Colorado Public Health Practice-Based Research Network- DACS 71153

Meeting and Conference Presentation

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Estimate an Economic Cost Function on Select Core Public Health Service

Public Health PBRN DACS Methods Development Workshop

Sponsor Organization: National Coordinating Center for PHSSR and PH PBRN

September 27, 2013

Lexington, Kentucky

ESTIMATE AN ECONOMIC COST FUNCTION ON SELECT CORE PUBLIC HEALTH SERVICE

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Specific Aims

- **<u>Specific Aim 1:</u>** Estimate the cost of the delivery of selected core public health service(s) in Colorado.

- **<u>Specific Aim 2:</u>** Examine the degree to which LPHA structural differences modify the cost of core service delivery.

- **<u>Specific Aim 3:</u>** Examine the variation in cost across LPHA delivery system factors.

- **<u>Specific Aim 4:</u>** Examine the generalizability of the cost model to LPHAs outside of Colorado.

Action Plan

- A four stage process for identifying the cost of high value public health services:

1. Identify the public health services to be evaluated

2. Conduct key informant interviews and a focus group to identify major variable and fixed costs

3. Conduct a survey using time logs to estimate the variable costs associated with the production of the selected services

4. Analyze the cost data to determine the effect of different delivery system characteristics on the cost of delivering high value public health services

Methods: Identify Core Services

- Core Service Selection
  - Based on input from Project Advisory Commission (PAC)
  - Financial Experts
    - Focus Group
    - Key informant interviews
- Research team view of feasibility
  - Based on scope, reach, and equity as well as expected variation and relevance to Colorado and the nation
  - Specific service(s) that are broadly available

Methods: Key Informant Interviews

- We anticipate conducting approximately 18 structured interviews and at least one focus group
  - Key informants (KIs) will be LPHA leaders, agency and county financial officers, topical experts related to the selected services, and state health department officials
  - Selection based on practice setting, topical expertise and willingness to participate
- KI interviews and focus group sessions will be recorded and transcribed where appropriate
  - Qualitative coding and analysis will be performed
- KIs will also be invited to participate in review of the initial model and in an interpretation and translation event

Methods: Cost Survey

- Basic approach: micro-costing
- Time cost based on staff logs
  - Staff will record their activities during each 30 minute interval of work over a two week time period
  - Random selection both days and hours within each day to fill out the survey to minimize respondent burden
- Augment the cost survey with a manager survey
  - Manager surveys don't suffer the same limitations as the daily activity logs (i.e., the Hawthorne effects and limitations associated with sampling frame)
  - Less precise because managers may not actually precisely know how staff are spending their time
- Key Questions:
  - Number of FTE's associated with each activity and also the number of staff hours
- Compare results of the two methods to determine the validity of the logs
- Manager survey will be the key source of data regarding administrative costs associated with the selected services
- Calculate the per-hour cost of each staff member type, including both wages and benefits using accounting data from the agency
- We will include questions on the cost of supplies and equipment in our surveys
- We will also estimate the capital cost associated with the program using rental costs of similar spaces (or actual rental costs, if applicable)

Methods: Statistical Analysis

- Analyze the cost of providing different activities within the core service(s)
  - For process-type measures, this will include an analysis of cost per unit
- Costs will be calculated as a combination of variable and fixed costs
- Examine the effect of different service(s)
  - Economies of scale and scope
  - An analysis of the impact of different "bundles" of public health services on the cost of delivery
- Estimate a statistical cost function
  - $Log(cost) = \beta_0 + \beta_1 \text{ (agency)} + \beta_2 \text{ (community)} + \beta_3 \text{ x}$
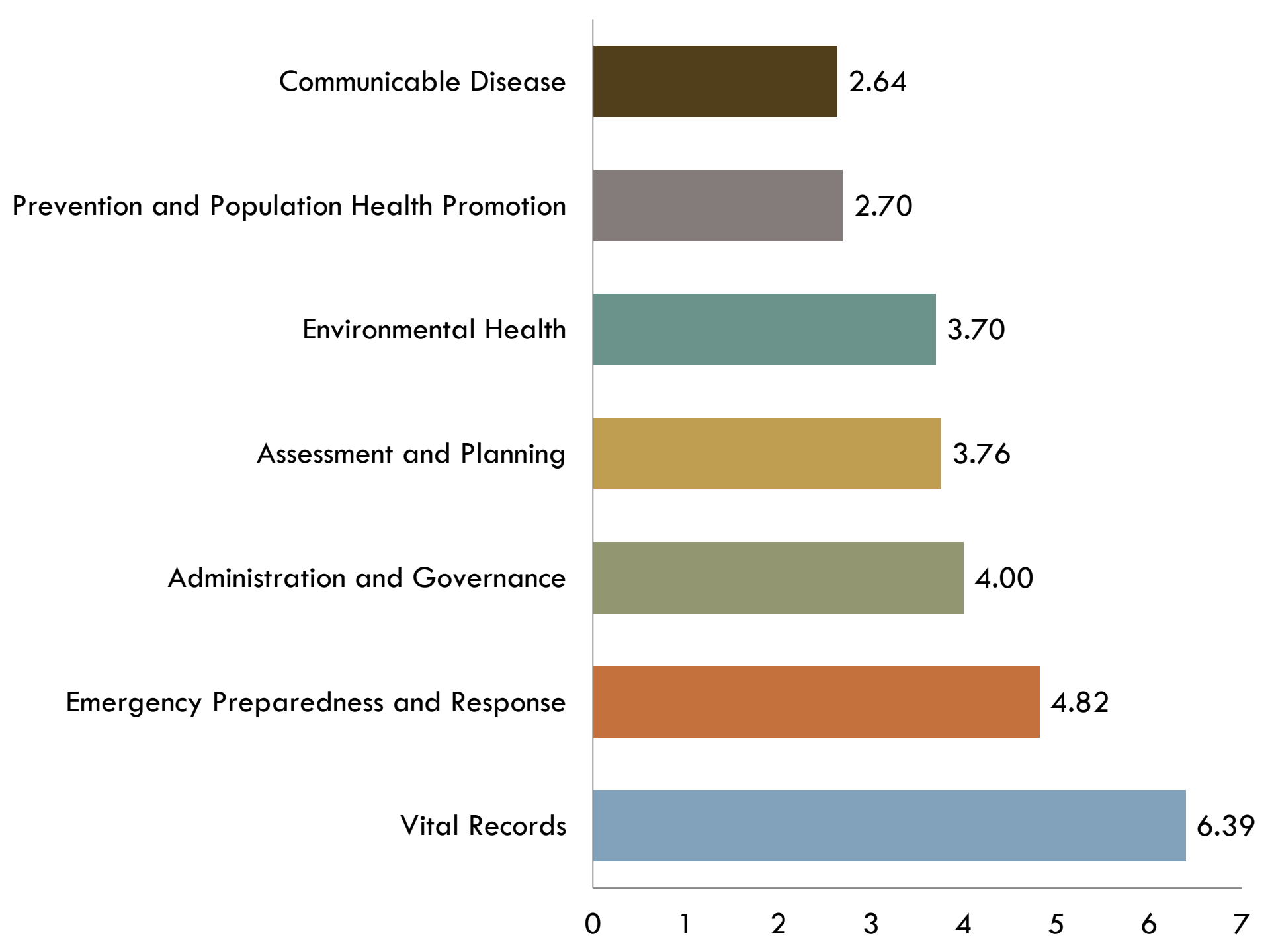
Pre-Session Ranking Results

So far....

- Survey sent to Colorado State Public Health Directors
  - Asked them to rank which core areas they put the highest value on
- Survey sent on September 4
  - Online survey sent to 53 LPHA directors with 33 responses (62%)
- Rank Order of Essential Services (1=most important, 7=least important)
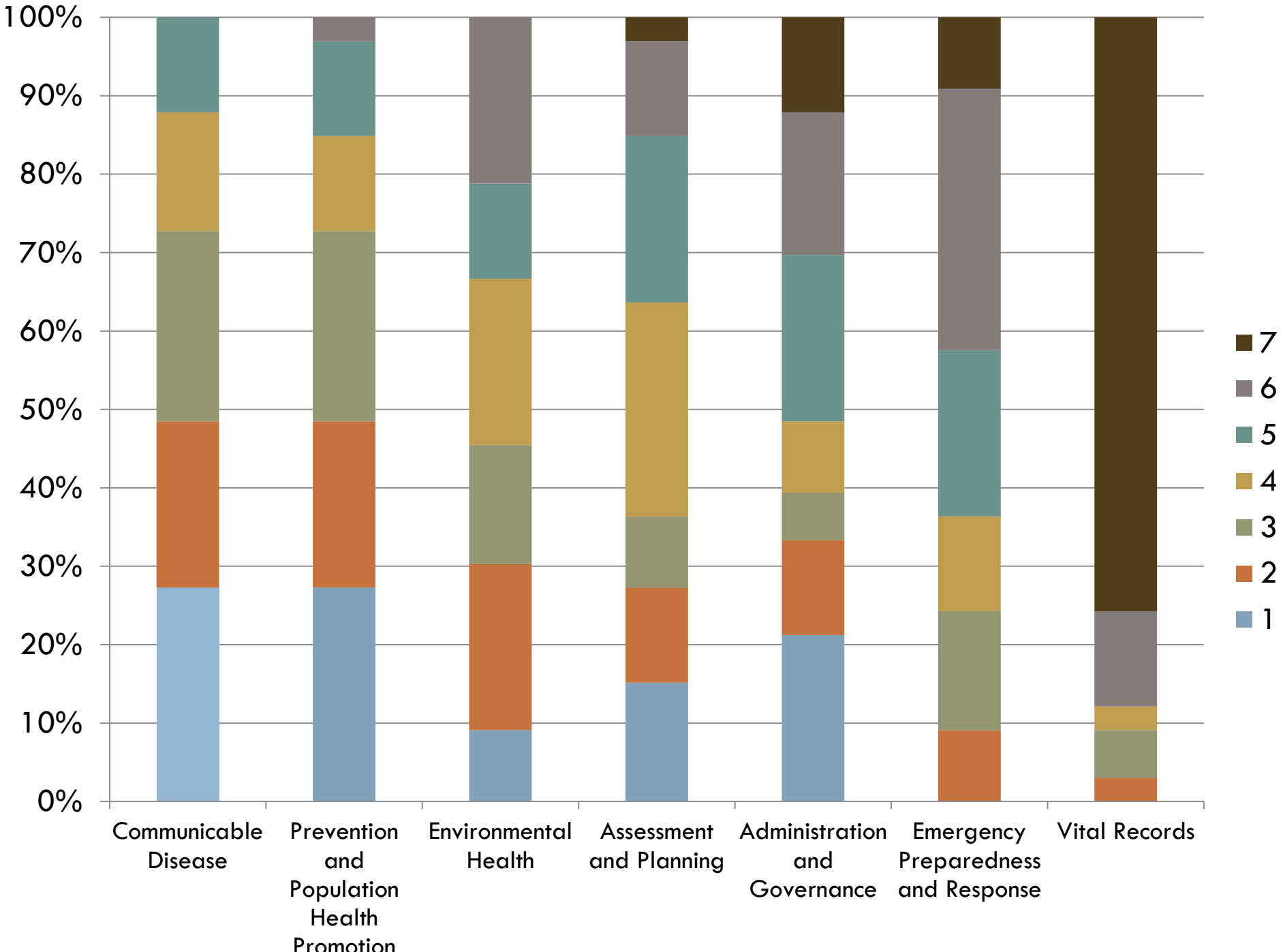
Category	Value
Communicable Disease	2.64
Prevention and Population Health Promotion	2.70
Environmental Health	3.70
Assessment and Planning	3.76
Administration and Governance	4.00
Emergency Preparedness and Response	4.82
Vital Records	6.39

- Vital Records (6.39 avg)
  - Ranked 1 zero times
  - Ranked 7 twenty-five times
- Qualitative Comments:

  Vital Records was not specifically mentioned in qualitative data.

- Emergency Preparedness and Response (4.82 avg.)
  - Ranked 1 zero times
  - Ranked 7 three times
- Qualitative Comments:

  "Some services, such as *Emergency Preparedness*, can also be covered by other agencies (FEMA, EMS) and can be ranked less in importance for PH"

  "Decrease of funding in Emergency Preparedness potentially due to complacency since 9/11/01"

- Administration and Governance (4.00 avg.)
  - Ranked 1 seven times
  - Ranked 7 four times
- Qualitative Comments:

  "Administration is the foundation of all other service delivery"

  "Must have infrastructure if any services are to be delivered"

- Assessment and Planning (3.76 avg.)
  - Ranked 1 five times
  - Ranked 7 zero times
- Qualitative Comments:

  "Assessment is at core of all PH interventions"

  "Little categorical funding for assessment specifically "

- Environmental Health (3.70 avg.)
  - Ranked 1 three times
  - Ranked 7 zero times
- Qualitative Comments:

"Environmental Health primarily consists of food borne investigations for many HDs, and other EH services are often limited"

- Communicable Disease (2.64 avg.)
  - Ranked 1 nine times
  - Ranked 7 zero times
- Qualitative Comments:

  "Some HDs are the only source for vaccination within a large distance"

- Prevention and Population Health Promotion (2.70 avg.)
  - Ranked 1 nine times
  - Ranked 7 zero times
- Qualitative Comments:

  "Financial support for *health promotion* is more necessary due to amount of health issues related to obesity, teenage pregnancies, tobacco use, etc."

  "There are funds for PH promotion and could be received if assessment of costs were better"

  "Some HDs are only direct-care provider for screenings and education"

  "Heart of public health"

Are there services within core services that should be focused on?

- Prevention and Population Health Promotion:
  - Oral Health (access, education)
  - Nutrition (obesity, diabetes)
  - Prenatal, Maternal, Child health (unintended pregnancy, breastfeeding)
  - Injury Prevention (teen motor vehicle accidents)
- Communicable Diseases:
  - Food safety
  - Vaccinations (access, education)
- Other
  - Well trained workforce
  - ACA implementation (insurance and Medicaid expansion)
  - Billing (direct-cost services, Medicare reimbursement)
  - Suicide prevention

Focus Group at "Public Health in the Rockies"

- Relatively light attendance
- Focused on:
  - Communicable Diseases
  - Prevention and Population Health Promotion
- Most popular:
  - Unplanned pregnancy prevention
  - Restaurant inspections

Our leading Candidates

☐ Prevention and Population Health Promotion
- ◻ Tobacco Control
- ◻ Unplanned pregnancy prevention
- ◻ Nutrition
- ◻ Physical Activity
- ◻ Oral Health