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Assessing public health return on investment: using the NACCHO profile data

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The call for help…

- Can you help us evaluate the work we do and measure ROI and health outcomes?
- What we need is cost-benefit analysis - information on how to save money and still have impact
- Local health departments need help communicating the value of what we do
- ***We need to create a better understanding of the definition and "value added" of government public health***

The basic idea

- We can compare the overall "usefulness" of interventions by calculating the

*Cost / Good stuff**

**this is a technical term*

What approach should we use?

- Cost benefit
  - Are the benefits greater than the costs?
    - Requires benefits to be translated into dollar amounts
- Cost effectiveness
  - What is the cost per unit of outcome?
    - Outcomes are measured in units that are appropriate to the condition targeted
- Cost utility
  - What is the cost per standard unit of outcome?
    - Outcomes are measures in a standard unit (e.g.: QALY)

How do you measure it?

- Costs
  - Money, staff, programs, other resources
- Benefits
  - Health outcomes

RWJF PHSSR Study

- Natural experiment
  - Explores the effect of changes in spending on staffing, programs, & community health outcomes
    - North Carolina LHDs followed from 2005 - 2008
      - Cost information – LHD spending, programs services
      - "Good stuff" – reduced morbidity and mortality
  - NC has 100 counties and 85 LHDs
    - 2005 survey, n=82
    - 2008 survey, n=83
    - Both surveys, n=80

Previous work

- Builds on previous study by Mays & Smith*
- Examined LHD spending and community outcomes 1993 – 2005
- Spending data from NACCHO
- Mortality outcomes
- Findings: mortality rates fell as spending increased
  - Infant mortality, heart disease, diabetes and cancer all statistically significant
    - Influenza and all cause mortality in the same direction but not statistically significant

*Mays GP, Smith SA. Evidence Links Increases In Public Health Spending To Declines In Preventable, *Health Affairs*, 30, no.8 (2011):1585-1593.

The NC study: measuring costs

- NACCHO profile data from 2005 & 2008
  - Total expenditures from most recent FY
  - Total revenue, sources of revenue most recent FY
- NACCHO profile data on population served
- Anticipated measures
  - per capita expenditures
  - per capita revenue
    - per capita revenue for medical care
    - per capita revenue for non-medical /public health core services

Data issue encountered

- Revenue
  - 2005 profile asked for the percent of revenue from each source (e.g.: county, state, federal, Medicaid, etc.) but did not ask for total revenue
  - 2008 profile asked for the dollar amount of revenue from each source, with instructions that the total from each source should equal the total revenue amount, also asked in a separate question

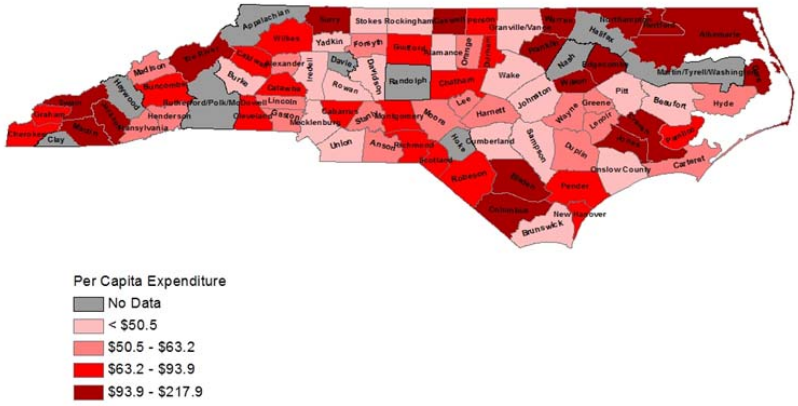
NC LHD Expenditures

Profile year	Average *	Lowest *	Highest *
2005	$74	$18	$218
2008	$87	$35	$218
Change 2005 - 2008	$10	-$21	$74

* All amounts expressed as per captia

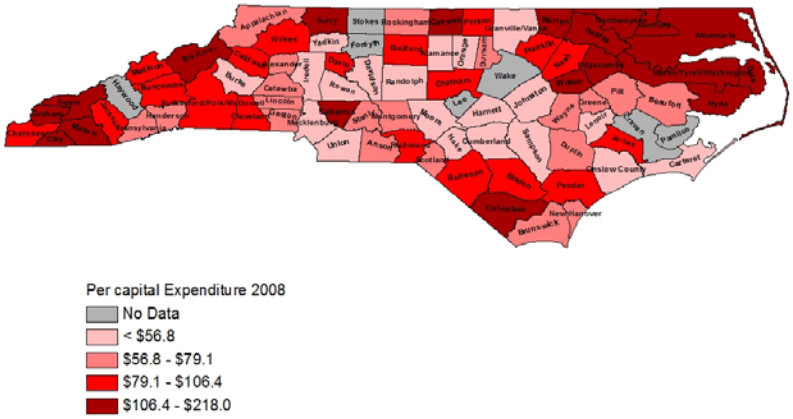
NC LHD 2005 expenditures

Per Capita Expenditure in North Carolina Local Health Department, 2005

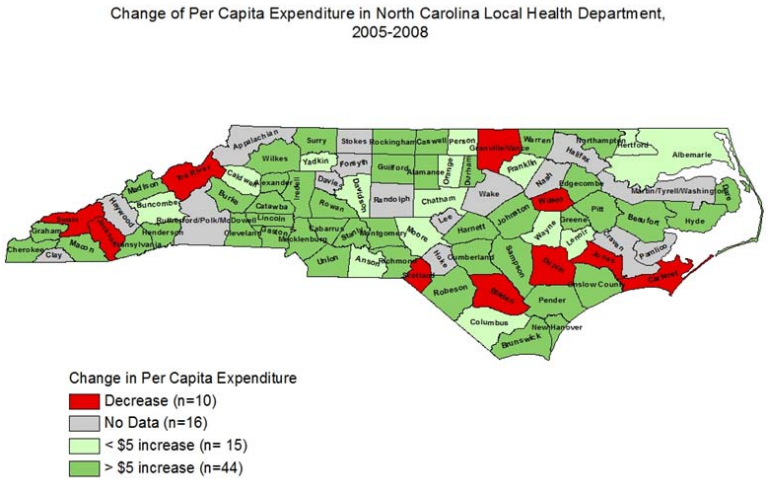


NC LHD 2008 expenditures

Per Capita Expenditure in North Carolina Local Health Department, 2008



Change in NC LHD spending



Challenges with NACCHO cost data

- "Most recent" fiscal year
  - 2005 profile contains 2004 (37%) and 2005 data
  - 2008 profile data contains 2007 data (6%)
- Missing data
  - Missing items, questions not asked
- Comparability of NACCHO values and state collected data unclear
- Huge variation from year to year
- Time lag between profiles

Addressing the challenges

- Second sources of data
  - Revenue and expenditure data collected by state department of public health
  - Contacting LHDs to capture data
- Discussions with LHDs about what the data mean

How can PHIs use these data?

- Describe public health spending at county levels
- Engage with local public health leaders
  - about what these data means
  - around research questions that need answered
- Contribute to the larger conversations about how best to capture the value of public health services

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For follow up questions

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