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### A Tool to Cost Environmental Health Services in North Carolina Local Health Departments

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# A Tool to Cost Environmental Health Services in North Carolina Local Health Departments

## Abstract

**Introduction:** The cost of providing a basic set of public health services necessary not been well-described. Recent work suggests public health practitioners are unlikely to have the empirically-based financing information necessary to make informed decisions regarding practice. The purpose of this paper is to describe the development of a costing tool used to collect primary data on the number of services provided, staff employed, and costs incurred for two types of mandated environmental health services: food and lodging inspections and onsite water services.

**Methods:** The tool was iteratively reviewed, revised, and piloted with local health department (LHD) environmental health and finance managers. LHDs ( $n=15$ ) received technical support to estimate costs for fiscal year 2012.

**Results:** The tool contained the following sections: Agency/Respondent Information, Service Counts, Direct Labor Costs, Direct Non-Labor Costs, and Indirect/Overhead Costs. The time required to complete the tool ranged from 2 to 12 hours (median = 4).

**Implications:** LHDs typically did not track costs by program area, nor did they acknowledge indirect costs or costs absorbed by the county. Nonetheless, this costing tool is one of the first to estimate costs associated with environmental health programs at the LHD level and has important implications for practitioners and researchers, particularly when these limitations are recognized.

## Keywords

local health departments, public health services, finances, costs

## Cover Page Footnote

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## INTRODUCTION

The cost of providing a basic set of public health services necessary to protect the health of a population has not been well described. Recent work suggests that public health practitioners are unlikely to have the empirically-based financing information necessary to make informed decisions regarding practice.<sup>1</sup> Yet defining and describing the cost of these basic services is critical to public health planning, policy, and assessment. This gap in knowledge was highlighted in a recent Institute of Medicine report that described the need for studies that explicate the components and costs of a minimum package of public health services that should be available in every community.<sup>2</sup>

This work was conducted through the North Carolina Public Health Practice-Based Research Network. Tool development occurred over the time period February–July 2014 and data were collected between June and December 2014.

## METHODS

### Tool Development

Based on the Substance Abuse Services Cost Analysis Program (SASCAP) tool developed by RTI,<sup>3</sup> this Excel-based survey tool was designed to obtain detailed cost information for two environmental health service lines provided by local health departments (LHDs) in North Carolina: food and lodging inspections and onsite water services. These two service lines represent the overwhelming majority of environmental health services provided by LHDs. To facilitate completion, the survey was broken into the following sections: Agency and Respondent Information, Service Counts, Direct Labor Costs, Direct Nonlabor Costs, and Indirect/Overhead Costs. Within each section, respondents were asked to provide information for fiscal year 2012.

The draft tool was circulated to advisory LHD environmental health and finance managers for discussion and revision. Version 1 was completed by two LHDs and following their feedback, primarily regarding indirect costs, minor changes were made and Version 2 was distributed to an additional 13 LHDs. LHD staff responsible for completion of the tool were provided with technical support to insure that responses were standardized.

The final version presented here, Version 3 (Attachment), represents the sum of all feedback obtained during the development and data collection process.

### Tool Description

The tool collected food and lodging and onsite water data separately. Respondents reported actual, rather than budgeted costs. (See Additional Files attached to this article.)

**Part 1. Agency and Respondent Information:** This section collected agency characteristics (name, counties served, total full time equivalents [FTEs]) and aspects of completion (staff members involved in completion of the survey and time required to do so).

**Part 2. Service Counts:** Respondents reported total number of services provided by activity code. An “Other” category was provided for idiosyncratic services, for example those unique to a particular LHD. These codes represent broad categories of services under which a number of specific activities may be conducted. These services are routinely tracked by each LHD and reported to the State Health Department.

**Part 3. Direct Labor Costs:** Position titles that captured the range of all possible positions were provided and respondents reported the following for each position title: number of FTEs (full time and part time), total salary cost, total cost of benefits and fringes, total combined salary and benefit cost, and percent of salaries, benefits, and fringes supported by local funding, state funding, fees, grants, and other.

**Part 4. Direct Nonlabor Costs:** Respondents provided total direct nonlabor costs incurred for services defined in Part 2, including buildings; supplies, materials, and equipment; subcontracts; and miscellaneous (Attachment, Part 4, 4.A.– 4.D.).

**Part 5. Indirect/Overhead Cost:** Respondents reported indirect/overhead costs either as allocated to the services described, or as a percent of total administrative costs.

## RESULTS

The time required to complete the survey ranged from 2 to 12 hours, with a median of 4 hours. Describing service counts was a straightforward process for most LHDs, as this information is routinely tracked at the local level in North Carolina and subsequently reported to the state health department. On the other hand, describing costs proved challenging in several, fundamental ways. First, participating LHDs typically did not track costs by program area. This was particularly apparent in the estimation of direct labor costs. If an employee worked 100% time in one program area, for example, respondents recorded 100% of that employee’s time and salary in that program. However, environmental health employees often work in more than one program area. In this case, respondents were advised to consider the percent FTE of employee time spent in each program and to allocate costs accordingly.

Similarly, nonlabor costs are generally not tracked by program area. Consequently, respondents were asked to report costs by program area, if known or if easily calculated. If not, they were instructed to split costs evenly between the areas, which our practice partners advised are roughly the same size in many LHDs. Second, indirect or overhead costs were also particularly challenging for LHDs to estimate. Respondents were often uncertain about what types of costs should be included in this category and were advised accordingly. Finally, cost estimates were complicated in that the county government very often absorbed some direct (e.g., rent) and/or indirect (e.g., general administration) costs. Especially in the case of rent, respondents were generally unable to provide the actual cost or a reasonable estimate. In these cases, the cost of rent was estimated using lease data for office space in comparable locations.

## DISCUSSION

Completion of the costing tool by LHD staff was labor intensive. LHDs in North Carolina use budget procedures that do not easily lend themselves to splitting program costs. Moreover, most LHDs do not pay rent so this cost was estimated. Many LHDs also had difficulty identifying indirect, or overhead, costs. Thus, estimates of indirect costs derived from this instrument in North Carolina likely underestimate true indirect costs and consequently underestimate true full

costs incurred. Despite its limitations, the costing tool developed in this study is one of the first designed specifically to estimate costs associated with environmental health programs at the LHD level and has important implications for both practitioners and researchers.

Determining the cost of service delivery is prerequisite to practical public health management decisions, such as justifying budget requests, establishing fee structures, contracting for service provision, and evaluating potential program and staffing cuts. Additionally, cost is central to evidence-based program choices.<sup>4</sup>

Currently, however, few LHDs in North Carolina can estimate the full cost of any given service. Practitioners interested in estimating the cost of services using this tool would be best served by first establishing accounting procedures that allocate costs by program area. In addition, thorough consideration should be given to costs not directly incurred (e.g., rent), as well as the range of indirect costs incurred and how these might reasonably be allocated across program areas.

Researchers might consider examining performance of this tool in other program areas or in the same program in other states. This tool also provides a first step for future work examining long standing research questions such as structural differences in the cost of service delivery, including economies of scale, and costs and benefits of programs and services contained in a minimum package of essential services.<sup>5</sup>

#### SUMMARY BOX

**What is already known about this topic?** The cost of providing a basic set of public health services necessary not been well-described. Recent work suggests public health practitioners are unlikely to have the empirically-based financing information necessary to make informed decisions regarding practice.

**What is added by this report?** This costing tool is one of the first to estimate costs associated with environmental health programs at the LHD level and has important implications for practitioners and researchers, particularly when these limitations are recognized.

**What are the implications for public health practice, policy, and research?** This tool provides a first step for future work examining long standing research questions such as structural differences in the cost of service delivery, including economies of scale, and costs and benefits of programs and services contained in a minimum package of essential services.

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