implementers of efforts to improve population health in communities. Given the ongoing financial pressures on the public health system, evidence-based approaches are essential to the responsible use of resources when communities seek to improve the population's health. Increasing the extent to which LHDs practice evidence-based public health requires first assessing the extent to which LHDs already use evidence-based public health practices and then identifying modifiable factors that predict their use.

This research brief summarizes the findings of an analysis designed to identify modifiable factors that impact the use of evidence-based decision-making (EBDM) by LHDs. The research team used data from the National Association of County and City Health Organizations (NACCHO), the Association of State and Territorial Public Health Officials (ASTHO) and the 2010 Census of Population and Housing. The analysis sought to answer two broad questions: 1) Do resources at the local and state level predict the extent of EBDM by LHDs? (2) Do type and training of specific personnel at the local level predict the use of EBDM by LHDs?

### Methodology

To answer these questions, county-level data were used from the NACCHO National Profile of Local Health Departments Study; state-level data were drawn from the ASTHO 2010 Profile Survey and contextual data were taken from the 2010 Census of Population and Housing. Data from these datasets were combined into a single harmonized dataset by researchers at the University of Kentucky and Georgia Southern University. In 2010, all LHDs (N=2,565)

### Key Quantitative Findings

- The most frequently used Evidence-Based Decision Making (EBDM) practices were completing a Community Health Assessment and completing a Community Health Improvement Plan.
- The least frequently used EBDM practices were using the County Health Rankings, applying research findings to practices within the organization, and using The Guide to Community Preventive Services.
- The size of the jurisdiction's population positively predicted the number of EBDM practices.
- LHD expenditures predicted the number of EBDM practices used.
- Workforce training and presence of health educators, epidemiologists, and preparedness coordinators predicts the use of EBDM practices.
- LHDs in centrally governed states used fewer EBDM practices than those with decentralized governance.

were invited to complete the core survey of the NACCHO study, and a scientifically drawn sample of these LHDs (N=625) were also invited to complete an extra set of questions (Module 2), which included items that pertained to evidence-based decision making.

### EBDM Activities Defined

For the analysis, evidence-based decision-making for population health (EBDM) was operationalized through development of an index of LHD activities included in the NACCHO Profile Survey. Items for this index (see Table 1) were selected after consulting the literature and an expert panel about what constitutes evidence-based public health practices. The expert advisory panel (N = 14) consisted of evidence-based public health (EBPH) researchers, state and local public health officials, and representatives of national public health organizations (i.e., NACCHO, ASTHO, the Public Health Foundation, the National Network of Public Health Institutes, CDC staff for the Community Services Preventive Services Task Force). After items were selected, we conducted a content validity survey with members of the advisory team. All respondents rated all items comprising the index as “important,” “very important,” or “critical” to EBDM. Total scores for the resulting EBDM index could range from 0 to 7, reflecting the number of different types of EBDM practices reported by the LHD.

Table 1: Index for Evidence Based Decision Making

Individual Item	Response	Item Score	% of LHDs performing this activity
Number of the following types of epidemiology/surveillance activities performed directly by the LHD: Communicable/infectious disease, Injury, Environmental health, Maternal and child health, Syndromic surveillance, Chronic disease, and Behavioral risk factors	0 types	0	5.1%
	1 thru 3 types	1	43.0%
	4 thru 7 types	2	51.9%
Completed a Community Health Assessment within the last 5 years	Yes	1	60.9%
Participated in a Community Health Improvement Plan within the last 5 years	Yes	1	49.5%
LHD has applied research findings within their own organization within the last 12 months	Yes	1	25.7%
LHD has already used the County Health Rankings to increase public, policymaker, and/or media awareness of the multiple factors that influence health	Yes	1	35.6%
LHD staff used the Guide to Community Prevention Services (Community Guide) to support or enhance decision making in the LHD.	Yes	1	22.3%

### Analysis

As seen in Table 1, LHDs vary considerably in the percentage that used each of the practices comprising the evidence-based decision making for population health index. Overall, 2.3% of LHDs reported not using any EBDM practices; 14.6% reported using only one practice; 16.4% reported two; 16.1% percent reported three; 20.8% reported four; 18.9% reported five; 8.7% reported six; and 2.2% reported using all seven practices.

*Resources.* We identified predictor variables at both state and local levels to assess resources available to LHDs. LHD-level predictor variables included whether the budget for the 2010 fiscal year had decreased from the previous fiscal year, the percentage of total employees laid off or lost via attrition from 2009-2010, and per 1000 a) total expenditures for the most recently completed fiscal year b) local sources of 2009 revenue, b) Medicaid revenues, and c) Medicare revenue. At the state-level, we included state-level expenditures per 1000.

*Workforce.* All workforce predictors were measured at the LHD level: a) whether the LHD executive was in his/her first position as a top LHD executive, b) tenure in the position [less than 5 years, 5-10 years (referent), or 20+ years], c) type of degree (separate predictors for graduate public health degree, medical degree, or a nursing degree [BSN, MSN, RN]), d) total number of employees per 1000 population, and employment of one or more e) epidemiologists, f) health educators, g) nutritionists, h) emergency preparedness staff, and i) whether anyone in the LHD had attended a health impact assessment training in the past year.

*Contextual Variables.* Contextual, largely non-modifiable variables included the 2010 population size (in 100-thousands), and sociodemographic characteristics. State-level predictors included the state-local health department relationship, decentralized, centralized, mixed, or shared, as well as the state population, and the percent of the state’s population in poverty.

*Statistical Analyses.* Two multilevel models were used in the analysis, one to examine the *resource* factors predicting the use of EBDM and the other to look at the *workforce* factors predicting EBDM. In each multilevel model, information about the local health departments was modeled at Level-1 and information about the states was modeled at Level-2. Statistically significant relationships are shown in Table 2 through adjusted incidence rate ratios (IRR).

### Predictors of Evidence-based decision making in LHDs

Table 2: Resource and Workforce Factors that Predict Evidence-Based Decision Making

	Resources (IRR)	Workforce (IRR)
Context	Population size + (1.02) Percent of population under 18 – (0.99)	Population size + (1.02)
Local	Total clinical services + (1.03) LHD expenditures, middle tertile of counties + (1.14) Changes in budget from previous year + (1.10)	Top executive’s education, Public health degree + (1.17) LHD Employees per 1,000 + (1.08) Epidemiologist + (1.13) Health educator + (1.18) Preparedness coordinator (1.30) Participated in HIA training (1.12)
State	Centralized compared to decentralized – (0.74)	Centralized compared to decentralized – (0.74)

LHDs that served larger populations were more likely to use EBDM than those that served smaller populations. In both models, LHDs in states with a decentralized state-local governance relationship used fewer EBDM practices.

In terms of resources, LHDs in the middle tertile for expenditures used more EBDM practices than LHDs in the bottom tertile. LHDs that had experienced a budget cut from the previous year used more EBDM practices than those where the budget had stayed the same, increased or was unknown. State public health expenditures were not related to the number of EBDM practices used by LHDs.

In terms of workforce, LHDs that had a top executive with a public health degree and those that employed epidemiologists, health educators, and/or emergency preparedness staff within their department used significantly more EBDM practices than other LHDs. In addition, LHDs in which the staff had participated in a training session for health impact assessments within the past year also used significantly more EBDM practices.

### Discussion

Local health departments vary in the extent to which they engage in EBDM practices; some LHDs use many EBDM practices and others use few. A large percentage of LHDs do not use the County Health Rankings, the Community Guide, or research findings to inform practices in their organization, suggesting areas for training and resource sharing with other LHDs. Though both resource factors and workforce factors were found to predict the use of EBDM practices, there were more predictive workforce factors, suggesting concrete ways for LHDs to make strategic hires.

### Study Limitations

The LHD survey data were self-reported and cannot be independently verified. Respondents may have interpreted questions differently. Because the EBDM measure used is a count of different types of EBDM practices used it does not account for the frequency or intensity of use for each practice.

### Research Recommendations

For future research efforts there is a need for a measure of EBDM practices that takes into consideration the quality and the frequency of EBDM practices that are used. It is possible that some evidence-based public decision making practices are more important than others, or that combinations of practices result in more effective public health

practice. Future research should investigate how EBDM practices facilitate the implementation of evidence-based interventions. One of the surprising findings of this research was the negative relationship between a state governed public health system and the number of EBDM practices that are used. This finding was counterintuitive, as states should have more control over what happens in these LHDs. It is important to determine what causes this gap.

## Policy and Practice Recommendations

- The public health system has a central focus on evidence-based population health improvement. How resources are used may be more important than the amount of resources.
- Our findings suggest that it is important to be strategic in hiring. This would include hiring personnel with appropriate degrees and training in evidence based public health practice, specifically:
  - LHD directors with degrees in public health,
  - Epidemiologists
  - Health educators
  - Preparedness coordinators
- State laws and local regulations could require specific educational requirements for LHD directors, specifically, a graduate degree in public health.
- Qualified personnel come with a price. Increasing salaries for key personnel and supporting training and technical assistance in evidence-based public health practice is a way to improve the quality of the public health system.
- Capacity development for EBDM is needed because most of the current public health workforce is not trained in public health or evidence-based decision making. To develop capacity for EBDM:
  - Train LHD personnel to use the County Health Rankings and Roadmaps, an easily available source of county data and evidence-based strategies to inform their community health improvement efforts.
  - Train LHD personnel in how to use and adapt the interventions recommended through The Community Guide.
  - Offer continuing education, university courses, institutes, and online modules in evidence-based decision making for public health.
- Partnerships may be important sources of expertise and resources for the implementation of evidence-based practice. As well, community partners will have unique perspectives on the needs of the community that can enrich the work done by the LHD.

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