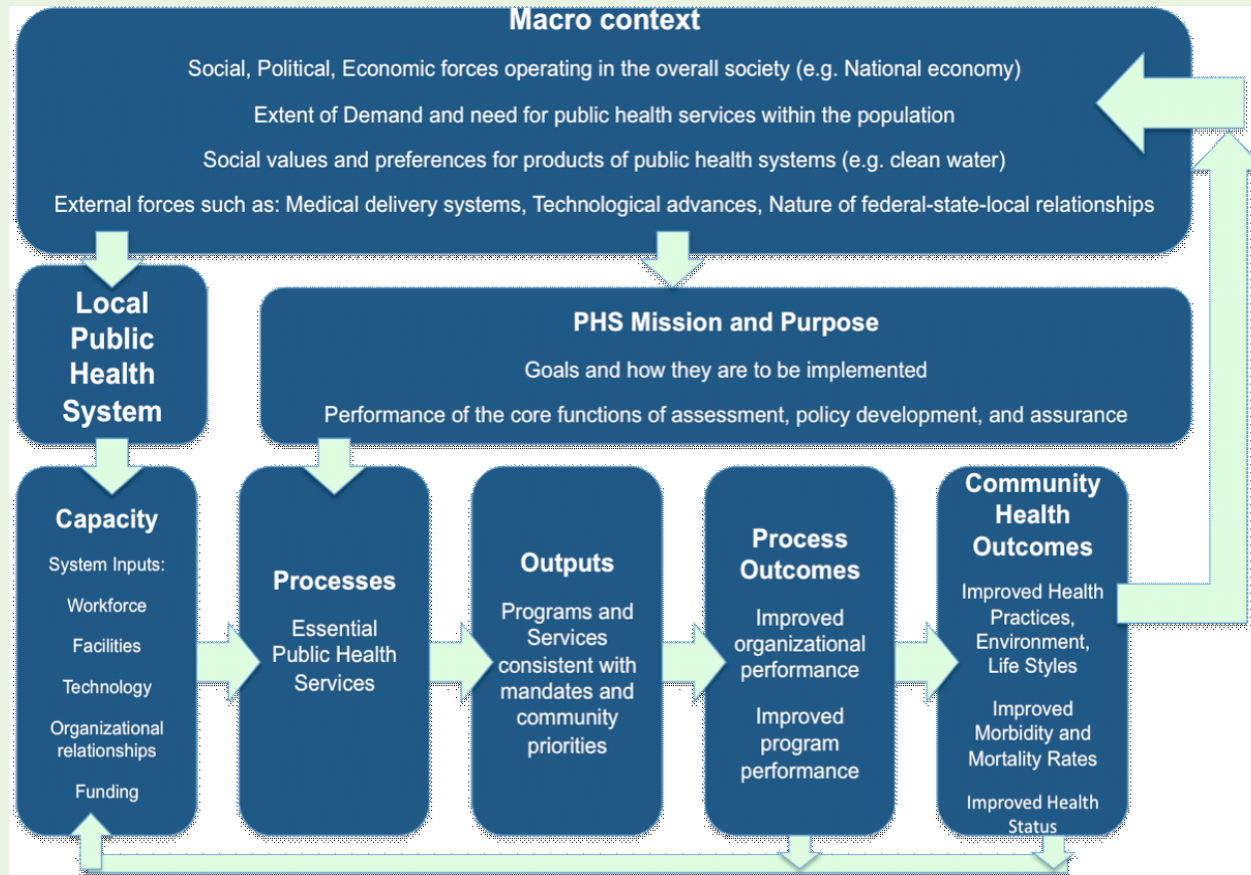


# Correlation Between State Public Health System Performance & Certain State Health Agency Characteristics

Richard Ingram M.Ed.1; Ariel Langevin1; Martha C. Riddell, Dr. P.H.1; Michelyn Bhandari, Dr. P.H.2; William A. Mase, Dr. P.H.3

1 University of Kentucky Center for Public Health Systems and Services Research  
2 Eastern Kentucky University 3 University of Cincinnati College of Medicine  
Department of Public Health Sciences

# Public Health System



# Background

- Input data
  - Demographic data in Version 1.0 of the National Public Health Performance Standards Program (NPHPSP) *State Public Health System Assessment Instrument*
  - *ASTHO 2005 State Health Officials Salary and Infrastructure Survey* contains data on state health agency characteristics
  - These contain data on Finance, agency structure, agency responsibilities, requirements for state health officer
- Process data
  - Version 1.0 of the National Public Health Performance Standards Program (NPHPSP) *State Public Health System Assessment Instrument*
  - Allows measurement of state system performance in assuring the 10 Essential Public Health Services

# Background

- There currently is not a large body of evidence with regards to the best ways to organize, staff and fund public health agencies or other organizations in the public health system
- While some research has been done at local level, little is known about the relationship between system inputs such as state health agency characteristics and state health system performance
  - Establishing the relationships between performance and agency characteristics can be cornerstone of efforts to effectively target limited funds to improve community health

# Design/Methods

- Cross sectional design
- Link data from the 16 completed NPHPSP Version 1.0 *State Public Health System Assessment* instruments with corresponding data from *2005 State Health Officials Salary and Infrastructure Survey*
- Analyze data for significance using SPSS software
  - Pearson's for continuous data
  - ANOVA for categorical data
  - t-test for dichotomous data

Continuous ASTHO Variables	EPHS	P value
# FTEs	EPHS 1	.014
	EPHS 2	.043
Annual Budget of State Health Agency (no Medicaid)	EPHS 10	.002
State Contribution to Budget	EPHS 3	.046
	EPHS 10	.002
# Years SHO Employed in Public Health	EPHS 7	.020

# Results

- Suggests that the number of FTEs at a state health agency are significantly positively associated with performance related to surveillance and investigation of health problems and health hazards in the community
- Suggests that the annual budget of the state health agency (no Medicaid dollars) is significantly positively associated with performance related to research activities
- Suggests that the state contribution to budget is significantly positively associated with agency performance related to communicating with and empowering community members, and with research activities
- Suggests that the length of SHO's employment in public health significantly positively associated with performance related to assuring safety net health care services
- Appears that budget variables have very significant correlations with performance related to research activities

Continuous NPHPSP Variables	EPHS	P value
Jurisdiction Population	EPHS 2	.026
	EPHS 10	.048
Years Position Held by SHO	EPHS 3	.047
Total Budget	EPHS 10	.008

# Results

- Suggests that jurisdiction population has a positive correlation with performance measures related to investigation and research
- Suggests that length of SHO tenure has a positive correlation with performance measures related to communicating with and empowering community members, and with research activities
- Agrees with ASTHO data that total agency budget has a positive correlation with performance measures related to research

Continuous NPHPSP Variables	EPHS	P value
FTE	EPHS 1	.003
	EPHS 2	.03
	EPHS 4	.037
	EPHS 7	.03
Part Time Employees	EPHS 1	.002
	EPHS 4	.047
	EPHS 7	.023
Total Employees	EPHS 1	.002
	EPHS 2	.026
	EPHS 4	.034
	EPHS 7	.03

# Results

- Agree with ASTHO data that the number of FTEs at a state health agency are significantly positively associated with performance related to surveillance and investigation of health problems and health hazards in the community, but suggest that FTEs are also correlated with performance related to community engagement activities and assuring access to health services
- Suggests that number of part time employees is significantly positively correlated with performance related to surveillance, community engagement activities and assuring access to health services
- Suggests that total number of employees, like total number of FTEs, is significantly positively correlated with performance related to surveillance and investigation of health problems and health hazards in the community, and with performance related to community engagement activities and assuring access to health services

Categorical ASTHO Variables	EPHS	P value
SHO Appointed by Board or Commission	EPHS 4	.035
SHO Directly Reports to Governor	EPHS 4	.035

# Results

- ANOVA suggests that significant differences in performance in mobilizing the community exist between systems where the SHO is appointed by a board or commission and those where the SHO is appointed by the governor or cabinet secretary, and between systems where the SHO reports to the governor and those where the SHO reports to a board or the Secretary of HHS
  - Systems where SHO appointed by board tend to perform better
  - Systems where SHO reports to governor tend to perform better

Dichotomous ASTHO Variables	EPHS	P value
Sec. HHS Involved in Budget Approval	EPHS 4	.048
SHO Educational Bckgrd. MD/DO	EPHS 5	.003
SHO Educational Bckgrd. Board Certified	EPHS 8	.029

# Results

- Suggests significant negative association between involvement of the secretary of HHS in budget approval and performance related to community engagement
- Suggests significant positive association between SHO educational background as an MD/DO and performance related to planning and policy development
- Suggests significant positive association between board certification of SHO and performance related to assuring a competent workforce

Dichotomous ASTHO Variables	EPHS	P value
Agency is free standing (not umbrella)	EPHS 4	.009
State Statute requires experience in PH practice or teaching	EPHS 3	.016
	EPHS 6	.002
State Statute requires “other” response option	EPHS 5	.005
	EPHS 8	.050

# Results

- Suggests significant positive association between free standing agencies and performance related to community engagement
- Suggests significant positive association between requirement that the SHO has experience in public health practice or teaching and performance related to communicating with and empowering community members, and with performance related to enforcing laws and regulations
- Suggests significant positive association between response to “other” category for SHO statutory requirements and performance related to planning and policy development and performance related to assuring a competent workforce

# Conclusion

- These data suggest that there are significant positive relationships between certain system inputs, in this case agency characteristics, and system processes/outputs, in this case performance in assuring the 10 EPHS in the agencies studied
  - Budget variables were significantly associated with EPHS 10
  - Workforce related variables were significantly associated with EPHS 1,2,4 & 7
  - Certain variables related to SHO characteristics were significantly associated with EPHS 4
    - It remains to be seen if these associations would continue to be significant with a larger sample size or if more robust analysis was employed
- These results, particularly if strengthened by a larger sample size and/or longitudinal data, can help state public health agencies and systems manipulate agency characteristics to help improve performance in assuring the 10 EPHS
  - Performance deficits identified by an agency may be sensitive to specific targeted context/input changes

# Limitations

- Self reported data
- Small number of respondents
- Many factors outside those measured may impact agency performance
  - Macro context
- NPHPSP instrument measures system, ASTHO variables and NPHPSP demographic variables are agency level measures
- Not generalizable

# Future Directions

- Combine NPHPSP Version 2.0 data with 1.0 data to get larger data set (5 additional new, 1 repeat user and D.C.)
- Combine NPHPSP data with newest 2008 ASTHO data
- Link other data sources into integrated data set and examine relationships between system variables, ideally examining relationship between system inputs, outputs and outcomes