



Lessons Learned from Collecting Cost Data from Physicians for Economic Evaluations: Two Methods Compared

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Abstract

Background: Health care utilization databases rely on the vested commitment of patients and their families, but mainly from medical care personnel to provide information of diagnoses, procedures, and follow-up visits. Most developed countries produce health care utilization data from hospital and physician sources through large studies funded by federal research monies. In developing countries, these databases are scarce.

Methods: The purpose of this commentary is to provide recommendations to researchers gathering cost-related from physicians. These recommendations are based on two studies conducted in Ecuador that provide an opportunity to compare different methods of collecting the financial costs of diagnosing, treating, and providing follow-up care for genital warts caused by the Human papilloma virus (HPV).

Findings: The lessons from this research suggest that physicians are more responsive and provide more valuable data when participating in small study groups, such as a Delphi panel.

Conclusion: An economic evaluation in a healthcare setting is of increasing importance to maximize the effectiveness of service provision. However, to ensure the production of quality cost data investment is needed to train and to create protocols of data production, collection and analyses in a clinical setting.

Keywords

Panel Delphi, Economic evaluation, Physicians, Ecuador

Introduction

In developing countries comprehensive health care utilization dataset are scarce. Most countries adhere to the World Health Organization's guidelines to produce health care utilization data such as the number of beds or number of physicians per 100,000 people, turn-around rates, and the number of medical care facilities. However, these data sets do not include costs of the services rendered or measure effectiveness.

In the United States, the Medical Expenditure Panel Survey (MEPS), is considered the most complete source of data on the costs and uses of health care and health insurance in the country [1].

The National Health Care Survey (NHCS) also produces important information about hospitalizations and surgeries, ambulatory physician visits, and long-term care use [2]. In the United Kingdom, the National Institute for Health and Care Excellence (NICE) provide national guidance and advice to improve the nation's health and social services, by producing effectiveness data.

These studies rely on the vested commitment of patients, their families, and medical care personnel to provide information regularly. Physicians provide information about patients' health issues; and record the course of treatment. Billing statements and administrative costs are used to track the costs of the medical services provided.

Physicians are key players in the process of data collection and interpretation. Physicians gather descriptive data on the current health problem, past illnesses, and personal and family backgrounds. In addition, they examine the patient, collect pertinent data, and record it during or at the end of the visit. In addition, they decide what additional data to collect, such as information from laboratory work or complementary exams [3].

Data sets with the characteristics of MEPS and NHCS are rare in low-income countries such as Ecuador. Health care utilization data sets without an associated cost are ineffective for economic evaluations, yet economic evaluations are increasingly becoming more important in these countries for informing health care resource allocation decisions and treatment guidelines [4]. To perform a full economic evaluation, researchers and practitioners must often start with cost analyses.

The purpose of this report is to provide recommendations for strategies to collect cost data from physicians and fill data gaps for economic evaluations. These recommendations are based on two studies conducted in Ecuador by a team of researchers from Universidad San Francisco de Quito, School of Public Health. These studies provide an opportunity to compare different methods of collecting the financial costs of diagnosing, treating, and providing follow-up care for genital warts caused by the Human papilloma virus (HPV).

Both studies targeted physicians with medical specialists in lower genital tract diseases and colposcopy working in private services. The studies' purpose was to collect market-based costs and

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therefore focused recruitment on physicians participating in medical professional associations running private practices.

The first method of data collection was a physician Delphi panel with 16 physicians. The average age of the panel was 49 years of age with a range of 40 to 56 years, and 70% were male and 30% were females. Results from the Delphi Panel study can be found at Roldós et al. 2014 [5]. The Delphi technique is a common method used to gather information and build a consensus within a group [6]. A Delphi panel consists of consecutive rounds of questioning and consensus building, interspersed by controlled feedback of information to participants.

The second method was an anonymous online survey. After obtaining permission from the hospital's medical education director, researchers sent anonymous online surveys to physicians' personal and institutional emails. Every week for the next three weeks, physicians were reminded of the invitation to complete the survey. A total of 144 information requests were sent to medical specialists with private practices registered at a professional medical association. However, only 15 physicians confirmed participation, and only 5 physicians completed the survey. The data collected did not merit publication.

Table 1 summarizes the results of each method using recruitment, data collection, time, cost, response rate, and quality of information are the criteria for comparison.

The lessons from this research suggest that physicians are more responsive and provide more valuable data when participating in small study groups, such as a Delphi panel, especially if a cash incentive is provided. The online study used the medical association's institutional incentives for participating in the organization's sponsored activity. These studies showed that physician value the cash incentive more than the institutional recognition for participating in an academic/research activity.

Based on the results, it also seems apparent that the Delphi panel's hands-on approach, in which researchers worked closely with participants to help them understand and answer cost-related questionnaires, greatly increased the quality of data provided. Physicians often lack time and rely on administrative staff or nurses to complete surveys handle direct billing, collecting payment, and

scheduling. The financial management of their practices is handled by outside accountants that focus mainly on tax-related issues.

Therefore, physicians are typically unfamiliar with the costs of their medical practices. We found that physicians often rely on their own memory to determine the cost of their services. Very few physicians have established profit margins for each service or keep detailed information of the supplies, resources, and time spent on each type of service in their practice. Therefore, this study suggest that in order to collect financial data, researchers need to develop detailed cost inventories for each service, with categories such as: 1) time spent with the physician, 2) time spent with other personnel, 3) total time spent in the office, 4) monthly fixed costs of their practices, 5) detail list of medical supplies and equipment required for each service, and 6) other relevant costs to gather the data needed.

The lessons learned from these studies, also have important implications in medical education. These suggest opportunities to develop prevention effectiveness curriculums for medical students to prepare them to understand cost and financial aspects of their medical practices, as well as to develop financial and economic modules and healthcare economics for continuing medical education (CME) for physicians. Physician's role in prioritizing, gathering, and analyzing financial data is important not only for their own medical practices but also to understand the effectiveness of medical protocols, procedures and interventions.

This commentary is addressed to medical physicians, public health practitioners and researchers, in general. The application of its recommendations can very well be applied to studies done in pediatrics or any other medical specialty.

Conclusions

An economic evaluation in a healthcare setting is of increasing importance to maximize the effectiveness of service provision. However, to ensure the production of quality cost data investment is needed to train and to create protocols of data production, collection and analyses in a clinical setting.

It is unlikely that cost analyses studies in countries such as Ecuador will become commonplace at the physician level. Cost data

Table 1: Lessons learned from collecting cost data from physicians - Two-method comparison

Technique applied		Lesson learned	
Criteria	Delphi Panel N = 16	Online Survey N = 144	
Recruitment	Contacted physicians' medical specialty organization and randomly selected 20 physicians who met the study criteria using the random function in Excel. 80% of physicians invited agreed to participate in the Delphi panel.	Contacted the medical education director of their hospital and sent an online invitation to all physicians who met the study criteria. Less than 15% of physicians accepted the invitation to participate in the study.	Physicians have a stronger association with their medical specialty organization and are more likely to participate if they are selected personally than if invited via their hospital email.
Data collection	Each participant received an electronic survey, at least 3 follow-up phone calls, and a personalized interview to review responses. 100% of questions were answered.	Each participant received an online invitation with detailed instructions, and 3 electronic reminders. 20% of questions were answered; most questions were left blank or incomplete.	Physicians are unfamiliar with cost structures and financial questions about their practices. The Delphi panel proved to be more effective in collecting valid and complete information.
Time	Total time dedicated to each participant ranged from 60-180 minutes, from recruitment and data verification.	Minimum time was spent interacting with physicians. Researchers used online automatic reminders.	Physicians are unlikely to have dedicated time to complete questionnaires. Researchers need to plan time to guide physicians through questions, explain possible scenarios, and gather the financial data needed.
Cost	An incentive of \$500 per physician was offered to participate.	No incentive was offered to physicians to participate in the study. Physicians receive institutional incentives from their medical associations	Physicians respond positively to an economic incentive, which may have guaranteed dedicated time to participate in the study.
Response rate	Of those selected for the study, 100% of participants completed the survey and the subsequent rounds of data collection.	Less than 15% of participants initiated the survey, and less than 10% finished the survey.	There is a direct relationship between time spent in contact with participating physicians and the response rate.
Quality of information	High quality. Each participant was individually guided on data collection and all responses were verified.	Low quality.	Physicians rely on office support to handle the financial aspect of their practices. Without guidance from the research team, physicians are unfamiliar with the costs associated with their practices.

that could potentially inform economic evaluations is scarce and will remain unavailable if physicians are not trained specifically about the importance to gather data and methods for record keeping, and if the national health authorities don't invest in large studies to develop the skills and capacity to do so, as well in health technology.

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