Application of Activity-Based Costing (ABC) in a Peruvian NGO Healthcare System
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Abstract

This paper describes the application of activity-based costing (ABC) to calculate unit costs for a healthcare organization in a developing country. It also describes the ways in which these calculations can provide information for improving the efficiency and quality of healthcare services. The study was conducted from June 1, 1997 through May 31, 1998 at the MaxSalud Institute for High Quality Health Care, a nongovernmental, nonprofit healthcare provider in Chiclayo, Peru. At that time, MaxSalud consisted of a management support unit (MSU) and one clinic in each of the communities of Balta and Urrunaga.

Traditional costing frequently allocates overhead and other support costs on the basis of units of production. ABC, on the other hand, assigns these costs through the principal activities performed within an organization, linking indirect costs to services and products through time allocation and other tracing methods. The result is a more accurate estimate of real unit costs.

Methodology

The design of the study had two major components: (a) development and implementation of an activity-based costing model and (b) evaluation of the results and usability of the model.

Results

The ABC model and its associated methodology were successfully implemented. Unit costs, including reasonable allocations of overhead...
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Recommended citation


Abstract Continued

and other indirect support costs to specific services, were shown to represent a more accurate estimate of the full unit cost of services than traditional accounting methods. Used together with information on the volume of services, ABC analysis can guide pricing and identify the level of subsidies and cross-subsidies required to sustain services. ABC also opens up opportunities for cost savings through quality improvement of service delivery through the redesign or reduction of non-value-added activities and the identification of areas with potential process inefficiencies.

Conclusions

Applying ABC to healthcare services in a developing-country setting is both feasible and useful. The ABC analysis shows where an organization is spending its money, the difference between production costs and support costs, and which costs are value-added and non-value-added.

A potential constraint in the developing world is the generally poor availability and organization of a healthcare system’s cost information. To conduct ABC efficiently, cost information must first be organized both by cost category and department. The greatest benefits will then derive from systematically using the ABC methodology twice a year to monitor improvements and provide feedback to management.

Keywords

activity-based cost analysis, application of; cost and quality management; value-added; non-value-added; cost analysis in developing countries; unit costs; hospital costing; pricing of healthcare services.
Application of Activity-Based Costing (ABC) in a Peruvian NGO Healthcare System

Hugh Waters, Hany Abdallah, Diana Santillán, and Paul Richardson

I. Introduction

Activity-based costing (ABC) is a dynamic approach to determining costs by assigning them to the principal activities performed within an organization. Widely applied in various manufacturing industries, it is not entirely new in the healthcare field. Many U.S. hospitals and health organizations have explored and used ABC to improve resource management (Player 1998; Canby 1995; Dowless 1997). Some analyses of health services in developing countries have used components of ABC (Levin et. al, 1999). Even in the United States, however, ABC can be time consuming and complex, with costs potentially outweighing benefits (Chan 1993).

The purpose of this study was to determine the feasibility and benefit of ABC’s use by a healthcare provider in a developing country. The respondents were managers at the MaxSalud Institute for High Quality Health Care, a private, nonprofit organization in Chiclayo, Peru. MaxSalud was founded in 1994 under the the Strengthening Health Institutions Project/Northern Component, funded by the U.S. Agency for International Development, to provide high-quality, affordable healthcare. The organization is located in a northern coastal province with a population of approximately 730,000.

At the time of the study, MaxSalud was made up of: (a) a management support unit (MSU), which provides oversight and technical assistance to its two clinics and houses the system’s medical laboratory; (b) a health clinic in Balta; and (c) a health clinic in Urrunaga. The system has since added two clinics to the network. The Balta Clinic, situated in a busy, commercial area of Chiclayo’s downtown, serves a community of approximately 12,500 people. The Urrunaga Clinic serves a lower-income population of 7,500 and is located in a peri-urban, marginal community; it is open only half a day each day. Urrunaga services are similar to those in Balta, except that Urranaga offers only limited emergency services and does not offer pediatrics and gynecology at all. However, Urrunaga does engage in more community outreach and health promotion activities than Balta.

1 The project was implemented by University Research Co., LLC (URC) and Clapp & Mayne.
A. Activity-Based Costing Versus Traditional Costing

ABC differs from traditional accounting approaches in that it allocates, or traces, indirect costs to products and services by first defining the main activities on which personnel in an organization spend their time. ABC considers primary activities as the main functions performed by a department or an organization. In the analysis discussed here, these activities are also known as “production activities” when they perform services or produce products. In general, the ABC procedure:

1. Defines the main activities on which personnel in an organization spend their time
2. Traces the cost of financial and human resources to these activities
3. Traces secondary activities (related to support and administrative activities) to the primary activities they serve
4. Groups these activities by service

Traditional costing procedures often group indirect, support costs in one pool and then allocate them to products and services based on related production figures. But when economies of scale come into play, this approach tends to attribute too high a cost to high-volume products and services and too low a cost to low-volume ones (Chan 1993). ABC more logically attributes indirect costs to the product or service that actually consumes these costs (Cokins 1996). This approach, states Brimson (1991), enables an organization to “use its resources in the best possible way to achieve its objectives” by also providing insights into the production process for delivering products and services.

II. Methodology

The methodology of this study comprised two phases. The first phase involved developing and implementing an ABC model using specialized software and collecting data through interviews with key personnel to help investigators track costs by activity. The second phase was an evaluation of the feasibility and usability of the model gleaned from focus groups and interviews with key personnel.

The major steps taken to implement ABC were as follows:

Step 1, Planning: Reviewing the existing accounting system, assessing the availability of cost and other pertinent data, and determining additional data needs. A MaxSalud ABC Implementation Team defined the departments, time frame, and services to be costed.

Step 2, Activity analysis: Through interviews with MaxSalud personnel, defining the principal activities of personnel in each department and then determining the distribution of their time among these activities (West, Hicks, and Balas 1996). In this way, 107 activities were defined for all of MaxSalud, many shared across departments by different employees; some were primary and some were secondary. Note that an activity is not inherently “primary” or “secondary” but can vary according to the unit where it is performed. For example, “creating an ad” is a primary activity in the Preventive and Promotional Programs Department but a secondary activity in the Community Participation and Social Work Department. Similarly, providing an administrative service is a primary activity in the MSU but a secondary activity in most other departments.

Value-added activities (required to fulfill both in-house client requirements and those of clients seeking health services) and non-value-added activities (those that were unproductive because of redundancy, down-time, or avoidable errors) were also identified.

Step 3, Activity accounting: Working with the cost and accounting information available from MaxSalud, unit costs were calculated by dividing the total costs of the primary activity

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2 The only products the clinics provide are those sold in their pharmacies. MaxSalud pays for these items and then sells them to healthcare clients, generating some revenue in the process. Thus, in this study, the associated costs of these products were treated as pass-through costs and are not included in the analyses.

3 For example, the unit cost of a dental consultation includes not just the cost of the dentist’s time and the equipment and materials consumed, but also overhead costs (such as electricity and administrative support) and support activities (such as cleaning and equipping the consultation room).

4 A simple example: Imagine a company that produces 900 blue cars and 100 red cars each year. Traditional accounting procedures would assign 90 percent of the overhead costs to the blue cars. ABC, however, might find that blue cars consume only 60 percent of the company’s personnel time because red cars are more specialized and fewer are produced. ABC, therefore, would assign only 60 percent of the costs related to supporting personnel to the blue cars, thereby showing a more accurate unit cost for both blue and red cars.
by the corresponding production figure, obtained from MaxSalud’s information system. Figures for services with no price, such as vaccinations, were calculated from clinic records.

Cost analyses included some preliminary assessment of how the data can be used to improve pricing of fees, subsidization, and efficiency.

Four different versions of the costs of MaxSalud were also assessed, each resulting in different unit-cost estimates.

**Version 1:** MaxSalud expenditures for its management support unit and two clinics and expenditures made with external donor assistance (i.e., full costs)

**Version 2:** MaxSalud expenditures for its management support unit and two clinics, excluding those made with external donor assistance

**Version 3:** MaxSalud expenditures, excluding those of the MSU

**Version 4:** Operational, or recurrent, expenditures of the clinics alone

Version 2 served as the best tool for planning; it is the one most applicable to calculating the actual costs as the organization becomes independent of external donor assistance.

### III. Results

Data collection took place during the period when El Niño struck, reducing the buying power of people, especially in Urrunaga. Since May 1998, after the period of analysis for the study, utilization rates have increased substantially. Therefore, unit costs reported in this paper are likely to be higher than the costs that MaxSalud is currently incurring, especially with four clinics now in operation. The addition of two clinics since the study was completed points up the potential significance of the costs measured in this study, namely, that unit costs probably have now decreased owing to economies of scale that result from spreading the overhead cost over a larger base.

### A. Determination of Unit Costs

Table 1 shows unit costs for selected services for the period of this study. Because the cost of all secondary activities is included in the unit costs, the table accounts for all resources used to produce and support healthcare services in MaxSalud during the study period. Consistent with its lower volume of users, unit costs were generally considerably higher in Urrunaga than Balta. On the other hand, Urrunaga was able to produce a lower unit cost for immunizations, primarily due to a larger volume of patients for this service.

Figure 1 and Table 2 show a breakdown of the unit cost of a delivery in the Balta Clinic in the same time frame. More than one-third (35 percent) of the cost consisted of the overhead charge for MSU services. A little less than one-fourth (23 percent) was directly related to providing the service itself (the primary activity),
including the cost of personnel, medical supplies, rent, and maintenance and depreciation of the equipment and supplies.

Forty-two percent went to secondary activities, performed directly or indirectly to prepare for carrying out the delivery (i.e., the indirect cost of admissions and the proportional costs of directly related support services such as supervision, administration, and cleaning). More than half of the secondary costs were incurred by personnel-waiting time. This high proportion was due, in part, to deliveries taking place in Balta’s Emergency Department. This department requires the presence of personnel for night shifts regardless of patient load. Personnel-waiting costs could likely be reduced with a consequent beneficial impact on the unit cost of a delivery.

In general, unit costs for delivery and general ambulatory consultations at both clinics were relatively high, particularly in comparison with the low fees being charged to a clientele that includes the middle and lower-middle classes of the Chiclayo area. At Balta, for example, the full package of delivery services, including perinatal care, cost $187.30, of which only 24 percent was defrayed by the corresponding fee.

### B. Pricing and Calculation of Subsidies

Table 3 shows the unit costs calculated for a variety of selected services, together with the fees charged to clients for these services and the gap between the unit cost and the unit fee. Specific services that carry positive externalities—immunizations, for example, that benefit other people in addition to the person being treated—are the ones most likely to require subsidization. In the dentistry department, the Balta Clinic seemed to generate some net revenue on some services (e.g., root canals and complex dental caries) adequate to offset the negative revenue in other services in that department. However, the revenue from the areas with net revenue was not enough to cross-subsidize losses in other departments of the clinics. Using the ABC data on cross-subsidization and revenue-losing services, managers can adjust existing fees and the overall fee strategy.

#### Table 2

**Breakdown of Primary Activity and Secondary Activities Associated with Performing a Delivery and Providing Related Services in Balta Clinic, June 1, 1997–May 31, 1998**

<table>
<thead>
<tr>
<th>Expense Category of Primary Activity ( Delivering a Baby)</th>
<th>Percent of Total Cost</th>
<th>Secondary Activity</th>
<th>Percent of Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>75</td>
<td>Waiting time</td>
<td>59</td>
</tr>
<tr>
<td>Depreciation</td>
<td>12</td>
<td>Neonatal monitoring</td>
<td>13</td>
</tr>
<tr>
<td>Maintenance</td>
<td>5</td>
<td>Training</td>
<td>11</td>
</tr>
<tr>
<td>Rent</td>
<td>4</td>
<td>Meetings</td>
<td>7</td>
</tr>
<tr>
<td>Medical supplies</td>
<td>1</td>
<td>Birth package preparation</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>Nursing support</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient evaluation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintaining records</td>
<td>0*</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Zero due to rounding

#### Figure 1

**Breakdown of the Cost of a Delivery at Balta Clinic June 1, 1997–May 31, 1998**

Total unit cost = $187.30
<table>
<thead>
<tr>
<th>Selected Services</th>
<th>Balta</th>
<th>Urrunaga</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit Cost</td>
<td>Fee</td>
<td>Difference</td>
<td>Number of Paying Clients</td>
<td>Unit Cost</td>
<td>Fee</td>
</tr>
<tr>
<td>Ambulatory Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General medical consultation</td>
<td>8.16</td>
<td>5.50</td>
<td>(2.66)</td>
<td>7,963</td>
<td>13.40</td>
<td>2.39</td>
</tr>
<tr>
<td>Gynecology consultation</td>
<td>8.57</td>
<td>7.35</td>
<td>(1.22)</td>
<td>2,040</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Pediatric consultation</td>
<td>8.16</td>
<td>7.35</td>
<td>(0.81)</td>
<td>2,201</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Net revenue (loss) in service area</strong></td>
<td><strong>($25,453)</strong></td>
<td><strong>($44,634)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Root canal</td>
<td>37.04</td>
<td>49.30</td>
<td>12.26</td>
<td>105</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Complex dental caries</td>
<td>6.69</td>
<td>12.03</td>
<td>5.34</td>
<td>1,110</td>
<td>18.79</td>
<td>6.99</td>
</tr>
<tr>
<td>Dental consultation</td>
<td>3.64</td>
<td>2.20</td>
<td>(1.44)</td>
<td>1,716</td>
<td>50.57</td>
<td>1.49</td>
</tr>
<tr>
<td>Simple dental caries</td>
<td>9.49</td>
<td>8.94</td>
<td>(0.55)</td>
<td>1,296</td>
<td>18.15</td>
<td>5.97</td>
</tr>
<tr>
<td>Simple dental extraction</td>
<td>4.01</td>
<td>4.19</td>
<td>0.18</td>
<td>1,022</td>
<td>11.80</td>
<td>3.97</td>
</tr>
<tr>
<td>Dental cleaning</td>
<td>13.27</td>
<td>7.35</td>
<td>(5.92)</td>
<td>308</td>
<td>17.72</td>
<td>5.50</td>
</tr>
<tr>
<td>Complex dental extraction</td>
<td>167.60</td>
<td>9.19</td>
<td>(158.41)</td>
<td>7</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Net revenue (loss) in service area</strong></td>
<td><strong>($1,283)</strong></td>
<td><strong>($9,144)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventive Care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s health consultation</td>
<td>2.77</td>
<td>3.68</td>
<td>0.91</td>
<td>2,521</td>
<td>3.51</td>
<td>1.84</td>
</tr>
<tr>
<td>Healthy child consultation</td>
<td>2.54</td>
<td>1.47</td>
<td>(1.07)</td>
<td>3,689</td>
<td>4.02</td>
<td>0.92</td>
</tr>
<tr>
<td>Immunization</td>
<td>1.44</td>
<td>Free</td>
<td>(1.44)</td>
<td>3,889</td>
<td>1.30</td>
<td>Free</td>
</tr>
<tr>
<td><strong>Net revenue (loss) in service area</strong></td>
<td><strong>($7,253)</strong></td>
<td><strong>($18,123)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency consultation</td>
<td>7.09</td>
<td>7.35</td>
<td>0.26</td>
<td>4,158</td>
<td>16.54</td>
<td>4.40</td>
</tr>
<tr>
<td>Transport of patient</td>
<td>34.45</td>
<td>27.57</td>
<td>(6.88)</td>
<td>223</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Observation of patient (6 hours)</td>
<td>16.00</td>
<td>4.40</td>
<td>(11.60)</td>
<td>354</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Delivery</td>
<td>187.30</td>
<td>45.11</td>
<td>(142.19)</td>
<td>268</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Net revenue (loss) in service area</strong></td>
<td><strong>($42,666)</strong></td>
<td><strong>($2,938)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Participation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community participation visit</td>
<td>4</td>
<td>Free</td>
<td>(4)</td>
<td>2,111</td>
<td>5.08</td>
<td>Free</td>
</tr>
<tr>
<td><strong>Net revenue (loss) in service area</strong></td>
<td><strong>($8,444)</strong></td>
<td><strong>($13,914)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OVERALL NET REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3
Comparison of Unit Costs and Fees for Services in Balta and Urrunaga
June 1, 1997–May 31, 1998 (in U.S. Dollars)

(Version 2)
Sensitivity analysis can be performed on unit costs of services determined by ABC. By applying varying scenarios of client flow and using different cost versions, managers can project the need for future subsidies. For instance, using Version 4 (i.e., only operational costs of clinics), the equivalent subsidy level required to support the services in Table 3 is about $21,420 for Balta and $38,550 for Urrunaga.

C. Analysis of Non-Value-Added Activities

Overall, non-value-added activities represented a relatively small proportion of total costs at MaxSalud, varying from 5.6 percent under Version 1 (full cost) to 9.0 percent under Version 4 (operational cost only). These figures are equal to approximately $27,000 and $35,800, respectively, over the course of the study period. Overall, non-value added activities accounted for a higher proportion of total costs in Balta than in Urrunaga (10.6 percent of total costs versus 6.0 percent under Version 2), in part owing to the relatively high level of non-value-added costs in Balta associated with providing emergency services (Table 4). The ideal level for non-value-added costs is, of course, 0 percent of operations cost, an unrealistic number in many organizations. A reasonable level for organizations in the service industry is about 2–3 percent (Pryor and Sahm 1998).

Note that non-value-added costs were most likely underestimated because personnel are unlikely to admit spending a significant portion of their time either redoing activities or doing nothing. This problem is inherent in the ABC methodology, whether information is gathered through interviews or directly through observation of personnel.

Table 4
Services with High Non-Value-Added Costs
June 1, 1997–May 31, 1998
(Percentage of Total Service Cost)

<table>
<thead>
<tr>
<th>Service</th>
<th>Non-Value-Added Cost</th>
<th>Service</th>
<th>Non-Value-Added Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balta</td>
<td></td>
<td>Urrunaga</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td>18.8</td>
<td>Ambulatory consultation</td>
<td>12.5</td>
</tr>
<tr>
<td>Dentistry</td>
<td>18.3</td>
<td>Pharmacy</td>
<td>7.3</td>
</tr>
<tr>
<td>Ambulatory consultation</td>
<td>9.1</td>
<td>Dentistry</td>
<td>5.8</td>
</tr>
<tr>
<td>General services</td>
<td>6.9</td>
<td>General services</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Table 5
Services with Highest Secondary Costs
June 1, 1997–May 31, 1998
(Percentage of Total Service Cost)

<table>
<thead>
<tr>
<th>Service</th>
<th>Secondary Costs</th>
<th>Service</th>
<th>Secondary Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balta</td>
<td></td>
<td>Urrunaga</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td>87.7</td>
<td>Pharmacy</td>
<td>82.0</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>86.7</td>
<td>Community Participation</td>
<td>78.5</td>
</tr>
<tr>
<td>Admissions</td>
<td>85.6</td>
<td>Dentistry</td>
<td>75.2</td>
</tr>
<tr>
<td>General services</td>
<td>63.9</td>
<td>General services</td>
<td>64.8</td>
</tr>
</tbody>
</table>

D. Analysis of Secondary Activities

Table 5 shows that 87 percent of the total costs in the emergency department in the Balta Clinic are attributable to secondary activities. Compare this with the laboratory department’s secondary costs of only 6 percent. Such differences can be interpreted as differences in levels of process efficiency, with one strong caveat: secondary costs are necessary for the proper functioning of a department, and the optimal level of secondary costs depends on the work of the department. The emergency department requires staff to be there, busy or not. Moreover, it needs a complex structure of support activities (e.g., preparing materials and rooms, providing training, and handling general administration) because of the wide range of services it offers. In contrast, the laboratory department focuses almost solely on performing lab exams, so most of its activities are by nature primary.

However, the laboratory department support costs probably could be even lower. Figure 2 shows that repeating exams and waiting time, examples of non-value-added activities, account for more than one-fourth of secondary costs. Repetition of exams is due to human error that, in principle, could be reduced; waiting time is frequently due to inefficiencies in the flow of patients and materials and assignment of staff.
E. Standard Cost Analysis

Some of the traditional cost analyses conducted with financial data are also possible using ABC. ABC, for example, clearly records total costs for the whole organization that can be compared with total revenues to determine the overall financial status of the company. For MaxSalud, total costs for the one-year period were $299,000 (Version 1), $535,000 (Version 2), $334,000 (Version 3), and $640,000 (Version 4). The organization’s total costs can also be reported by cost category and by department.

Cost by cost category: In all versions, human resource costs represented the most significant category of costs. Salaries and other personnel costs varied from 70 percent of total costs under Version 1 to 84 percent under Version 4.

Cost by departments: Generally, the division of costs by department was quite different in the two clinics, in large part due to the different menus of services. In Balta, the largest share of costs (31 percent) was generated by the emergency department, representing 14 percent of Balta’s client base. Ambulatory consultation (including pediatric, gynecological, and general medical consultation) was the second highest cost generator in Balta (20 percent) and the highest in Urrunaga (26 percent).

One significant cost center in Urrunaga was community participation, which represented 12 percent of costs, more than twice that in Balta (5 percent). This finding reflects the greater emphasis placed on community participation in Urrunaga. However, because community participation does not generate revenue directly, its costs must be covered by a separate source of funding or revenue. (Costs associated with community participation may be considered investments in future clients seeking healthcare services, thereby generating future revenue streams to the clinic.)

F. Projections and Simulations

Once all of the cost and activity data are available and organized, ABC can be used to carry out a variety of simulations assessing the effect of expected changes in the organization. For example, additional staff for specific positions can be added to the analysis, and service utilization rates can be adjusted based on expected changes in rates. ABC can also calculate new unit costs under revised assumptions, and recalculate secondary to primary ratios and value-added to non-value-added ratios.

G. Requirements for Implementing ABC

Among the most important requirements for implementing ABC are: (a) access to both data and to personnel and (b) complementary accounting and management information systems. Assuring clinical staff that the activity interviews, which took from one to two hours, were in no way related to an evaluation of performance proved to be an important factor in getting information. Obtaining information concerning time spent on non-value-added activities was nonetheless difficult because staff are typically reluctant to suggest that they spend substantial time on non-value-added activities. Consequently, figures obtained for non-value-added costs are probable underestimations of the real costs. Alternative approaches for analyzing activities—such as time studies and focus groups—could be explored (Player and Keys 1995).

ABC needs production and utilization information on the services to be costed. These figures are the denominators for the unit-cost calculations at MaxSalud. Production figures for paid
services, representing the number and type of health services rendered, were available through the cashier’s register. Receipts from the cashier’s register also captured the number of discounted or subsidized and exonerated services. The only production figures unavailable at MaxSalud related to communications and community extension services.

Once the basic information system is in place and is being maintained, the level of resources required to repeat ABC periodically can be reduced significantly. It is entirely feasible, for example, to carry out a more simplified version of the ABC methodology, using spreadsheets rather than specialized software and making assumptions to account for limited data (Holmes and Schroeder 1996).

IV. Conclusions and Discussion

This study clearly shows that ABC calculates real unit costs by including support and administrative costs in the unit-cost information. It also reveals hidden costs associated with some non-value-added activities. Prices can and should be adjusted in light of this information.

Additionally, ABC can calculate the overall subsidy required by a nonprofit organization. By using versions with different cost assumptions, ABC can project subsidies needed for community services such as outreach and health promotion.

Alternative approaches for analyzing the activities performed in an organization can be explored, specifically to increase the reliability of estimates of non-value-added time spent by personnel. Options include time-motion studies or focus groups (Player and Keys 1995).

ABC has several applications. It allows managers to measure the effectiveness and financial impact of quality improvement (QI) programs and compare these against their costs (Stiles and Mick 1997). One simple way is to compare the unit-cost differential between a health care service performed in compliance with quality standards and the same service performed poorly. Using some type of external verification of the quality of the service, such as established standards, ABC can track services both correctly and incorrectly performed and determine corresponding unit costs. Alternatively, ABC analysis can be applied before and after implementation of a QI program. The results will show the cost of performing services—both including and excluding the QI costs—thus providing a direct comparison of the costs and cost benefits of the program.

Another potential application of ABC to the health sector in developing countries is to arrive at the potential cost of expanding public and private health insurance coverage based on a capitation system. As countries struggle with ways to expand coverage while making health systems more efficient, the ability to calculate and predict such costs is essential.

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5 Another potential source of production information would be the provider’s register, which captures the number of services rendered by a provider, including free follow-up consultations.

6 To maintain ABC at MaxSalud, key personnel will require training in the ABC methodology and software. Practical guides for the implementation of ABC management are Brimson 1991; Kaplan and Cooper 1998; Pryor and Sahm 1998; O’Guin 1991; and Storfjell and Jessup 1996.
References


Suggested Readings


Application of Activity-Based Costing (ABC) in a Peruvian NGO Healthcare System