

Appendix C.—Survey of the Resource Costs of CENCBA

Introduction

Formal CEA and CBA are applied to a wide range of topics in a number of diverse areas. A CEA or CBA can be performed by a single analyst or by a dozen or more. An analysis can take a few months to complete or may require more than a year. The size of the problem, the availability and quality of data, the complexity of the issues involved, and the presence of the right mix of professionals combine to exert considerable influence on the cost, the quality, the usefulness, and the credibility of the analysis.

A major focus of The Implications of Cost-Effectiveness Analysis of Medical Technology project was on the feasibility and implications of using CEAS and/or CBAS in the health care decisionmaking process. An important component of that focus are the direct resource costs of performing these types of analyses. The cost of producing a CEA or CBA will significantly influence the use of the methodologies. What are the resource needs, the problems likely to be encountered, and the time needed to produce quality analyses? What variables influence the resources used or needed to perform various CEAS or CBAS in the health care system? The feasibility and potential impacts of using CEA or CBA in the health care system are directly tied to such questions. To identify and discuss the range of answers, OTA conducted a survey of the resource costs of CEA/CBA.

Method

The survey instrument OTA used was a questionnaire designed to explore the types and amounts of resources required to perform a CEA and/or CBA of various health care technologies. (See the addendum to this appendix for a copy of the questionnaire.) Two types of information were desired: first, the resource costs of performing actual CEAS or CBAS that have been published in the literature; and second, the resources the sample group, comprised of the individuals who performed those analyses, felt would be required to staff a hypothetical research team responsible for conducting CEAS or CBAS on medical technologies on a regular and continuing basis. In essence, the survey sought a listing of resources that had been used for actual studies and estimates of resources needed to perform CEAS and CBAS on a routine basis.

The sample population was chosen on the basis of an analysis of the health care literature and discussions with analysts in the health care area. Thirty-

five studies were selected by this process; no attempt was made to randomize the selection process. The survey was sent to analysts identified as having done “quality” work or whose studies were cited frequently in the health care literature. Not necessarily all quality studies were identified and selected by this process.

Twenty-two responses were returned. Eighteen respondents answered the questions pertaining to the resources actually used in performing the published analyses. Twenty-two respondents answered the questions related to the resource needs of the hypothetical CEA/CBA team described in the survey.

Results

Resources Used in Published CEAS and CBAS

The number of professional-level people directly involved in a single analysis ranged from 1 to 10 per study team, with the mode at 3 and the mean at 3.7. There was insufficient information to determine the degree of effort, or percentage of time, that the various professionals devoted to the studies. The responses were so varied and wide ranging that it was difficult to characterize the amount of time that, say, a physician or economist spent on a given analysis. The amount of full-time effort devoted to the studies ranged from as little as a single day to as much as a full year.

One trend that did emerge from the survey was the use of physicians on the study teams. Only one study did not have a physician directly involved in the analysis; the remaining studies had at least one physician, and several had two or more physicians, as part of their research group. The professions that were used in performing actual CEAS or CBAS on health care topics are summarized in table C-1.

The survey also attempted to identify the information used by the analysts. Their responses are summarized in table C-2. The types of data that the various analysts used tended to be study-specific. Responses included data on investment and operating costs, health education program costs, drug costs, screening costs, travel time to hospital, ambulance response time, physician fees, and on a host of other cost and benefit variables that cut across the four major categories listed in table C-2.

The final topic that the respondents were asked to address related to the data sources they used and the problems they had in obtaining their information. Their responses are summarized in table C-3.

Table C-1.—Professions Used in Performing Health-Related CEA/CBAs

Personnel used	Frequency of response
Medicine	17
Economics	7
Epidemiology	6
Hospital administration	5
Systems analysis	5
Public health	4
Statistics	4
Operations research	4
Computer analysis	3
Computer programming	2
Public administration	2
Business administration	2
Medical student	2
Accountant	1
Actuary	1
Psychology	1

SOURCE: Office of Technology Assessment

Table C-2.—Types of Data Used in Health-Related CEA/CBAs

Data used	Frequency of response
Morbidity	17
Mortality	16
Epidemiology	13
Health services utilization	8

SOURCE: Office of Technology Assessment

Table C-3.—Availability and Sources of Data for Health-Related CEA/CBAs

Data characteristics	Frequency of response
Availability of data	
Readily available	11
Difficult to obtain	15
Almost impossible to obtain	6
Had to purchase data	0
Did original research	8
Collected from existing sources	18
Data was free	18
Data was inexpensive	7
Data was expensive	4
Sources of data	
Data obtained from public sources	10
Data obtained from journals	16
Data obtained from books	8
Data obtained from Government reports, etc.	16
Data obtained from private sources (industry, insurance companies, etc.)	9
Data obtained from nonprofit organization	7
Data obtained from other sources	
State government	1
Expert opinion	2
Unpublished reports	1
Clinical trial information	2

SOURCE: Office of Technology Assessment

Several respondents noted that, although the data may have been free, the time and effort required to obtain it was expensive. Another problem seemed to be determining whether the data existed, and if so, who had it.

Resource Needs of an "Ideal" CEA/CBA Research Team

The professions most frequently cited as being essential components of an office designed to perform CEAs and CBAs of health-care-related technologies on a regular and continuing basis are shown in table C-4.

Table C-4.—Professions and Support Services for an "Ideal" CEA/CBA Research Team

Professions/support services cited	Frequency of response
Profession cited	
Economics	21
Medicine	17
Statistics	14
Quantitative analysis ^a	13
Computer analysis	9
Epidemiology	9
Public health/public policy	7
Engineering	6
Psychology	4
Hospital administration	2
Medical sociology	2
Sociology/behavioral science	2
Medical student	1
Support services	
Secretary	16
Research assistant	15
Computer programmer	9
Administrator	8
Librarian	3
Accountant	2

^aSystems analysis, operations research, and decision analysis.

SOURCE: Office of Technology Assessment.

Several respondents specifically noted that provisions must be made for hiring the necessary consultants or experts as needed for assistance. Many respondents also cited the need for more than one of each professional (e.g., two physicians, three economists, several secretaries, six research assistants, etc.) to staff the research group.

The number of studies that this "ideal" office would be able to perform was estimated to be 6 to 10 studies per year with 8 to 12 full-time professionals and the necessary consultants, research assistants, and support staff present. The estimated cost of the research group was between \$400,000 and \$500,000 per year.

The estimated cost per study, not necessarily related to the aforementioned total office cost esti-

mates, covered a broad range. The graph in figure C-1 summarizes and illustrates the wide range and distribution of the cost-per-study estimates.

Many of the cost estimates were accompanied by reservations indicating a close correlation between the cost of the study and the extensiveness and severity of problems with information needs, the stage of the technology's development, the complexity of the problem being addressed, computer needs, and the

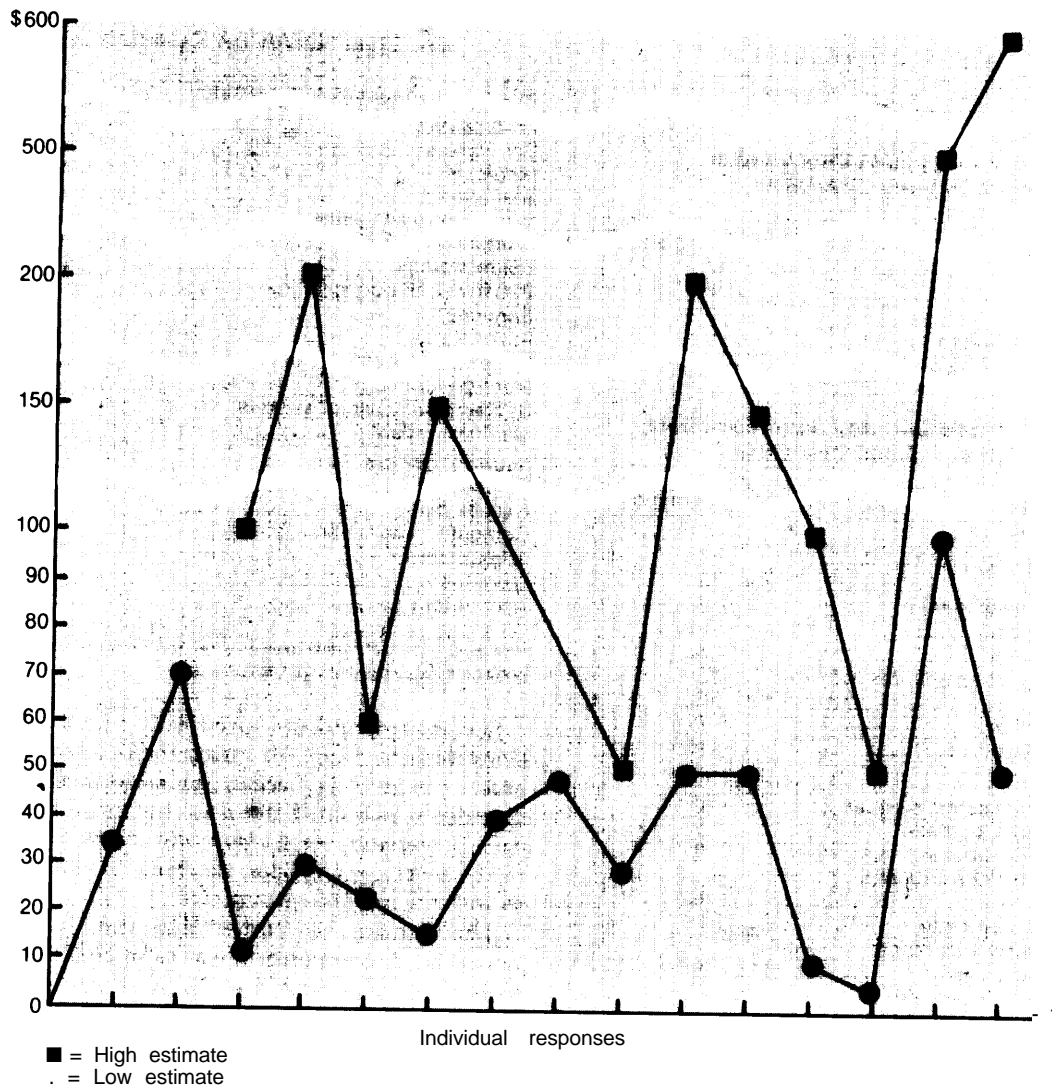
costs to develop the study model. Though not the only variables cited, these problems received frequent mention by the respondents.

Discussion

The purpose of this survey was to identify information and personnel variables that might affect the "cost" of a CEA/CBA, solicit opinions regarding the

Figure C-1.—Range of Estimated Costs per CEA/CBA Study

Cost-per-study estimates
(in thousands of dollars)



aMost of the respondents included a high and low estimate of the cost-per-study.

SOURCE Office of Technology Assessment.

resources required to do CEA or CBAS on a routine basis, and to develop a range of estimates of the resources used to do published CEAS or CBAS. To a large degree, these goals were realized. Because of the survey's design, however, no firm conclusions are possible.

The scope of the survey was limited in the sense that the process used to select the sample population was restricted and arbitrary since the criteria used to identify the "quality" CEAS and CBAS were highly subjective. The survey sample was limited even further because its focus was restricted to CEAS and CBAS done only on health care topics. The survey sample may have been further distorted by the characteristics of the types of issues selected by researchers. Possibly, the CEA and CBA studies done to date have been "easy" ones. Analyses of health care topics may have been directed at areas that have had the most or best data available or that were the most highly visible in the public eye. On the other hand, a counterargument could be made. Since the field is relatively new, perhaps more work was required to develop the methods, more analysts were needed to perform quality work, and in essence, added effort was needed to establish the groundwork that other analysts can use. Whichever the case, it is difficult to know what effects these variables will have on the sample results.

The survey was broadly focused in that no attempt was made to differentiate between the various types of analyses. For example, no attempt was made to group the studies according to their technological focus (i.e., diagnosis v. therapy, procedure v. drug, or systems-based technology). Likewise, no attempt was made to determine if some analyses were considered more complex or sophisticated, or if some had more "value" to the research community or to the policy process, than others. Although these variables are very important, it was beyond the scope of this survey exercise to investigate them to the degree necessary to form estimates or conclusions.

At best, the survey results suggest a lack of consensus on most aspects of funding or staffing resources required for CEAS or CBAS. A good example of this lack of agreement are the estimates of what it might cost to perform a single CEA or CBA. In large part, however, the many reservations that the respondents included regarding the effect of data problems and the complexity of the issue(s) being examined on the cost of the study would explain the wide range of estimates provided. Although there were few surprises regarding the types of professionals or support staff required to do CEAS or CBAS, there was an in-

teresting change in views in the responses received for the questions related to the types of professionals actually used to perform specific analyses and those related to the types of professionals recommended to staff the hypothetical research team. All but one actual study included a physician as part of the research group, but only seven included an economist. The hypothetical research teams, however, leaned more heavily toward the inclusion of economists. This apparent shift toward economists may not indicate any real change in the perceived need for physicians, though, because several respondents indicated a need for physicians and scientists to serve as consultants to the hypothetical research group. Thus, some of the respondents to the survey listed physicians in another category. The shift to more economists, however, was not explained.

Data needs and problems appeared to be a significant factor for all the respondents. The large range of cost-per-study estimates was directly tied to the availability and quality of data. Information needs were cited much more often than factors such as complexity of the problem being studied and stage of development of the technology as variables that will affect the cost of a given study. To date, however, the respondents seem to feel that many of the data range from being easy to difficult, but not impossible, to obtain. The data also were very inexpensive to obtain and were available from public sources.

The results of OTA'S survey may simply provide a look at the types of resources analysts have used to perform health-care-related CEAS and CBAS and at the types of resources they feel are necessary to perform them on a routine basis. It is interesting to note the differences between the resources used and the resources that the respondents felt *were* required to do CEA and CBA on a regular basis. Several professions that were not used a great deal by the actual study teams in the past show up quite frequently on the "ideal" research team list. Disciplines such as economics, statistics, engineering, computer analysis, and computer programming were not frequently used in the actual studies, yet were cited several times by the respondents as being needed for the hypothetical research group. As the health care issues become more complex and as information needs become more demanding, the range of expertise needed to do analyses will broaden, and the costs of performing CEAS and CBAS will increase. These resource costs may become an important factor to be considered by governments and other institutions that must decide whether or not to do CEAS or CBAS or how many they can do in a given time period.

ADDENDUM

QUESTIONNAIRE USED IN THE
SURVEY OF THE COSTS OF CEA/CBA

PART 1

What is the general cost range that you feel is adequate to perform most cost-benefit or cost-effectiveness studies on medical technologies, techniques, procedures or systems?

We realize that the costs will vary according to different factors (e.g., type of technology, stage of development). What are the factors that must be considered **and that are most important in effecting these cost differences, and how** would they affect the cost of analysis?

Additional comments:

Note: This aspect of the survey (Part 1) is very important to us; therefore we request that it receive priority should you find yourself short of time; however, we do urge you to complete all parts of this survey.

- A. Hypothetical situation: You are asked to staff an office that would be responsible for carrying out cost-effectiveness or cost-benefit studies of

a range of medical-related technologies, techniques, procedures, and systems. What are the necessary disciplines to carry out this function?

How many of each?

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

What support services or personnel are needed? How many of each?

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

PART 2

The intent of this part of the survey (part 2) is to obtain a range of estimates of resources that have been used to perform cost-effectiveness or cost-benefit studies. Since you have either performed or directed such a study, we ask for your help in providing us this information. At the bottom of the page, we have indicated the study or studies that we wish you to address.

Perhaps the easiest and quickest way for you to help us would be if you just send us the budget breakdown that was developed for the study or studies listed for contract or grant purposes. Should you wish to keep certain parts of it confidential, please black them out.

If you do not have a budget breakdown or would prefer not to send it, we ask that you fill out sections I and II below instead. For those of you who are sending the budget page, we ask that you also fill out section II only.

I. How many professional level people directly contributed to the analysis?

- _____
- A. **What** types of training or educational backgrounds did these people have (what did they consider their professional niche)? Please check off the disciplines involved; if more than one person in each discipline, please indicate how many. Please indicate level of education, B.S., M.S., Ph.D., etc.

1. Economics (S p e c i a l t y _____)

2. Health care professional(s):

- a. Physician(s) ____ practicing or academic _____
- b. Public health ____
- c. Hospital administration ____
- d. Epidemiologist ____
- e. Scientist(s) ____

What discipline(s) _____

3. Systems analysis ____

4. Operations research ____

5. Computer analysis ____

a. computer programming ____

6. Public administration ____

7. Lawyer ____

8. Other _____

- B. What level of effort did these people contribute to the study in terms of full-time equivalents or person days, weeks, or months devoted to

the analysis? (State type of professional and time spent.)

	<u>Professional</u>	<u>Time spent on study</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____

II. The information needs of the analysis:

A. What types of information did you need for your analysis? Please try to be fairly specific (for instance, equipment cost, personnel costs, drug costs, cervical cancer deaths per year, disability data, genetic disease prevalence data, etc.).

a. Direct cost(s) data _____

Direct benefit(s) data _____

c. Indirect cost data _____

d. Indirect benefit data _____

e. Morbidity data _____

- f. Mortality data _____
 - g. Epidemiological data _____
 - h. Health services utilization data _____
 - i. Other data needs _____
- B. Was the data required for your study:
- a. Readily available _____
 - b. Difficult to obtain _____
 - c. Almost impossible to get in a usable form _____
- C. In order to obtain data in a usable form for your purposes, did you have to:
- a. Purchase it (buy data tapes, compiled lists, etc.) _____
 - b. Do original research _____
 - c. Collect from existing sources _____
- D. Was the data
- a. Free _____
 - b. Inexpensive to obtain _____
 - c. Expensive to obtain _____
- E. Was much or all of the data obtained from:
- a. Public sources _____
 - 1. journals _____
 - 2. books _____
 - 3. government studies or reports _____
 - 4. other _____

b. Quasi-public sources, non-profit organizations, foundations. etc.

c. Private sources (industry, insurance firms, etc.) _____

F. Additional comments or explanations:
