

“A PENNY SAVED IS A PENNY EARNED” . . . OR MORE
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Until 1984 medical reimbursement was largely on a “cost plus” basis. That is, a reasonable profit margin was added to the cost of delivery of services. As the cost of doing business increased it was passed on to the consumer through price increases. Since so much of health care charges were reimbursed by third party payers and employers, the cost of medical care was treated as a “free good” by many American health care consumers. Rapid technological advances, the changing demographics related to an aging population, a better informed populous and a variety of other causes also contributed to increased demand for medical services resulting in higher total health care expenditures. American businesses responded to this challenge to the cost structure by embracing “managed care”, which to this point has focused on managing cost to them resulting in diminished and price insensitive reimbursements to providers as one consequence.



In an environment where reimbursement is inflexible, any business, to remain profitable, must focus on its costs of doing business. To the extent that cost can be lowered beyond reimbursement, profitability increases.

Medical services can be thought of as products. Each medical practice has a multi-product line. Many of these products are supplied in the office. For example, a limited office visit or a new patient consultation or pelvic sonography for follicular measurement. Some are laboratory services such as FSH measurement and estradiol measurements and progesterone measurements. Some are procedural in nature such as aspiration of ovarian follicles, procedures performed by laparoscopy or hysteroscopy. Relative value systems have been established as long ago as in the 1950's by the California and Florida Medical Associations to compare the work value of one procedure or activity relative to others. The most widely used relative value systems today are the McGraw/Hill, and the New Medical RVRBS. The basis on which the relative value is determined includes five factors: (1) physician time; (2) skill required; (3) severity of illness of the patient; (4) risk to the patient; (5) medical legal risk to the physician.

Relative value systems are imperfect at arriving at appropriate medical charges and costing for several reasons. First they are consensus averages arrived at by research groups taking into account large numbers of physicians and their experiences. They are average or homogenized designations which may not be applicable to a particular practice. Secondly, except for time the characteristics evaluated are qualitative rather than quantitative. Third and most importantly, they do not take into account all resource costs. Despite these drawbacks, relative value unit systems can provide information that is better than no information at all. In small practices or entities where the resources for obtaining information are limited, precision is not critical and services and activities are homogeneous, these processes are useful. For example, one can identify approximate procedural or E/M cost in the following manner: Calculate all practice expenses for the identified period – say the most recent

completed three month quarter (include physician salaries at market value) Tabulate the relative value units for all procedures performed during that interval. The number of times each procedure or E/M encounter was performed should be multiplied by the number of each procedure and added to arrive at a total. The total expense figure is divided by the total relative value units resulting in an average cost per relative value unit. Multiply the average overall cost per relative value unit by each procedure or E/M RVUs to arrive at the approximate cost for that activity.

Determining costs and making price determinations based on RVUs can be misleading because it's based on averaging. It does not precisely reflect the resources utilized in the specific activity for which the price is applied. It is inadequate for strategic planning in an increasingly complex, highly competitive and price sensitive medical environment. To maximally reduce costs you must accurately identify them. **You cannot manage what you cannot measure!**

Activity Based Costing

Costs are the residue of people using things to perform activities. They are a derivative – the result of work being done and things purchased. Activities utilize resources to produce outcomes. Those outcomes may be goods or services. Resources are of various types, and resource utilization incurs cost! Each has value, and that value has an associated cost if the resource is utilized. By identifying activities and analyzing their resource utilization their cost can be precisely assessed. The cost of the item or service, is the summation of the prices of the resources consumed in the activities required to produce it. The price (fee, charge) of the end product reflects how the market sees value added by the activities or process producing it.

The consumption of resources by activities results in products that may be a good or a service. **Product costing** is often described as either **job order** or **process costing**. Job order costing is applicable to products that consume different or inconsistent amount of inputs. For example, a simple surgical procedure such as biopsy of the endometrium consumes far less physician labor time, surgical equipment and sophisticated operating space and environment than does a tuboplasty. Although each is an operative procedure, the difference in resource utilization by each is sufficiently great that it is worth directly tracing each component in order to arrive at a precise cost.

By contrast, performance of one progesterone assay is almost identical with performance of each other progesterone assay. The technician labor time, reagents required, EIA analyzer time and other materials are so similar that it makes no economic sense to measure each precisely. The process of performing the progesterone assay can be repeated with such consistency that **process costing** makes sense. In this instance we assume that each unit of service consumes equal amounts of labor, materials and indirect costs and we arrive at an **average cost** per assay by dividing the total process cost by the number of assays performed. Job order costing allows more precision than process costing but sometimes is not economically justified or required. In fact, product-costing systems are often **hybrids** rather than strictly **process** or **job order** costing. Hybrid systems include some costs accumulated on a process basis and others on a job order basis. An important decision always required in product costing is the degree to which specific costs are directly accounted and the degree to

which averaging of costs is allowed. The more precisely costs are traced, the better information a business entity will have to control them.

Consider, for example, three services you may provide through your office: diagnostic laparoscopy, a complex new patient evaluation, and a progesterone assay. **Figure 1**, depicts the activities associated in providing these services and the resources utilized by the activities and resource costs.

Certain recourses directly traceable to activities are easily measured. For example, the disposable trocar in performing a laparoscopy; the patient gown utilized in the new patient evaluation; the cost of a pipette in the progesterone assay. Other costs, while directly traceable to an activity are related to personnel or labor. The costs incurred by labor can be quantified (**Figure 2, page 4**).

Figure 2
CALCULATING PERSONNEL (LABOR COSTS)
Actual Costs 199_

Panel A.	
Physician	
1. 2 weeks meetings/4 weeks vacation/46 work weeks per year	
2. Salary	\$150,000
Business Expense	15,000
P&P	18,000
Insurance	
Life/Disability	10,000
Health	6,000
Liability	20,000
	TOTAL \$209,000
3. Work 46 weeks x 40 billable hours/week = 1840 hours*	
4. Per year \$346,000/1840 hrs/year =	\$113.59/hr
5. Add in 5% inefficiency =	5.68
6. Total cost/hr =	119.27/hr
*(Includes value of administrative work and research in support of clinical activities at 15 hr/wk = 15 x 46 = 690 hrs)	
Panel B.	
Nurse.	
1. 2 weeks vacation/1 week sick leave/ 49 work weeks per year	
2. Average Salary	13.90/hr (average)
Benefits @ (30%)	4.17
3. Work 49 weeks x 40 paid hrs/wk = 1960 hours/yr.	\$18.07/hr
4. 52 weeks x 40 hours = 2080	
49 weeks x 40 hours = 1960	
2080 hours/1960 hours x 18.07/hr =	19.18 per hour
5. Add in 5% inefficiency = .05 x 19.18 =	.96
6. Total cost per/hr = \$19.18 + .96 =	\$20.14/hr

Panel A depicts actual physician costs. Salary, business expenses, insurance and pension expenses total \$290,000. Each physician is entitled to two weeks time to attend professional meetings and four weeks vacation; thus leaving 46 weeks for engagement in direct patient related activities. While each physician works an estimated 55 hours each week on the average, including direct patient time, on call time, and in providing support and administrative services directly related to patient care, 40 hours of each week are spent in direct patient contact and are thus billable hours. Since there are 1840 billable hours per year per physician, physician time represents a cost of \$119.27 per hour. **Panel B** illustrates calculation of actual nursing personnel cost in a hypothetical practice. A similar panel can be developed for each practice employee. On the average, each nurse receives two weeks vacation and one-week sick leave, leaving 49 weeks per year expended in direct services, or 2080 hours. The average base salary per nurse based on a 52-week work year is \$13.90. In

addition, each nurse receives 30% of her base pay in benefits, FICA and unemployment tax compensation raising the average cost per hour, per nurse to \$18.07. Since each nurse is paid based on 52-week year of forty-hour work weeks, but actually works forty-nine 40-hour workweeks, the true average cost per hour per nurse is \$19.18 per hour. Moreover, since no nurse works each minute of each day, allowing for 5% wastage attributing an additional .96 per hour cost per nurse, the true cost per hour for nursing services is \$20.14.

Personnel costs can be calculated on an hourly basis as seen in **Figure 2** and can then be unitized per procedure. For example, if in a medical office the physician can see six patients in a one-hour period of time, the average time utilized per patient is ten minutes.

If then, ten minutes is used as the basis of a unit of physician time the usual minor operation performed in the hospital which requires one and one half hours of physician time associated with travel, time spent in the operating room, and in administrative work in support of the operation would require nine units of physician time.

If the average major operative procedure requires three hours of physician time similarly expended, it would utilize 21 physician units. If the cost of physician time is \$119.27 per hour, each unit (10 minutes) of physician time has a cost of \$19.88.

Certain clinical activities require the support of nursing or laboratory personnel incurring supplemental costs, which may be directly traceable and similarly unitized. In addition to personnel costs, other resources utilized in the form of material and equipment which is directly traceable and general office overhead or other costs indirectly allocated can be added to unitize costs on a per procedure basis (**Figure 3, Page 8**).

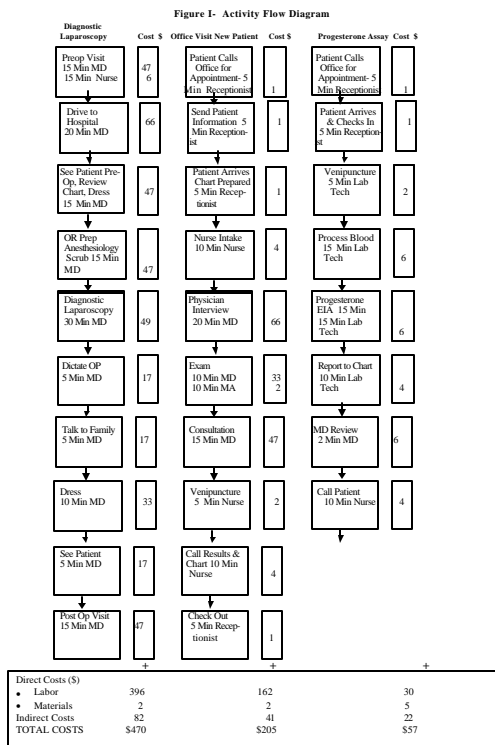
If, however, the physician time were completely utilized, and seeing an additional patient of high complexity requires hiring an additional physician at the cost depicted in **Panel A of Figure 2** the same relevant range upon which the previously unitized costs were based would now have been exceeded. In this extreme example, the cost of seeing one additional patient of high complexity would result in an additional cost burden of \$208,820 (\$209,000 minus \$180.00). Once the added fixed cost of hiring an additional physician is incurred it will not change over the relevant range of his capacity to see patients (say 400 new patients and 3,000 return patients per year) as long as his activities do not exceed the current relevant range of fixed costs for nurse personnel, front office personnel and space requirements.

We now understand that a product (whether a good or a service) is a result of activities that consume resources. By identifying the activities resulting in the good or service we can trace the resources required to produce it. For accounting and financial purposes, medical activities are now identified by CPT/E/M codes, and whether progesterone assay CPT code 84146 or a new patient encounter of high complexity CPT 99205 the activities associated with each and the resources they utilize may be identified and accounted for.

Activity based costing is founded upon the concept of identifying activities or components as crisply as possible. It first identifies resources utilized by these activities and then derives activity costs associated with these cost objects which may be products, services, customers or patients. Costs that are traced easily to a specific activity are known as **direct** costs. Costs

unable to be traced directly to an activity with reasonable economy are categorized as indirect costs.

They are grouped into homogenous cost pools and allocated to the cost object on the basis of a specific cost driver. Since medical practices differ, their activities - the way in which their work is carried out - will differ. Because activities utilize resources, the first step in implementing activity based costing is to identify and describe the activities. Establishing appropriate accounting systems to track costs in an activity based fashion has the greatest potential to allow discreet analysis and discern costs. The information acquired through activity based costing is a powerful ally, and a necessary precondition, for activity based management of those costs in such diverse areas as budgeting, purchasing and pricing. (End)



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