National Public Health Performance Standards Research Findings

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Background

- Public Health Systems Research and the NPHPSP share the goal of increasing "the science base of public health which will result in the improvement of public health practice."
- The goal of this research is to provide scientific evidence that allows communities to develop improved public health systems and provides for targeted use of limited resources to assure the public health system uses those resources most effectively

Study Objectives

1. Define the characteristics of high-performing local public health systems
2. Determine the relationship between local public health system performance and public health agency structure, organization and management

Methods

Study Population

- 381 local public health systems from 28 states that completed Version 1 of the NPHPSP local instrument <u>and</u> the 2005 NACCHO National Profile of Local Public Health Department
- Of the 529 local public health systems that completed the instrument, dropped 77 systems with repeat uses and 71 systems with no corresponding 2005 NACCHO Profile (demographic) data

Methods

Data
- Measures of public health system performance (dependent variable)
  - Summary scores for total performance and each of the 10 EPHS as measured by Version 1 of the NPHPSP local instrument
- Measures of system and community characteristics (independent variables)
  - Jurisdictional information, governance, funding, workforce, and activities of the local public health agency from the 2005 NACCHO Profile

Methods

<u>Analysis</u>
- Used two methods to explore relationships between each dependent variable and independent variables
  1. Linear regression with stepwise variable selection
  2. Regression trees using a variance reduction criterion to identify the best possible tree
- A linear regression model and a regression tree were created for total performance and each of the 10 EPHS

Results: Linear Regression

- **For total performance, the final linear regression model offered the following estimates:**
  - **For every additional environmental activity performed by the local public health department itself[*], the estimated expected total performance increases by 0.87 points**
  - **For every one-unit increase in log expenditure[*], the estimated expected total performance increases by 2.03 points**

Results: Linear Regression

- **Having a local board of health that makes policies, compared to having no local board of health[*], decreases estimated expected total performance by 5.91 points**
- **Having a local board of health that does not make policies, compared to having no local board of health[*], decreases estimated expected total performance by 13.3 points**

* All other things being equal

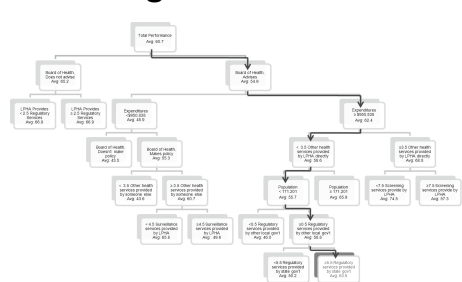## Results: Total Performance Regression Tree
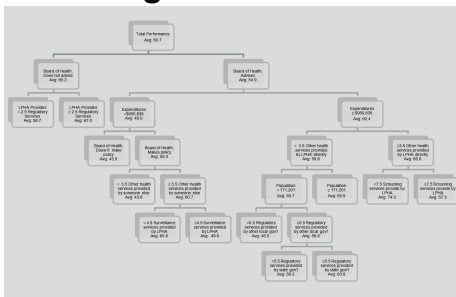
Results: How to use a regression tree

- **Example using The Plain County Public Health Department with a total performance of 50.6%**
  - **Has a board of health that advises**
  - **$1.5 million in expenditures**
  - **47,000 population**
  - **# & type of services provided by LPHA directly**

Results: How to use a regression tree

- • **5 epi/surveillance activities**
- • **8 regulatory activities**
- • **1 other health service**
- **No screening services provided by someone else**
- **7 regulatory activities provided by state government and 1 regulatory activity provided by other local government**
- **Compare actual vs. predicted performance**

Results: Total Performance Regression Tree

Discussion

- **Regression trees can be useful tools in performance improvement and in benchmarking or setting performance goals**
  - **Plain County Actual=50.6 vs. Predicted=63.8**
  - **Compared to similar agencies, total performance is lacking and could be improved**

Discussion

- **Results from linear regression suggest that the presence of a poor performing public health system necessitates the need for boards of health that make policy**
- **Results from both the linear regression and regression trees suggest that regulatory and other types of environmental health activities play an important role in improving total performance**

Discussion

- **Linear regression and regression trees can be used as complementary techniques in predicting performance**
- **Results presented are preliminary; a more comprehensive field of variables that predict performance must be considered**

Next Steps

- **Conduct similar analyses with an expanded dataset that includes more explanatory variables describing community characteristics and funding**
- **Explore the impact of state performance on local performance**
- **Analyze all 529 cases in Version 1 of the local instrument to determine what are the best standards and measures to be asked**
- **Examination of performance of tribal entities**

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