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Characteristics Of A Local Health Department Associated With The Use Of The Health Equity Index

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Abstract

Local health departments are tasked with understanding and addressing health inequities in the populations they serve. To meaningfully address health inequities, local health departments have identified the need for credible local data to better understand the relationship between community conditions and health outcomes. Yet, when given access to these data, we observe a very large variation in the level of interest between local health departments.

In this study, we offered Connecticut's Local health departments access to the Health Equity Index, a web based tool that provides data on health outcomes and community conditions at the state, municipal or neighborhood levels. Their usage of the Index was then monitored. We compared participation in the study as well as usage levels of the Index to characteristics of individual health directors, the health departments they lead and the populations that they serve. Those health directors who chose to participate in the study and gain access to the index were more likely to lead departments or districts with economically disadvantaged and racially and ethnically diverse populations. They were also more likely to be supported by a board of directors. Usage level of the Index was best predicted by the length of service of the health director and the percentage of MPH on staff. This study was limited by a small study size, with directors of health given the role of gate-keeper to the Index for their departments. Future studies should investigate Index usage by local health departments without this restriction.

Keywords

Health Equity, local health departments public health services and systems research

P ublic health professionals play a major role in identifying and addressing community conditions that impact health (1-2). Preservation and promotion of community health is critical for economic and social survival. One barrier local health departments (LHDs) face to effectively promote health is lack of credible local data (3). Access to local data is an essential step toward an overall goal of evidence-based decision making (4). To provide each LHD with precise, localized data that identifies the social determinants of health and their impact on the state's most vulnerable populations, the Connecticut Association of Directors of Health created a web-based instrument called the Health Equity Index (Index). The Index functions as an electronic database that profiles state, town, and census block group level measures of health outcomes, demographics and community indicators (5, 6). All measures are ranked by decile, and displayed in maps by neighborhood. Correlations between social determinant scores, demographic characteristics, and health outcomes are also presented in the Index.

Each Connecticut LHD's use of the Index was monitored over a seven-month period. Data was collected on LHD characteristics to determine which predict usage. Fifty-four percent of LHDs completed a survey about the Index, the majority being full-time health directors. Interest in the Index was predicted by population demographics and the existence of a local board of health. Levels of use of the Index were predicted by the length of service of the health director and the percentage of staff with a Master's degree in public health.

METHODS

A database describing each LHD was compiled using annual Connecticut Department of Public Health reports and population demographics. LHD characteristics included whether they were a municipal department or a district serving several towns, whether the health director was full- or part-time, whether the LHD had a board of directors/board of health, the sources of funding of the LHD and staffing characteristics.

A survey was sent to all Connecticut health directors. Links to surveys were distributed by email and reminders were sent via email and in membership newsletters. Participation in the survey was also encouraged at membership meetings. Information collected on the survey included the diversity and educational attainment of staff, the number and breadth of positions offered at the LHD, and whether any staff members were assigned to work with data. Other questions focused on the health director's length of service and background, their communication style, and their views on health equity. Health directors were also asked whether they had used the Index previously. After survey completion, each LHD was given a login to the Index, which allowed researchers to track usage via Google analytics and custom reports, and all LHDs were offered instruction on Index use. Analytics included the number of times a LHD logged into the Index, the number of staff using the Index, and the number of page views per month. A final survey was sent to participants after the data acquisition period to determine how the index was being used.

Two distinct analyses were conducted. The first was a comparison of the characteristics of a LHD between departments that chose to participate in this study and those which did not. Data was entered into SPSS (IBM, Armonk, NY), and the Wilcoxon-Whitney test was conducted to test for differences between those LHDs who did and did not complete the initial survey.

The second analysis compared Index usage among the 40 LHDs who completed the survey. Survey responses were combined with secondary data describing the LHDs. LHDs were grouped into four usage categories depending on how frequently they logged in to the Index and the number of page views per month. Data was entered into R (R Foundation, Vienna, Austria) and a proportional logistic regression model was fit to predict usage levels.

RESULTS

The full-time status of the health director was an important predictor of participation. Other strong indicators included the presence of a board of directors/health and the economic status of the population served. Results are shown in Table 1. Whether the LHD served an urban center or a rural town was not predictive of project participation, although LHDs serving urban areas with diverse populations were more likely to participate in this project than more homogenous urban or rural areas. Differences in the level of funding from state, federal or private sources failed to predict participation.

Table 1. Characteristics of a LHD that predict project participation (Mann-Whitney test)

LHD Characteristic	Participant	Non-participant	Significance level Mann-Whitney U-Test
Full Time/Part Time	37FT / 3PT	13 FT / 21 PT	.00**
Department/District	22 Dept. / 18 District	31 Dept / 3 District	.00**
Board of Directors	28 with / 12 w/o	7 with / 27 w/o	.00**
Urban/Rural	36 urban / 4 rural	25 urban / 9 rural	.35
Geographic Size	41 mi²	28 mi²	.03*
Population Density	1185 / mi²	575 41 / mi²	.01**
% Population Non-Caucasian	7.8%	5.8%	.00**
% Population Hispanic	3.2%	2.1%	.01**
% Families Living in Poverty	5.2%	3.0%	.00**
Education Level of Population (Overall HEI Score)	5	7	.00**

*p < 0.05, **p < 0.01

The best fitting model, using proportional logistic regression to predict usage levels, included the percentage of staff with a MPH and years the health director was in his or her job (Table 2). The odds ratio of the years the health director was in his or her job was 1.96 (1.11 - 3.66) and percentage of staff with a MPH was 2.04 (1.04 - 4.38). Years in the job is the best single predictor of usage levels.

Table 2 Proportional logistic regression modeling

Coefficients

	Value	Std. Error	t value
Years DOH	0.6744	0.3008	2.242
MPH Staff	0.7270	0.3626	2.005

Intercepts

	Value	Std. Error	t value
0|1	1.6213	1.1054	1.4667
1|2	4.3313	1.3206	3.2799
2|3	5.8428	1.4491	4.0319

Residual Deviance: 88.77013
AIC: 98.77013

	Value	Std. Error	t value	p value
Years DOH	0.6743534	0.3007776	2.242033	2.495923e-02
MPH Staff	0.7269881	0.3626025	2.004918	4.497186e-02
0|1	1.6213047	1.1053871	1.466730	1.424494e-01
1|2	4.3312538	1.3205540	3.279876	1.038526e-03
2|3	5.8428443	1.4491380	4.031945	5.531717e-05

We also found that more frequent users of the Index were more likely to use the Index for community needs assessments, strategic planning and grant writing. Moderate users were more likely to use the data for conversations in the community, and infrequent visitors used the Index out of personal interest.

IMPLICATIONS

Part-time Connecticut health directors are likely to lead departments in small rural locations, providing mostly mandated environmental services to their towns. The Index is intended to help LHDs better understand health equity and the social determinants of health in their communities. It was therefore not surprising that departments serving more diverse, less economically secure populations would be more interested in access to the Index. It was more surprising that the presence of a board of directors at the LHD was a strong predictor of project participation. One can speculate that oversight by a board of directors could lead to a broader vision of public health, therefore encouraging project participation.

Among those who used the Index, years of service of the health director and the number of staff members holding a MPH degree were predictors of Index use, which may be due to the complex nature of the job of health director. During the course of this project, LHDs faced the task of dealing with the aftermath of hurricane Sandy, power outages, and crippling blizzards. One can speculate that more experienced health directors may be better able to keep sight of the importance of health equity in the face of potentially overwhelming responsibilities. Additionally, staff with a MPH degree may be better qualified to make use of the data. Interestingly, prior training and experience using the Index was not a strong predictor of Index use. Nor was a positive attitude towards the role of a LHD in addressing health disparities and social justice issues. This suggests that familiarity and intention are not sufficient to predict use of the Index.

One must interpret these results cautiously because the study size was small. It is possible that more than 54% of LHDs would have participated if we had not required the health director to be the sole point of contact. Other LHD staff may have used the Index in departments where their health director did not complete the initial survey. We are in the process of expanding access to the Index to a broader group of users, and will continue to monitor its adoption by LHDs and others.

SUMMARY BOX:

What is Already Known about This Topic? Public health practitioners are most effective when using evidence-based decision making, but are not always very effective in using available data to make these decisions.

What is Added by this Report? We determined that the length of service of a local health director is more predictive in usage of a localized community data tool. This factor was more significant than familiarity with the tool, leadership style or social ideology.

What are the Implications for Public Health Practice, Policy, and Research? With many public health leaders nearing retirement, it is important that public health practitioners newer to the field have the necessary resources to focus on eliminating health disparities.

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