
2 Understanding Medical Activity-Based Cost Management

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As a consequence of the Patient Protection and Affordable Care Act of 2010 (PP-ACA), Accountable Care Organizations (ACOs), and the Medical Home global payment concept, etc., astute physicians and healthcare executives are becoming aware of the need to demonstrate the cost effectiveness of healthcare, as this can be an important competitive advantage over other providers. Whether this scenario occurs in the office, emergency room (ER) or hospital setting, hard numerical business information is required. Such information may be obtained by using the managerial accounting tools known as Activity-Based Cost Management (ABCM) and the Clinical (Critical) Path Method (CPM).

In the traditional financial accounting practice system, costs are assigned to different procedures or services on the basis of average volume (quantity). So, if a general surgical service is doing more "surgical procedures" (high volume) than primary care "medical services" (low volume), more indirect overhead costs will be allocated to the surgical service portion of the practice.

ABCM and CPM on the other hand, determine the actual costs of resources that each service or procedure consumes. Therefore, because primary care actually requires more service resources than surgery, ABCM will assign more costs to the medical services (low volume) practice.

The idea is to get a handle on how much every task costs by factoring in the labor, technology, and office space to complete it. In this way, the next time a discounted managed care contract is offered, or your medical office or hospital department is over budget, you will know whether to accept or reject the contract or how to solve the variance problem.

THE MEDICAL CRITICAL (CLINICAL) PATH METHOD

An activity is any event or service that is a cost driver. To activity cost any critical or clinical medical pathway, five steps are used:

1. Identify key transactions.
2. Identify the time and resources required for each step.
3. Define non-economically valued activities.
4. Note office operational inefficiencies.
5. Determine the cost of each resource.

Examples of several specific medical office activities that are cost drivers include the following:

- Surgery set-ups
- Vital sign checks
- Cast changes
- X-ray processing
- Taking radiographs
- Blood test runs
- Records requests
- Insurance verifications
- Referral orders

ABCM improves managerial accounting systems and flow process re-engineering in three ways:

1. ABCM increases the number of cost pools (expenses) used to accumulate general overhead office costs. Rather than accumulate overhead costs in a single office-wide pool, costs are accumulated by activity, service, or procedure.
2. ABCM changes the base used to assign general overhead costs to services or patients. Rather than assigning costs on the basis of a measure of volume (employee or doctor hours), costs are assigned on the basis of medical services or activities that generated those costs.
3. ABCM changes the nature of many overhead costs in that those formerly considered indirect are now traced to specific activities or services. The office service mix of procedures (current procedural terminology (CPT) codes) may then be adjusted accordingly for additional profit.

In general, the most important end result of ABCM is the shift of general overhead costs from high volume services to low volume services.

ABCM/CPM IN THE EMERGENCY ROOM SETTING

Many experts opine on the nursing shortage in the United States. This shortage may be in part be caused by the assignment of too many non-medical activities to nurses. As a result, administrators experiencing the shortage, with related profit losses, turned to ABCM and the CPM for a solution.

AQ1 Case Study: St. Paul Emergency Room

Upon CPM evaluation, it was discovered that about half of all activities performed at the St. Paul emergency room by nurses and ER staff were previously done by materials management, maintenance, admissions, or housekeeping employees. This work, however, was not visible in traditional budget reports. On the other hand, ABCM analysis made both the work and the workers visible. ABCM helped the ER administrator eliminate non-value-added overhead activities, re-deploy non-medical activities from nurses to lower-cost employees, improve nurse morale, improve processes, and much more.

Intuitively, it was obvious that increased overtime or the importing of nurses from other countries did not address the root cause of impending nurse shortages. ER managers benefited by using ABCM as a diagnostic tool to fully understand departmental challenges.

ABCM/CPM IN THE PRIVATE OFFICE SETTING

Dr. Smith works in a large medical group consisting of twenty-five healthcare practitioners. In the aggregate, they render 4000 office visits to the patients from XYZ managed care organization (MCO) and 20,000 visits to patients from the UVW-MCO, each year. Each doctor averages forty hours per week and dispenses various pieces of durable medical equipment (DME) to their elderly patient population. The office currently uses doctor hours (DH) to assign general overhead costs to medical services rendered. The predetermined (given) overhead rate is:

Office Overhead Costs	\$900,000 (given)
_____ = _____ =	\$18/DH
Doctor Labor Hours (DLH)	50,000*

* $(25 \text{ doctors} \times 40 \text{ hours/week} \times 50 \text{ week/year})$

XYZ-MCO requires 2.5 DLH, and UVW-MCO requires 2.0 DLH. According to a traditional general overhead cost system, the costs to treat one patient in each MCO is determined as follows:

	XYZ	UVW
Direct Materials	\$ 36.00	\$ 30.00
Direct Labor	17.50	14.00
General Office Overhead		
2.5 DLH \times 18/DLH	45.00	
2.0 DLH \times 18/DLH		36.00
Total Cost Per Patient	\$ 98.50	\$ 80.00

Now, for simplicity, let's suppose that office overhead costs are actually composed of the five activities listed in Table 2.1.

Let us also assume that the transactional data in Table 2.2 were collected by the medical office manager.

These data can be used to develop general overhead rates for each of the five activities (Table 2.3).

The general office overhead rates can now be used to assign overhead costs to the respective services, in the following assigned overhead cost manner (Tables 2.4 and 2.5).

Medical service and product costs using the two different methods can now be contrasted (Tables 2.6 and 2.7).

Again, these spreadsheets demonstrate that the per-unit costs of the low-volume services increase and the per-unit costs of the high-volume services decrease. These effects are not symmetrical as there is a bigger dollar effect on the per-unit costs of the low-volume services.

TABLE 2.1
Actual Activity Costs

CPM Activity	Traceable Cost (\$)
Cast changes	255,000
Radiographs	160,000
Blood panels	81,000
Dressings	314,000
DME	90,000
TOTAL	900,000

Note: CPM, critical (clinical) path method; DME, durable medical equipment.

TABLE 2.2
Transactional Activity Costs

Activity	Number of Events	XYZ	UVW
Cast changes	5,000	3,000	2,000
Radiographs	8,000	5,000	3,000
Blood panels	600	200	400
Dressings	40,000	12,000	28,000
DME	750	150	600

Note: DME, durable medical equipment.

TABLE 2.3
Overhead Rates

Activity	Costs (\$)	Transactions (<i>n</i>)	Rate per Transaction (\$)
Cast changes	255,000	5,000	51/change
Radiographs	160,000	8,000	20/X-ray plate
Blood panels	81,000	600	135/panel
Dressings	314,000	40,000	7.85/bandage
DME	90,000	750	120/DME

Note: DME, durable medical equipment.

TABLE 2.4
Assigned Overhead Costs: XYZ-MCO

Activity	Rate (\$)	Transactions (<i>n</i>)	Amount (\$)
Cast changes	51	3,000	153,000
Radiographs	20	5,000	100,000
Blood panels	135	200	27,000
Dressings	7.85	12,000	94,200
DME	120	150	18,000
Total overhead (a)			392,200
Number units (b)			4,000
Overhead per unit (a/b)			98.05

Note: DME, durable medical equipment; MCO, managed care organization.

ABOUT ABCM AND CPM

ABCM is not a new concept; it was born in the 1880s as manufacturers tried to get a handle on unit costs of production. For example, if a company built wagons, they could divide their total costs by the number of wagons to figure out how much it cost to build each one; however, they could not use that formula if they built wagons of different sizes. So producers began to use direct labor, materials, and overhead to calculate activity-based costs, as described above. By the 1970s, medicine was heavily skewed toward labor and technology costs, and managers began to apply ABCM to economic service sectors like medicine.

AQ2

The CPM, on the other hand, is a concept originally developed by the DuPont Corporation in the late 1950s as a system of project management. Today, CPM is embraced by the healthcare industry

TABLE 2.5
Assigned Overhead Costs: UVW-MCO

Activity	Rate (\$)	Transactions (n)	Amount (\$)
Cast changes	51	2,000	102,000
Radiographs	20	3,000	60,000
Blood panels	135	400	54,000
Dressings	7.85	28,000	219,800
DME	120	600	72,000
Total overhead (a)			507,800
Number units (b)			20,000
Overhead per unit (a/b)			25.39

Note: DME, durable medical equipment; MCO, managed care organization.

TABLE 2.6
Costs Using Activity-Based Costing (ABC)
Methodology

	XYZ-MCO (\$)	UVW-MCO (\$)
DME	36.00	30.00
Doctor hours	17.50	14.00
Office overhead	98.05	69.39
Total cost per unit	151.55	69.39

Note: ABC, activity-based costing; DME, durable medical equipment; MCO, managed care organization.

TABLE 2.7
Costs Using Traditional Accounting Methodology

	XYZ-MCO (\$)	UVW-MCO (\$)
DME	36.00	30.00
Doctor hours	17.50	14.00
Office overhead	45.00	36.00
Total cost per unit	98.50	80.00

Note: DME, durable medical equipment; MCO, managed care organization.

as a way to use deterministic time estimates to control the costs of medical care. In the CPM, medical activities can be *crashed* (expedited) at extra cost, deemed *critical* if unable to be delayed, or *slacked* if a moderate delay would not adversely affect patient care. Because ABCM determines the actual costs of resources rendered for each medical activity, it is a *de facto* measure of profitability. To determine the activity cost of any medical office activity path:

- Identify the key steps and individuals involved.
- Interview staff and clinicians about the time or resources involved in each step.
- Define non-clinical activities associated with patient care.

- Define and assess possible efficiencies.
- Ask each caregiver to define the costs of each resource he applies to the pathways.

AQ3 Then, crunch the numbers as presented above to determine how low-volume medical costs increase and high-volume costs decrease. In fact, medical practices still using traditional cost accounting systems are often clueless about the financial effectiveness of their care on a forward-looking basis.

THE PRACTICE EXPENSE EQUITY COALITION

The Practice Expense Equity Coalition (PEEC) regularly asks the Centers for Medicare and Medicaid Services (CMS) to validate or disprove Medicare practice expense reimbursement fees. Specialties, such as gastroenterology, neurosurgery, and thoracic and cardiac surgery are traditionally interested. This occurs because physicians argue that the CMS uses inaccurate cost information to set practice expense rates. Surgeons and procedure-based practitioners are especially worried that greater emphasis on a resource-based relative value system (RBRVS) reduces their reimbursements. Some selected specialties have been affected by evolving resource-based practice expense rules. Meanwhile, the American Physical Therapy Association joined forces with eighteen other major medical and healthcare organizations in 2009 to launch a grassroots and advertising campaign to ensure that the CMS will implement up-to-date practice expense rates into Medicare physician payments, without unnecessary intervention by the U.S. Congress. Most recently, the PEEC supports new practice expense rates issued by the CMS, which uses data from a rigorous survey supported by more than seventy medical and healthcare professional groups and recognizes that overhead costs differ among different physicians and healthcare specialties.

Meanwhile, other major organizations like the American Society of Cataract and Refractive Surgery (ASCRS), and the American Academy of Orthopedic Surgeons (AAOS), the American Dental Association, and the American Podiatric Medical Association often use their own costing studies.

RISK ADJUSTERS IN ABCM

Physician payment risk adjusters traditionally focused on variables such as gender, age, and geography to predict an individual's healthcare cost variability at any given time. Such methods needed only to explain 15–20 percent of all variation successfully to adequately reflect selection, and needed to predict only 10 percent of healthcare claims variability on a prospective basis or 33 percent variability on a retrospective basis, to be considered successful 4 percent of the time. Hence, accounting research has focused on ways to segment these variations to enhance the use of ABCM in medical practice and augment profitability. These newer methods use retrospective International Classification of Diseases, Ninth Edition (ICD-9-CM) and futuristic ICD-10 code utilization rates to indicate prospective healthcare needs for an individual or cohort. Although methods differ as to whether a highest-cost or multiple-cost diagnosis should be used, as group size increases, costs trend toward the average regardless of the factors selected.

Thus, when considering diagnosis-based risk adjusters with any capitated managed care plan, the size of plan, its stop-loss arrangements, and sound medical management are the keys to financial success, because higher-cost patients typically require greater medical skills to manage successfully,

MEDICAL PRACTICE COST ANALYSIS WITH ABCM, CPM, RBRVS, AND RVUS

In actuality, using ABCM as described above is a difficult and cumbersome task at best. Still, you must know your office costs to treat patients and perform medical services and procedures.

An excellent way to do this is to perform a medical practice cost analysis (MPCA) for any medical specialty, which assigns the total costs of operating a practice to the various CPT codes and

services provided. To measure such productivity, the Medicare RBRVS sets benchmarks for the various procedures that may be used. Last reviewed in January 2010, this system served as a starting point for RVUs (relative value units),* which included:

- Physician’s work component (PWC) for time, intensity and procedural effort (54 percent)
- Practice expense component (PEC) for equipment, rent, supplies, utilities, and general overhead (41 percent), with a geographic practice cost index component (GPCIC)
- Professional liability insurance component (PLIC) for malpractice expenses (5 percent)

Each component is assigned an RVU, which is adjusted for local cost differences and then multiplied by a conversion factor to translate them into dollars. The formula used to calculate payment rates is: (PW RVU + PE RVU + PLI RVU) × conversion factor.

Example

In 2003, CPT code 27130 (total hip replacement arthroplasty) had a PW RVU of 20.12,[†] a PE RVU of 13.58, and a PLIC RVU of 2.82 with a conversion factor of \$36.78. By including practice expenses in the mix, the incentive to perform equipment-orientated procedures is reduced. Thus, the payment for a hip replacement was (20.12 + 13.58 + 2.82) × \$36.78 = \$1,343. In 2010 this payment was \$1,082.21.

Additionally, as the system evolves, pay and performance become even more closely aligned, with about 10 percent of projected revenues at risk for so-called citizenship fees of administrative duties, cost efficiency, various quality measures, and newer pay-for-performance initiatives. This allows the doctor to determine if the reimbursement for each service is enough to cover the cost of providing it. In other words, it will allow you to decide whether to participate in a certain discounted managed care plan, or to determine whether incurring the costs of more labor is justified.

To conduct an MPCA, the following information is needed.

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1. Procedure code (CPT) frequency data, for your specialty or office for the prior 12–18 months (sample spreadsheet with projected utilization costs for 5,000 members)

CPT Code	Cost by Component	Projected Utilization	Projected Cost
Totals	(historical data)	(historical data)	\$60,000.00
Per member/per month calculation			
Total costs divided by 5,000 members divided by 12 months = \$1.00 per member/per month			

2. Office financial statements for the prior 12–18 months
3. Medicare fee schedule for your medical specialty
4. Computer spreadsheet, such as Microsoft Excel
5. Categorization all office expenses as direct or indirect
6. Costs assigned to each work activity in the office (i.e., time, number of procedures or patients, or assigned RVUs); best standard of measurement to be determined by practice management (the RVU system works best for most doctors; data are available from the U.S. Federal Registry)

* Current RVU values by CPT code are available for the Medicare Physician Fee Schedule, from CMS, which also provides links to download the relative value files from 2003 to 2013.

[†] In 2013, CPT code 27130 had a PW RVU of 38.08.

- AQ5
7. The RVU of each CPT code separated into its component parts (PLC, PEC, and PLIC)
 8. List of all CPT codes or the ones used most frequently, as demonstrated in Table 2.8

Now, according to ABCM methodology, divide total direct and indirect costs by the correct RVU component, as shown in Table 2.9, which will allow you to calculate the cost of one unit of the CPT activity.

Next, unit costs are multiplied by the appropriate work expense and liability component RVUs to arrive at a total unit cost per procedure, as seen in Table 2.10.

Finally, the results are added to the cost drivers, other than RVUs, such as the number of patient encounters, as seen in Table 2.11.

The results are then benchmarked to determine reasonableness and compared with the health maintenance organization's fee schedule. The contract is then accepted, rejected, or renegotiated on the basis of its fiscal merits. Alternatively, spreadsheet parameters can be changed and various "what if" scenarios can be manipulated in mere seconds.

Another simple example would be the physician allocation of monthly payments using the cost per RVU methodology, as given in Table 2.12. Thus, the financial power of ABCM for the physician, and more specifically MPCA, is demonstrated.

ABCM/CPM IN THE HOSPITAL SETTING

To be paid and maintain cash flow, hospitals set up levels of specialization. This approach, however, usually creates more handoffs, delays, eroding financial positions, and a frustrated set of patients

AQ6 **TABLE 2.8**

A	B	C	D (B × C)	E	F (B × E)	G	H (B × G)
CPT Code	Frequency (n)	Work RVU ^a	Total Practice Work RVU	Practice Exp. RVU ^a	Total Practice Exp. RVU	Liability RVU ^a	Total Office Liability RVU
11111	115	0.91	105	0.40	46	0.04	5
22222	44	0.43	19	0.37	16	0.03	1
33333	59	0.32	19	0.32	19	0.03	2
44444	285	0.23	66	0.23	66	0.02	6
55555	528	1.13	597	0.45	238	0.04	21
66666	788	1.66	1,308	2.10	1,655	0.19	150
77777	445	4.39	1,954	4.11	1,829	0.37	165
88888	2,216	4.41	9,773	4.37	9,684	0.39	864
99999	1,103	6.24	6,883	7.05	7,776	0.74	816
12345	1,085	8.69	9,429	8.81	9,559	0.98	1,063
54321	2,764	0.51	1,410	0.30	829	0.03	83
73620	490	0.16	78	0.54	265	0.04	20
73630	373	0.17	63	0.59	220	0.04	15
99203	4,632	1.14	4,973	0.52	2,268	0.06	262
99212	3,753	0.38	1,426	0.28	1,051	0.02	75
99213	1,825	0.55	1,004	0.38	694	0.03	55
Others	2,006						
Totals	32,241		39,104		36,213		3,602

^a Specific data available from current *Federal Registry*.

Note: CPT, current procedural terminology; RVU, relative value unit.

TABLE 2.9
Cost per CPT Procedure

A	B	C	D	E	F	G	H	
Expense	Account Management	Doctor Labor	MPCA	Staff Labor	Miscellaneous	Insurance	Other	
Doctor salary		1,362,300						
Staff salary	257,635		111,378	42,600			55,000	
Malpractice						58,100		
DME lease					2,388			
Dues/subs							13,850	
File fee	9,350							
Laboratory						1,428		
DME					201,366			
Other expenses	30,000				22,000		368,850	
Total expenses ^a	296,985	1,362,300	111,378	42,600	227,182	58,100	436,850	AQ7
Total units ^b	32,241	39,104	39,104	36,213	36,213	3,602	36,213	
ABCM/unit	9.21	34.84	3.08	1.18	6.27	16.13	12.06	

^a Total expenses for each column divided by total units.

^b Total units from Table 2.8.

Note: Direct costs = B, C, D, E, F. Indirect costs = G, H. ABCM, activity-based cost management; CPT, current procedural terminology; DME, durable medical equipment; MPCA, medical practice cost analysis.

and physicians. Much seems beyond the control of individuals, and, when you factor in the maze of new HIPAA technologies, it can become overwhelming.

At the hub of the patient hospital experience is Access Management, formerly known as Admitting or Registration. This department collects information for clinicians treating the patient, facilitates medical record documentation, patient flow, revenue capture, billing and collections, and ultimately begins to settle accounts. In other words, the Access Management area has numerous customers in addition to the doctor, patient, or family member sitting across from them.

AQ8

Without the benefit of relevant information, managers attempt to staff Access Management departments based on past history—i.e., if patient and physician complaints are not too high, there is probably enough staff. However, staffing in Access Management has not kept up with the increased demands and complexity of the process, and other hospital areas often suffer as a result. Clinicians and medical records personnel deal with incomplete or incorrect information; claims information may be incomplete and left to a back office to sort through.

All of these deficits make for an unhappy set of customers (physicians and patients) as they continually deal with the repercussions of inaccurate and incomplete information. This does not go unnoticed by patients and physicians, as these situations erode confidence in the hospital’s ability to deliver high-quality healthcare.

Access Management is the hospital’s first chance to create an “emotional contract” with the customer. It is here that the tone is set for the patient with respect to their hospitalization. It is here that the provider has the chance to begin working on the patient’s behalf so that clinical outcomes are appropriate. All of this must happen in spite of an environment that reduces the likelihood of a favorable occurrence and fails to adhere to the complex legal requirements established by state and federal officials.

AQ9

So, why do we let unresolved issues pass beyond the Access Management area? In a manufacturing environment, if there are problems with the front-end design, huge problems ripple downstream

TABLE 2.11

AQ10

A	B ^a	C ^b D	(B+C)
CPT	Account Mgmt.	Patient Encounter	Total Procedure Cost
11111	9.21	41.39	50.60
22222	9.21	23.82	33.03
33333	9.21	18.86	28.07
44444	9.21	13.53	22.74
55555	9.21	50.18	59.39
66666	9.21	108.34	117.55
77777	9.21	251.76	260.97
88888	9.21	258.65	267.86
99999	9.21	388.60	397.81
12345	9.21	517.58	526.79
54321	9.21	25.03	34.24
73620	9.21	18.42	27.63
73630	9.21	19.90	29.11
99203	9.21	52.43	61.64
99212	9.21	19.89	29.10
99213	9.21	28.23	37.44

^a Activity cost/unit from column B, Table 2.2.

^b From column N, Table 2.3.

Note: CPT, current procedural terminology.

TABLE 2.12

AQ11

Services Produced	Physician A	Physician B	Physician C	Physician D	Grand Totals
CPT Total CPT Cost	CPT Revenue	CPT Revenue	CPT Revenue	CPT Revenue	CPT Revenue

Note: CPT, current procedural terminology.

in terms of recalls, warranty-related expenses, lawsuits, and customers that abandon the company’s products. World-class manufacturers dealt with these issues with their ISO-9000, Total Quality Management, and Six Sigma programs during the 1980s and 1990s. Hospitals however, have allowed issues in their Access Management process to fester and create huge and costly problems in the downstream process, beyond the near future. Enter the hospital enterprise-wide resource planning (ERP) concept.

Example

StatCom’s Hospital Operating System™ solution for 2010–11, a new ERP product from Jackson Healthcare, is a comprehensive patient-throughput software solution that enables all patients to flow at their best possible rate with respect to service times, quality, safety, and resource consumption. It facilitates prioritized patient flow across various hospital departments, providing real-time information on the status of patient throughput, so leaders can manage what is measured. StatCom transforms access management and patient throughput, according to David Pritchard.

The company reported that small to mid-sized hospital customers reduced their average length of stay in 2009 by 14 percent and realized \$8.6 million in savings on average, an 11.2 percent increase in volume with a total impact of \$10.3 million (personal communication, Dr. David Edward Marcinko).

THE PHYSICIAN'S ROLE

So, every provider must take a proactive role in dealing with this emerging trend. The next few years will be pivotal in adapting to the new age of the empowered customers, Internet technologies, and more demanding payment plans. The first step in this journey is physician-executive assessment.

Rest assured, this assessment is not a set of management engineering time studies aimed at micro-costing every second of work. The CPM information needed for this plan is reasonable and can be collected in a few days by talking to the people performing the work. Estimates are made on the basis of workers' views about how they spend their time. This information is combined with available workload measures and general ledger cost information, and activity-based reports are produced.

Going forward, ABCM is an exercise in planning. Activity-based information is used to look at areas where work can be restructured so errors and rework can be eliminated. New technologies that target problematic activities are selected and implemented. Outside companies that can perform complex activities more economically can be used. So, be sure to change your mindset and plan to get started, now!

ASSESSMENT

ABCM and the CPM hold great promise as a commonsense solution to the faults and frustrations of healthcare process budgeting, human resource management, and aberrant cost allocation methods:

- Traditional budgets do not identify waste. ABCM/CPM exposes non-value costs.
- Traditional budgets focus on office employees. ABCM/CPM focuses on workload.
- Traditional budgets focus on office costs. ABCM/CPM also focuses on process cost.
- Traditional budgets focus on fixed versus variable costs. ABCM/CPM focuses on used versus unused capacity.
- Traditional budgets measure "effect" ABCM/CPM measures "cause."

CONCLUSION

Activity-based cost management (ABCM) and the Clinical (Critical) Path Method (CPM) will become the *de facto* managerial accounting method of choice for the modern medical office, clinic, or hospital. It is replacing the traditional financial accounting methodology of average costs, moving to the more specific methodology of tracing actual resources consumed. The idea is to appreciate how much every task costs by factoring in every resource used to complete it.

Thus, by assigning overhead expense costs to low-volume activities, a better idea of each activity's profit (or loss) can be ascertained and adjusted. In this way, when your next financial crisis occurs, you will know how to deal with the problem through ABCM/CPM and more effectively return to profitability.

CASE MODEL 1

NEW-CO MEDICAL CLINIC, INC.

The relevant production range for the two-physician New-Co Medical Clinic, Inc., represents gross annual receipts of \$600,000–\$800,000/year. Fixed costs are \$435,000, and the service mix is:

Surgery	18%
Laboratory	12%
Hospital	10%
Exams, injections, and vaccinations	24%
Care and treatment	33%
Miscellaneous	3%

New-Co Medical Clinic has determined the variable costs associated with each service to arrive at a contribution margin ratio (CMR) for each. The CMRs for New-Co Medical Clinic are:

Surgery	72%
Laboratory	84%
Hospital	95%
Exams, injections, and vaccinations	92%
Care and treatment	81%
Miscellaneous	89%

Now, let us determine an aggregate CMR to identify the patient break-even-point.

Solution:

The aggregate CMR is found in the following way:

Service	Sales Mix	CMR	Aggregate CMR
Surgery	18%	72%	0.123
Laboratory	12%	84%	0.101
Hospital	10%	95%	0.095
Exams, injections, and vaccinations	24%	92%	0.221
Care and treatment	33%	81%	0.267
Miscellaneous	3%	89%	0.027
Totals	100%		0.834

Therefore, the aggregate CMR for the practice is 83.4%. When we divide the fixed costs of \$435,000/83.4%, we see that the break-even point is \$521,583.

Key Issues

Why should the New-Co Medical Clinic, Inc., doctors determine the following parameters?

- (1) Fixed and variable costs?
- (2) Case mix?
- (3) Relevant production range?
- (4) Aggregate contribution margin ratio?

For every dollar of gross, \$0.166 (16.6 cents) pays the variable costs associated with generating that dollar, and \$0.834 goes toward paying fixed costs and generating profit. Therefore, for every dollar earned by New-Co Medical Clinic over \$521,583, \$0.843 is pure profit.

CASE MODEL 2

ST. PETER'S HOSPITAL EMERGENCY ROOM

After critical (clinical) path method evaluation, St. Peter's Hospital administrators discovered that about half of all activities performed at the emergency room (ER) by nurses and ER staff were previously done by materials management, maintenance, admissions, or housekeeping employees. As a result, the work was not visible in traditional budget reports.

Activity-based cost management (ABCM) analysis made both the work and the worker visible. ABCM helped the ER administrator eliminate non-value-added overhead activities, re-deployed non-medical activities from nurses to lower-cost employees, improved nurse morale, improved processes, and much more.

St. Peter's Hospital Emergency Room Solution:

Traditional Costing View	ABCM View
Salary and fringes	Patient treatments
Space	Problem resolution
Depreciation	Paperwork
Supplies/durable medical equipment	Procure supplies
Other	Expediter supplies
	Housekeeping
\$2,500,000	\$2,500,000
<i>Source: ICMS, Inc.</i>	

AQ12

Key Issues

Was St. Peter's Hospital correct or not with regard to the:

- Treated patients?
- Resolved problems?
- Paperwork?
- Procurement and expedition of supplies?
- Housekeeping?

It is obvious that increased overtime or the importing of nurses from other countries does not address the root cause of impending nurse shortages. ER managers can benefit by using ABCM as a diagnostic tool to fully understand departmental concerns.

CHECKLIST 1: Information and Variables Used to Influence Hybrid Medical Practice and Office Costs

	YES	NO
Can I define and explain mixed office or hybrid practice costs?	<input type="radio"/>	<input type="radio"/>
Do I understand the high-low methodology?	<input type="radio"/>	<input type="radio"/>
Do I use linear regression analysis for hybrid office costing?	<input type="radio"/>	<input type="radio"/>
Do I possess, or have I set up, a spreadsheet for hybrid costing endeavors?	<input type="radio"/>	<input type="radio"/>
Do I have data checks for hybrid costing activities?	<input type="radio"/>	<input type="radio"/>
Do I have data adjudication authority?	<input type="radio"/>	<input type="radio"/>
Am I in a position of cost risk assumption for my office, medical practice, or department?	<input type="radio"/>	<input type="radio"/>

CHECKLIST 2: Information Used for Critical Path Method (CPM) Identification Activities	YES	NO
Have I identified all critical actions, bottlenecks, or key office transactions?	<input type="radio"/>	<input type="radio"/>
Have I identified the timeliness and major resources required for each CPM step?	<input type="radio"/>	<input type="radio"/>
Can I define and use non-economically valued practice or medical office activities?	<input type="radio"/>	<input type="radio"/>
Have I observed any operational inefficiencies in the office practice?	<input type="radio"/>	<input type="radio"/>

CHECKLIST 3: Transactional Information Useful in Activity-Based Medical Costing for the Modern Office Practice	YES	NO
Have I determined the cost of each medical office input and important resource?	<input type="radio"/>	<input type="radio"/>
Have I identified the key office operation steps?	<input type="radio"/>	<input type="radio"/>
Have I identified key office individuals involved?	<input type="radio"/>	<input type="radio"/>
Have I identified office activities and practice activity pools?	<input type="radio"/>	<input type="radio"/>
Have I interviewed staff and clinicians about the time involved in each step?	<input type="radio"/>	<input type="radio"/>
Have I interviewed staff and clinicians about the resources involved in each step?	<input type="radio"/>	<input type="radio"/>
Have I defined the clinical activities associated with patient care?	<input type="radio"/>	<input type="radio"/>
Have I defined the non-clinical activities associated with office patient care?	<input type="radio"/>	<input type="radio"/>
Have I defined and assessed possible office efficiencies?	<input type="radio"/>	<input type="radio"/>
Have I asked each caregiver to define the costs of each resource he or she applies to the pathways?	<input type="radio"/>	<input type="radio"/>
Have I traced practice costs to the extent possible?	<input type="radio"/>	<input type="radio"/>
Have I calculated the following:		
• activity rates?	<input type="radio"/>	<input type="radio"/>
• the physician's work component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• the physician's time component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• the physician's procedural effort component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• practice expense component and equipment component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• practice rent component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• practice supplies component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• practice utilities component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• practice general overhead component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
• malpractice liability insurance component for malpractice expenses component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
Have I determined a geographic medical practice cost index component for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
Do I have physician or executive staff support for my ABCM activities?	<input type="radio"/>	<input type="radio"/>
Have I prepared an ABCM management report?	<input type="radio"/>	<input type="radio"/>

CHECKLIST 4: Information Used in a Medical Practice Organization Cost Analysis	YES	NO
Do I have the following information?		
• Consolidated financial statements for the prior 12–18 months?	<input type="radio"/>	<input type="radio"/>
• Medicare fee schedule for each exact medical specialty?	<input type="radio"/>	<input type="radio"/>
• All office expenses categorized as direct costs?	<input type="radio"/>	<input type="radio"/>
• All office expenses categorized as indirect costs?	<input type="radio"/>	<input type="radio"/>
Have I determined the best standard of measurement to assign costs to each work activity in the doctor's office (i.e., time, number of procedures or patients, or assigned resource-based relative value units)?	<input type="radio"/>	<input type="radio"/>

Have I determined the best standard of measurement to assign costs to each work activity in the hospital, if applicable?	<input type="radio"/>	<input type="radio"/>
Have I determined the best standard of measurement to assign costs to each work activity in the outpatient setting?	<input type="radio"/>	<input type="radio"/>
Have I determined the best standard of measurement to assign costs to each work activity in a skilled nursing facility?	<input type="radio"/>	<input type="radio"/>
Have I determined the best standard of measurement to assign costs to each work activity by the Home Healthcare Agency?	<input type="radio"/>	<input type="radio"/>
Have I separated the resource-based RVUs, DRGs, APCs, RUG-IIIs, and/or HHRGs of each code into its component parts (i.e., RBRVSs = physician labor component, practice expense component, and malpractice liability risk component)?	<input type="radio"/>	<input type="radio"/>
Have I listed all codes or the ones used most frequently?	<input type="radio"/>	<input type="radio"/>

Note: APC, ambulatory payment classification; DRG, diagnosis-related group; HHRG, home health resource group; RBRVS, resource-based relative value system; RUG-III, resource utilization group-III; RVU, relative value unit.

CHECKLIST 5: Activity-Based Cost Management Processes	YES	NO
Do I define the major business processes and key activities of the medical practice or healthcare organization?	<input type="radio"/>	<input type="radio"/>
Do I trace operating office costs and practice capital charges to key activities?	<input type="radio"/>	<input type="radio"/>
Do I use existing accounting and financial data, which includes labor and capital equipment expenses, and any other resource that can be changed or eliminated?	<input type="radio"/>	<input type="radio"/>
Do I issue reports to analyze ABCM activities, such as budget, general ledger, or supplier invoices?	<input type="radio"/>	<input type="radio"/>
Do I link medical activities to processes and identify the office cost drivers?	<input type="radio"/>	<input type="radio"/>
Do I actively engage healthcare personnel performing the medical processes in determining ABCM costs?	<input type="radio"/>	<input type="radio"/>
Do personnel identify where the costs come from, and then do I seek out data from that source?	<input type="radio"/>	<input type="radio"/>
Do I summarize the total costs for each process?	<input type="radio"/>	<input type="radio"/>
Once processes are re-engineered, are the “new” costs tabulated and reduced?	<input type="radio"/>	<input type="radio"/>

Note: ABCM, activity-based cost management.

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Author Queries

- AQ1: If the reference to “St. Paul Emergency Room” is a real location, please provide the full name of the hospital and the city/state location of the hospital.
- AQ2: Please confirm the sentence beginning “By the 1970s, medicine was...” as edited.
- AQ3: Please confirm the last sentence before “The Practice Expense Equity Coalition” as edited.
- AQ4: Please verify the list of information required to perform an MPCA, as edited for consistency within the list.
- AQ5: In Table 2.8, please spell out “Exp.”
- AQ6: Please provide a title for Table 2.8.
- AQ7: In table 2.9, should the Total Expenses for column G (Insurance) be \$59,528 (malpractice + laboratory)?
- AQ8: In the second paragraph under “ABCM/CPM in the Hospital Setting,” please confirm deletion of the phrase “meets Joint Commission and other requirements”; this phrase is too general to have a clear meaning and doesn’t match the specificity of the other items in this list.
- AQ9: Please confirm the edits to the paragraph that begins “Access Management is the hospital’s first chance....”
- AQ10: Please provide a title for Table 2.11.
- AQ11: Please provide a title for Table 2.12.
- AQ12: Please provide full reference for ICMS, Inc.
- AQ13: Is Marcinko and Heticio 2013 a reference to this book?