



Changes in Health Care Financing & Organization (HCFO)

findings brief

Measuring the Value of Public Health Systems

key findings

- While defining and measuring the value of public health services is challenging, it is also essential.
- Governmental public health systems, which are designed to assess and respond to threats to the public's health, must be appropriately measured in order to demonstrate a measurable contribution to society.
- Cost-utility analysis (CUA) has considerable potential as a technique for measuring the value of public health services.

Despite the many successes of public health in the 20th century, determining the actual value of governmental public health systems (GPHS) remains a challenge. GPHS refers to the state and local governmental apparatus designed to assess and respond to threats to the public's health. While there is inherent value in maintaining GPHS to protect the population against the spread of disease, the reality of severe budgetary constraints and chronic underfunding of GPHS raises questions about public support and sustainability.

It is thus essential that GPHS demonstrate measurable contributions to the population's health and that adequate resources are allocated to those activities likely to achieve maximum value for improving the public's health. One of the challenges facing practitioners is that there is little literature or experience addressing how to measure the value of public health programs.

As part of the 2005 Special Solicitation in Public Health Systems Research, the Robert Wood Johnson Foundation's Changes in Health Care Financing and Organization program funded Peter Jacobson, J.D.,

M.P.H., and Peter Neumann, Sc.D., to conduct a study on measuring the value of public health systems. The researchers noted that while there is abundant research about the value of clinical services, there are significant gaps in research addressing the value of public health services. Over 14 months, Jacobson and Neumann explored the value of public health systems with three central questions in mind:

- How can the value of public health services be defined and measured?
- What methodologies can be used to measure value?
- Can an analytical framework be developed for measuring value?

Even with the pressing need to demonstrate public health's value, interviews with public health practitioners, policymakers, and academics revealed no consensus definition or methodology to guide practitioners in measuring and communicating the value of public health systems. The researchers found that while there are studies that



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have used various methodologies, such as cost-benefit and cost-effectiveness analysis, to value health services, relatively few of these studies address public health. Nor do public health practitioners use the available methodologies to specifically measure the value of GPHS. These results suggest a gap exists between academic researchers (especially economists) and public health practitioners in measuring value. To bridge that gap, and make existing measurement techniques more accessible to public health practitioners, Jacobson and Neumann have developed a framework for measuring the value of GPHS.

Methods

To address the study questions, Jacobson and Neumann performed several literature syntheses, analyzed economic evaluations, and conducted interviews. They first searched the health economics literature broadly to explore the use of methodologies that measure value. Then, the researchers analyzed the literature to identify alternatives that could be applied to public health. They also examined how other public and quasi-public systems, specifically education, welfare, and port authorities, define and measure value.

Using a semi-structured interview protocol, Jacobson and Neumann interviewed 46 national, state, and local public health practitioners, policymakers, and academics. The interviews were conducted to gather information on participants' views of defining and measuring the value of GPHS.

Results

The predominant methodologies in the literature for measuring value include cost-benefit, cost-effectiveness, and cost-utility analyses, but these approaches are rarely used in actual public health practice settings. Variations in quality and notable gaps in the methods for costing and valuing health outcomes may explain why their use is limited in practice. In addition, while published cost-effectiveness analyses have included a broad range of public health programs or services, they have generally not addressed the value of public health systems or infrastructure, per se. Rather,

they have focused on specific public health services, such as screening or surveillance programs. Moreover, in many analyses, authors did not specify who the decision maker would be, nor did researchers typically specify what kinds of implementation costs or institutional hurdles might have to be overcome.

The literature on other sectors did not reveal any robust definitions or frameworks that can be easily extrapolated to public health. In fact, most of the reviewed articles do not specifically define value and do not resolve the difficulty of incorporating intangibles into a measure of value. This is especially acute for public health, a field that traditionally places great emphasis on non-monetary core values such as social justice and the social determinants of health.

As indicated in the interviews, public health practitioners on occasion have used alternative methods to measure value, including cost-accounting, performance-based contracting, logic models, performance standards, and counts of services provided. Practitioners also expressed interest in using morbidity and mortality data and return on investment to measure value, but suggested that data limitations and staff capabilities remain serious challenges.

During the interviews, many respondents found it difficult to offer a concise definition of value, but suggested various component parts of value for public health services that should be included. The common components identified include core principles of prevention, intangibles (i.e., social justice and other non-monetary core values), quality of services, and communication to policymakers and the public. Respondents also stressed the importance of community input and staff consensus, and the difficult task of making tradeoffs between equally desirable programs and the critical need to sustain public health systems.

The interviews also revealed important differences among respondents. In particular, respondents were split on the continued emphasis of prevention as defining the inherent value of public health services. The

concern is that the past focus on prevention has not translated into public support. Indeed, this position reflects the reality that public health's moral imperative is no longer a compelling rationale for investments in public services. Likewise, there was no consensus on how to communicate value or whether to incorporate personal stories in order to garner public support.

Nonetheless, respondents were consistent in identifying the key challenges that lie ahead. Perhaps the most consistently recognized challenge is the lack of both core data sets and agreement on outcome measures. Even if accessible methodologies were available, most respondents are concerned that they lack the staff resources and knowledge to use them effectively.

The researchers identified attribution as the largest barrier to measuring value, namely the inability to demonstrate that the investment in public health contributes to decreased morbidity and mortality (i.e., that the outcomes are related to the intervention).

After weighing the various options, Jacobson and Neumann conclude that cost-utility analysis (CUA) has considerable potential as a technique for measuring the value of public health services. CUAs present the impact of services or programs in terms of incremental costs per incremental quality-adjusted life years (QALYs). The advantage of using QALYs is that they capture gains from both reduced morbidity and mortality in a single measure, and they incorporate the value or preferences people have for different outcomes. However, CUAs do have limitations. Accordingly, the researchers suggest that the best approach may be to use CUAs as a centerpiece, while employing other techniques, such as cost-effectiveness analysis, with outcomes measured in units such as cases of disease prevented.

A New Framework

Using the information gathered, Jacobson and Neumann developed a framework for measuring value. They found that the cost-accounting approach stands out as the model that best incorporates the important component parts of value that were

identified. The cost-accounting model assesses the service's public health importance along several dimensions, including: community priorities; legal and regulatory requirements; financial impact; the number of people served (as a percentage of the population); whether the service would be available elsewhere in the community for the same number of people; and impact on mortality or morbidity if the program were not implemented.

The framework developed considers four component elements to determine program priorities. First, what are the external factors that must be taken into account? Second, what are the key internal actions that an LHD must take? Third, what are the appropriate quantitative measures to assess value? Fourth, how can value be communicated to politicians and to the public? Among the features of each component element are:

- External factors such as whether the service is mandated and/or available elsewhere, the community needs assessment, revenue sources, and the effects on morbidity and mortality if not provided
- Internal actions such as developing a strategic plan; assuring staff assessment and consensus on program priorities;

examining quality of services provided; developing adequate data collection and analysis techniques; and evaluating the results

- Using cost-utility analysis to analyze the impact of services or programs (i.e., as a tool for measuring value)
- Communicating value to policymakers and the public

Policy Implications

This research has shown that the demand to demonstrate value through quantitative measures is becoming increasingly important. If public health's moral imperative is no longer a compelling factor in policy decisions, it is necessary to provide policymakers and the public with a better understanding of the quantitative value of public health investments.

Defining and measuring the value of the public health system remains difficult, with challenges including the presence of intangible values, obtaining adequate data, identifying appropriate methodologies, and conducting analyses. These are resource-intensive activities which are difficult for already-stretched local health departments. Regardless, this research has shown that there is an agreed need to assess and com-

municate the value of public health services to the political system and the public.

The proposed framework can act as a guiding mechanism for developing better outcome measures and improved data collection and analysis. It can also assist in developing general measures of the value of GPHS and guidelines for making tradeoffs at the margin between programs, identify ways to incorporate tangibles and intangibles, and facilitate communication.

Conclusion

Defining and measuring the value of public health services is at a nascent stage—perhaps where quality of care research for personal health services was about 20 years ago. To be successful, this effort must likewise be viewed as a long-term endeavor. Without a sustained effort to define and measure the value of public health services, the public health system will have an increasingly difficult time competing for scarce public resources. Results from this research suggest that investment is necessary and can be successful.

About the Author

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