

**Using Activity-Based Management in a Medical Practice:  
Fannon and Martens Cardiac and Thoracic Surgery Medical Group:  
Part II - Using Cost Data for Process Improvement and Business Decision Making**

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**I. Introduction to Medical Practice Economics**

The medical profession is facing tough times. Over the past few years, Medicare has been reducing its reimbursements to physicians for the work they perform. As Medicare reimbursements drop, HMOs and private insurance companies follow suit and decrease their payments to physicians. At the same time, physicians' costs continue to rise due to inflation and the availability of higher technology treatments for patients. Given this undesirable situation of rising costs and declining revenues, strategic cost management (SCM) becomes critical; indeed, SCM is the only way for a medical practice to remain profitable. According to healthcare financial executives surveyed in 1997 by Arthur Andersen, cost control is the most important issue facing the healthcare industry.

In 1999 medical practices in several states stopped seeing Medicare patients because the Medicare reimbursements did not cover their practices' costs to deliver the service. In 2000, several large HMOs, with tens of thousands of members, followed suit. These actions may be harbingers of things to come. The healthcare crisis in the United States has to be solved in order to ensure that all citizens have access to quality care when they need it. Whatever the solution, accurate cost information will play a prominent role.

**Background**

Over the past two decades there have been rapid and major transformations in the healthcare industry. For medical practices, the once dominant fee-for-service model, where physicians billed patients or insurance companies for work performed, has given way to a system of "managed care" where a third party stands between the physician and patient.

In the fee-for-service environment, physicians could simply raise their fees to pass along cost increases. With a relatively inelastic demand for physician services, there was no compelling reason to focus on cost control and there was no need for physicians to use cost accounting systems.

Managed care organizations buy medical services from physicians and bill patients and insurance companies for the work that physicians perform. In a managed care environment physicians cannot pass along cost increases because they enter into contracts to provide medical services for a fixed fee. In this environment, with many sellers of medical services and few buyers (HMOs and other large health plans who represent thousands of patients in a community), physicians occupy a weak negotiating position. Various state and federal laws prohibit physicians from joining together in unions or other entities to increase their bargaining power. Consequently, physicians have little choice but to accept contracts to provide services at fees that are set by the seller. Further, because they lack cost accounting systems, many physicians enter into contract negotiations with no knowledge of their costs. They know exactly how much money they spend to run their practice, but they do not know what it costs to see a

patient in the office or to perform a surgical procedure. A 1998 survey of physicians revealed a shared perception that they are working longer hours and earning less money than they did in the recent past.

## **II. Fannon and Martens Cardiac and Thoracic Surgery Medical Group**

### **Thoracic Surgery in General**

Thoracic surgeons treat diseases involving organs of the chest. They replace and repair the valves in the heart, perform bypass surgery for coronary artery disease, treat cancers of the lung and esophagus, correct birth defects of the chest and heart, treat tumors of the chest, and perform heart and lung transplants. Cardiac surgery (a type of thoracic surgery) is the surgical management of diseases of the blood supply to the heart, heart valves and the arteries and veins in the chest. General thoracic surgery, on the other hand, is a surgical field focusing on treatments for problems of the lungs and esophagus.

Thoracic surgeons are among the most highly educated medical specialists. After college and medical school training, a thoracic surgeon will have devoted at least five years to a general surgical residency and passed the certifying examination of the American Board of Surgery. After that, he or she will have devoted two to three years to a thoracic surgery residency and passed the certifying examination of the American Board of Thoracic Surgery.

Dr. Don Fannon and Dr. Dan Martens are two renowned thoracic surgeons. They are graduates of the Stanford University School of Medicine and have each worked in the fields of cardiac and thoracic surgery for more than thirty years. Both are frequent speakers at medical conferences. In 1981, they formed the Fannon and Martens Cardiac and Thoracic Surgery Medical Group (FMMG) in the San Francisco Bay Area.

## **III. Profit Squeeze**

For the last few years, Drs. Fannon and Martens felt that they were working longer and harder, but that their efforts were not reflected in the practice's profits. The reports they received from their CPA firm showed that revenues were rising, but costs were rising faster. At a conference in 1998 they learned about activity based costing and how it could be used to help them understand their business and to find opportunities to reduce costs. Early in 1999 they participated in an ABC project sponsored by the Society of Thoracic Surgeons. The project built an ABC model for the specialty, collected cost data from 40 participating thoracic surgery practices, and generated ABC costs for each practice.

Selected information from the ABC project is presented below. FMMG needs your help in analyzing the information and identifying options to reduce cost and increase profit. The business processes and a list of the cost objects in this study are shown in Tables 8 and 9.

Table 1 shows the cost for each business process for FMMG and three other selected practices. It also shows the mean process cost for the 40 practices that participated in the ABC project. It also shows the number of MDs in each practice and the volume of work performed in each cost object category.

Table 2 shows the breakdown of the “Maintain Medical Records” process. That is, it shows the amount of each expense item that was assigned to this process by the ABC model.

FMMG consists of three surgeons, three physician assistants (PAs), a part-time practice manager, four full-time staff members, and one part-time staff member. Table 3 shows the percent time each non-physician staff member works in the practice.

In order to receive payment for their services, a medical practice engages in four processes: Obtain Insurance Authorization, Billing, Collect Payments, and Resolve Collection Disputes. These are called the Reimbursement processes, and the breakdown of each of these four separate processes into expense line item detail is shown in Table 4.

Table 5 compares the cost of the Service Patients in the Hospital process for Practice #1, FMMG and the database average. Practice #1 does not use PAs in the operating room because Medicare and other insurers will not reimburse the practice for the use of PAs. The rationale of the insurers is that the hospital has staff who could assist in the operating room. The surgeons at FMMG do use their PAs in the operating room because they prefer to have experienced staff (with whom they have worked for years) assisting them during surgeries.

Table 6 shows the unit cost of each cost object (medical service) delivered by the practice: No-Charge Office Visits in the global period, Charge Office Visits, Charge Hospital Visits and Surgeries.

Table 7 shows the breakdown of the unit costs of three of the four cost objects. That is, it shows the amount of process cost assigned to each cost object by the ABC model.

#### IV. Student Assignments

1. Compare FMMG's Process Costs to the averages of all private thoracic practices, and to the other three practices in the benchmarking group. Which business processes are significantly higher or lower than the other practices? What business conclusions can be drawn from this data? What are the implications for process improvement and cost reduction?
2. Use Table 2 to compare the Maintain Medical Records process costs across the five benchmarks. Suppose you are told that Practice #1 outsources its Maintain Medical Records process. What are the implications for FMMG? What would you recommend? Are you sure?
3. Four processes are activated for thoracic practices to be paid for their services: Obtain Insurance Authorization, Billing, Collect Payments and Resolve Collection Disputes. How does FMMG compare to other practices? What should FMMG do?
4. Practice #1 does not use physician's assistants (PAs) to assist its doctors in the operating room because Medicare does not reimburse for this expense. The rationale is that hospital-employed PAs can assist in the operating room. FMMG, however, does use PAs in the operating room. Should FMMG continue to use its PAs in the operating room?
5. Use Table 6 to compare FMMG's per unit cost of the four cost objects to the averages shown. Discuss. Do your answers here seem consistent to your answers to (1)? If so, explain why they should be consistent. If not, explain what is causing the inconsistencies.
6. Given your answer to (5), which process costs seem the most out of line (too high) for FMMG? Explain. Use the information in Table 7 to look at the process costs per unit.
7. In manufacturing, capacity represents the work that could be performed if all the resources of the factory are used to their full potential. For example, running three shifts a day, a factory should be able to produce a given output per year. A management accountant could then compute unit cost using "practical capacity" or "actual utilization" as a base.

In a manufacturing setting, the argument in favor of using practical capacity as a denominator to compute unit costs is that it eliminates the effect of volume differences on cost computation, and that it suggests what a product should cost if capacity is fully utilized. On the other hand, practical capacity can be arbitrary, masks the actual costs, and may be difficult for non-accountants to understand. What is the relevance of capacity considerations in a medical practice? To benchmark against other practices, should FMMG compute the cost of each unit of service delivered on a capacity base or an actual volume base? When would capacity or actual volume bases be most appropriate in medical practices?

**Table 1**

**Process Costs and Practice Information**

Practice #	1	3	7	FMMG	Database Average	Proc. Abbvn
<b><u>TOTAL COST OF PROCESSES</u></b>						
Service Patients in the Office	\$383,011	\$63,434	\$74,908	\$347,045	\$212,046	<b>SPO</b>
Service Patients in the Hospital	\$101,268	\$71,120	\$153,029	\$186,764	\$173,192	<b>SPH</b>
Obtain Insurance Authorization (a)	\$41,797	\$17,422	\$9,122	\$45,930	\$28,991	<b>Auth</b>
Maintain Medical Records	\$36,237	\$59,118	\$36,664	\$69,705	\$57,133	<b>MMR</b>
Schedule & Coordinate Surgeries	\$20,720	\$26,694	\$44,435	\$30,915	\$36,415	<b>Sched</b>
Billing (a)	\$51,584	\$18,218	\$41,001	\$64,950	\$45,352	<b>Bill</b>
Collect Payments (a)	\$16,766	\$6,445	\$35,759	\$54,199	\$26,234	<b>Collect</b>
Resolve Collection Disputes (a)	\$11,263	\$6,751	\$60,938	\$58,333	\$32,792	<b>Disputes</b>
Provide Information to 3rd Parties	\$20,720	\$17,558	\$15,683	\$16,989	\$17,230	<b>3rd pties</b>
Teaching & Research	\$0	\$2,376	\$0	\$0	\$297	<b>T&amp;R</b>
Maintain Professional Education	\$13,035	\$18,467	\$27,264	\$31,118	\$37,163	<b>MPE</b>
<b>TOTAL</b>	<b>\$696,401</b>	<b>\$307,603</b>	<b>\$498,803</b>	<b>\$905,948</b>	<b>\$666,845</b>	
(a) Total Reimbursement Processes	\$121,410	\$48,836	\$146,820	\$223,412	\$133,369	<b>Reimb</b>
Sustain & Manage Business	\$326,987	\$92,475	\$117,640	\$153,906	\$170,211	<b>Sust Bus</b>
Maintain Facility	\$88,785	\$77,856	\$145,458	\$223,180	\$121,203	<b>Facility</b>

Number of MDs	3	1	2	3	4.1
Number of no-charge office visits	868	418	333	1,188	1,038
Number of charge office visits	2,518	334	215	1,975	422
Number of charge hospital visits	570	54	28	779	97
Number of surgeries	546	263	208	639	727

Note: Four separate business processes are often bundled together and are known as the Reimbursement processes, and the total of these four processes is noted separately in (a). Two business processes (Sust Bus and Facility) are reallocated to the other processes in the ABC model, rather than directly to the cost objects, so the costs of these two processes are included in the other listed processes. The costs of each of these two business processes are listed for information purposes only.

**Table 2**  
**Breakdown of MMR Process Cost**

Practice #	1	3	7	FMMG	Database Average	Exp. Abbvn
<b>EXPENSE LINE ITEM</b>						
Staff salaries-administrative	\$1,212	\$12,625	\$14,855	\$16,126	\$13,214	Sal-Adm
Staff salaries-clinical	\$0	\$12,431	\$1,276	\$21,670	\$4,873	Sal-Clin
Office supplies & postage	\$121	\$7,264	\$5,233	\$6,618	\$6,713	Ofc Sup
Transcription service	\$33,470	\$0	\$0	\$0	\$2,487	Trns Svc
Sustain business	\$1,200	\$13,254	\$7,823	\$12,436	\$12,413	Sust Bus
Maintain facility	\$234	\$13,544	\$7,477	\$12,855	\$17,433	Facility
<b>TOTAL</b>	<b>\$36,237</b>	<b>\$59,118</b>	<b>\$36,664</b>	<b>\$69,705</b>	<b>\$57,133</b>	

**Table 3 - Personnel at FMMG; Allocation of employee time to processes**

<b>Physicians</b>									
Dr. Don Fannon	Thoracic Surgeon	Partner of FMMG							
Dr. Dan Martens	Thoracic Surgeon	Partner of FMMG							
Dr. Mark Stein	Thoracic Surgeon	Surgeon employee							
<b>Clinical Staff</b>									
John Lee	Physician Assistant	Full-time							
Nicholas Hunter	Physician Assistant	40%-time							
Joann Wallace	Physician Assistant	40%-time							
<b>Administrative Staff</b>									
Ms. Kathy Nielsen	Practice Manager	50%-time							
Ms. Kelly Smith	Scheduling Coordinator	Full-time							
Ms. Linda Evans	Administrative Assistant; Backup Surgery Scheduler	Full-time							
Ms. Miriam Black	Billing and Collection Representative	Full-time							
Ms. Dee Andrews	Billing and Collection Representative	Full-time							
Ms. Susan Grant	Statistics Coordinator; Computer Systems Manager	60%-time							
	<b>Administrative Personnel</b>								
	<b>50% Kathy</b>	<b>100% Kelly</b>	<b>100% Linda</b>	<b>100% Miriam</b>	<b>100% Dee</b>	<b>60% Susan</b>	<b>Clinical Personnel</b>		
<b>Process</b>							<b>100% John</b>	<b>40% Nicholas</b>	<b>40% Joann</b>
SPO		40	40	10	10		30	16	16
SPH		10	10				55	16	16
Auth		30	10						
MMR		10	20				5	4	4
Sched		5	5				5		
Bill			10	20	25				
Collect				30	20				
Disputes				30	25				
3rd pties			5						
MPE							5	4	4
Sust Bus	50			10	20	60			
Facility		5							
	50	100	100	100	100	60	100	40	40

**Table 4**

**Breakdown of Reimbursement Processes**

Practice #	1	3	7	FMMG	Database Average	Exp. Abbvn
<b><u>Obtain Insurance Authorization - Expense Line Items</u></b>						
Staff salaries-administrative	\$12,646	\$5,172	\$4,803	\$21,501	\$8,551	Sal-Adm
Staff salaries-clinical	\$0	\$4,351	\$0	\$0	\$2,400	Sal-Clin
Office supplies & postage	\$4,733	\$1,264	\$324	\$0	\$4,707	Ofc Sup
Sustain business*	\$9,898	\$2,814	\$1,852	\$11,574	\$6,281	Sust Bus
Maintain facility*	\$14,520	\$3,821	\$2,143	\$12,855	\$7,052	Facility
<b>TOTAL</b>	<b>\$41,797</b>	<b>\$17,422</b>	<b>\$9,122</b>	<b>\$45,930</b>	<b>\$28,991</b>	
<b><u>Billing - Expense Line Items</u></b>						
Staff salaries-administrative	\$18,646	\$10,102	\$11,803	\$29,564	\$17,425	Sal-Adm
Staff salaries-clinical	\$0	\$0	\$9,533	\$0	\$2,853	Sal-Clin
Office supplies & postage	\$4,825	\$1,564	\$3,783	\$6,617	\$5,262	Ofc Sup
Sustain business*	\$11,723	\$2,814	\$7,473	\$15,914	\$8,765	Sust Bus
Maintain facility*	\$16,390	\$3,738	\$8,409	\$12,855	\$11,047	Facility
<b>TOTAL</b>	<b>\$51,584</b>	<b>\$18,218</b>	<b>\$41,001</b>	<b>\$64,950</b>	<b>\$45,352</b>	
<b><u>Collect Payments - Expense Line Items</u></b>						
Staff salaries-administrative	\$8,235	\$2,512	\$26,435	\$26,876	\$17,223	Sal-Adm
Office supplies & postage	\$563	\$0	\$323	\$0	\$864	Ofc Sup
Sustain business*	\$4,178	\$1,242	\$3,569	\$14,467	\$3,412	Sust Bus
Maintain facility*	\$3,790	\$2,691	\$5,432	\$12,856	\$4,735	Facility
<b>TOTAL</b>	<b>\$16,766</b>	<b>\$6,445</b>	<b>\$35,759</b>	<b>\$54,199</b>	<b>\$26,234</b>	
<b><u>Resolve Collection Disputes - Expense Line Items</u></b>						
Staff salaries-administrative	\$3,253	\$2,817	\$17,541	\$29,564	\$12,633	Sal-Adm
Staff salaries-clinical	\$0	\$0	\$15,632	\$0	\$1,240	Sal-Clin
Office supplies & postage	\$313	\$247	\$520	\$0	\$890	Ofc Sup
Sustain business*	\$3,743	\$1,642	\$12,678	\$15,914	\$8,765	Sust Bus
Maintain facility*	\$3,954	\$2,045	\$14,567	\$12,855	\$9,264	Facility
<b>TOTAL</b>	<b>\$11,263</b>	<b>\$6,751</b>	<b>\$60,938</b>	<b>\$58,333</b>	<b>\$32,792</b>	

\* Sustain business and Maintain facility are two business processes that are reallocated to the other business processes, rather than to the final cost objects directly.



**Table 5**  
**Breakdown of Service Patients in the Hospital Process**

Practice #	1	FMMG	Database Average	Exp. Abbvn
<b>Expense Line Items</b>				
Staff salaries-administrative	\$24,803	\$10,751	\$18,521	<b>Sal-Adm</b>
Staff salaries-clinical (RNs)	\$39,223	\$0	\$18,870	<b>Sal-Clin-RNs</b>
Staff salaries-clinical (PAs)	\$0	\$145,063	\$101,290	<b>Sal-Clin-PAs</b>
Sustain business	\$37,242	\$30,950	\$34,511	<b>Sust Bus</b>
<b>TOTAL</b>	<b>\$101,268</b>	<b>\$186,764</b>	<b>\$173,192</b>	

**Table 6**  
**Unit Costs**

Practice #	1	3	7	FMMG	Database Average
No-charge office visit	\$133	\$157	\$236	\$139	\$190
Charge office visit	\$149	\$187	\$330	\$169	\$227
Charge hospital visit	\$24	\$82	\$178	\$45	\$66
Surgery	\$353	\$666	\$1,656	\$581	\$505

**Table 7**

**Breakdown of Unit Costs**

Practice #	1	3	7	FMMG	Database Average	Exp. Abbvn
<b><u>Process costs in a no-charge office visit</u></b>						
Service Patients in the Office	\$113	\$85	\$137	\$110	\$145	SPO
Maintain Medical Records	\$8	\$55	\$47	\$15	\$25	MMR
Billing	\$12	\$17	\$52	\$14	\$20	Billing
<b>TOTAL</b>	<b>\$133</b>	<b>\$157</b>	<b>\$236</b>	<b>\$139</b>	<b>\$190</b>	

Practice #	1	3	7	FMMG	Database Average	Exp. Abbvn
<b><u>Process costs in a charge office visit</u></b>						
Service Patients in the Office	\$113	\$85	\$137	\$110	\$145	SPO
Maintain Medical Records	\$8	\$55	\$47	\$15	\$25	MMR
Billing	\$12	\$17	\$52	\$14	\$20	Billing
Collect Payments	\$4	\$10	\$80	\$16	\$21	Collect
Obtain Insurance Authorization	\$12	\$20	\$14	\$14	\$16	Auth
<b>TOTAL</b>	<b>\$149</b>	<b>\$187</b>	<b>\$330</b>	<b>\$169</b>	<b>\$227</b>	

Practice #	1	3	7	FMMG	Database Average	Exp. Abbvn
<b><u>Process costs in a surgery</u></b>						
Maintain Medical Records	\$8	\$55	\$47	\$15	\$25	MMR
Billing	\$12	\$17	\$52	\$14	\$20	Billing
Collect Payments	\$4	\$10	\$80	\$16	\$21	Collect
Obtain Insurance Authorization	\$23	\$41	\$29	\$28	\$31	Auth
Service Patients in the Hospital	\$185	\$270	\$736	\$292	\$238	SPH
Schedule & Coordinate Surgeries	\$38	\$101	\$214	\$49	\$50	Sched
Resolve Collection Disputes	\$21	\$26	\$293	\$91	\$45	Disputes
Provide Information to 3rd Parties	\$38	\$67	\$75	\$27	\$24	3rd pties
Teaching & Research	\$0	\$9	\$0	\$0	\$0	T&R
Maintain Professional Education	\$24	\$70	\$130	\$49	\$51	MPE
<b>TOTAL</b>	<b>\$353</b>	<b>\$666</b>	<b>\$1,656</b>	<b>\$581</b>	<b>\$505</b>	

**Table 8**  
**Medical and Business Activities (Processes)**

**(1) Service Patients in Office**

This is the process of treating and managing patients during office visits. Two categories of patients are seen this way: Initial office visit and post-op visits. The process includes all activities necessary to service the patients including taking patient history, scheduling appointments, preparing examination rooms, typing prescriptions, ordering tests, answering patient/family questions (in person and on the phone), transcribe dictation, complete disability forms, etc. This process includes providing information and reports to the referring physician. The process does not include maintaining medical records or obtaining insurance authorization – these are separate processes.

**(2) Service Patients in Hospital and Other Facilities**

This is the process of treating patients in the hospital and interacting with patients and family in the hospital. It includes making rounds, examining patients, etc.

**(3) Obtain Insurance Authorization**

This is the process of verifying insurance coverage, contacting the insurance company, HMO, or Workers' Compensation to obtain permission to provide services to a patient, etc.

**(4) Maintain Medical Records**

This is the process of collecting, entering and copying information for patients' medical charts. It includes pulling charts and re-filing charts, etc.

**(5) Schedule and Coordinate Surgery Patients in Hospital**

This is the process of keeping track of patients in the hospital. It includes arranging patient admissions, managing transportation of patients, scheduling physician rounds and surgeries, keeping track of every patient in the hospital: where they are and why they are there, delivering and picking up medical records, recording all daily physician services, scheduling physician meetings, etc.

**(6) Billing**

This is the process of recording patient charges for services rendered and submitting claims to insurance companies, Medicare, HMO, Workers' Compensation, etc.

**(7) Collect Payments**

This process includes collecting funds from individuals, insurance companies, HMOs, etc., maintaining accounts receivable records, making bank deposits, etc.

**(8) Resolve Collection Disputes and Re-Bill Charges**

This is the process of evaluating EOBs and working with insurance companies, HMOs, etc. to resolve payment/billing disputes, submitting additional information to payors, re-billing, etc.

**(9) Provide Information to Third Parties**

This process involves providing information to third parties, such as attorneys, insurance companies, etc. It does not include providing information to the referring physician.

**(10) Teaching & Research**

This is the process of conducting medical research and teaching medical students, interns and residents.

**(11) Maintain Professional Education**

This is the process of the physicians and office staff maintaining their respective intellectual capital.

**(12) Sustain Business by Managing and Coordinating Practice**

This is the process of running the business side of a medical practice. Activities include general office management, STS database reporting, accounting, marketing, negotiating contracts, complying with regulatory requirements, managing human resources, taxes, etc.

**(13) Maintain Facility**

This is the process of maintaining an environment in which to practice medicine and run the business. It includes negotiating leases, acquiring medical and office equipment, installing communications systems, etc.

## **Table 9**

### **Costs Objects**

The four cost objects in this study are:

- No-charge office visits in global period
- Chargeable office visits
- Chargeable hospital visits
- Surgeries

A distinction is made between chargeable and no-charge office visits because they consume activities differently. No-charge office visits are post-surgical visits (usually within the 90-day "global period" following surgery) that are included in the cost of a surgery. No-charge office visits do not require the staff to obtain insurance authorization (because the authorization for the surgery includes the follow-up office visits) or to process the collection of payments. However, a bill for \$0 is prepared for a no-charge office visit. Therefore, the CPT codes for chargeable office visits were bundled as a separate cost object from the CPT codes for no-charge office visits.

All chargeable office visits, regardless of length or physician services provided, are considered as a single cost object because these office visits consume practice expense at about the same rate.

A chargeable hospital visit does not usually require insurance authorization as this authorization is linked to the surgery, and it does not consume any office-related processes.

All surgeries, regardless of complexity, consumed about the same amount of practice expense. Therefore, all surgical CPT codes were bundled together as the cost object "surgeries".