COMMONWEALTH MANAGEMENT SYSTEMS
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A THREE-PHASE PROJECT TO DEVELOP IMPROVED MANAGEMENT CONTROL SYSTEMS IN ACADEMIC MEDICAL CENTERS

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June 2004

BACKGROUND AND CONTEXT

The rising costs of health care show no signs of abating. Indeed, with the baby boom generation entering the age range where they will demand increasing amounts of health care services, cost pressures will intensify during the next five to ten years. As a result, academic medical centers must take steps immediately to put in place management control systems that will help them control their costs in the most effective manner possible consistent with the provision of quality patient care.

To be effective, a management control system must focus on decisions that give rise to costs in the clinical arena, an arena where physicians and nurses are best equipped to make the needed tradeoffs. Unfortunately, most physician and nurse leaders have had little training in matters of financial management and thus are unable to be as effective as they might otherwise be in controlling costs. This project is designed to address that problem. It uses a three-phase approach.

THE THREE PHASES

The project's three-phases are designed to build on each other and to provide the foundation for a significant and powerful change effort. Phase I (the training program) provides key managers, including physician and nurse leaders, with the concepts, frameworks, and "language system" needed to engage in the change effort. Phase II is a demonstration change effort. Phase III shares the results of the demonstration effort and creates an agenda for subsequent change efforts. The details of each phase follow.

Phase I. The Training Program

Phase I is a four-day financial-management training program for 25-30 of the medical center's senior physician, nurse, and administrative managers. The goal of this program is to assure that a critical mass of senior managers, including physician and nurse leaders, in the medical center "speak the same language" around issues of cost measurement and management control.

The details of Phase I are contained in Appendix A, which is a generic design that can be adapted somewhat, as needed, to meet the circumstances of the medical center where the program is being conducted. More importantly, as the preparation guidelines in Exhibit 2 of the appendix indicate, the program requires a serious time commitment from the participants, both prior to the program, and during the program itself. For this reason, while not essential, it is preferable to hold the program at an off-site facility with the participants in residence, thereby minimizing distractions.

Two to three months prior to the date of the training program, Professor Young will exchange E-mails with designated members of the medical center's senior management team concerning the materials in Appendix A and their applicability to the medical center's financial management concerns. If necessary, one or more conference calls also will be held to discuss the materials. Where feasible, substitutions will be made in the curriculum to make the training program as appropriate as possible for the specific needs of the medical center.

Phase II. The Change Effort

Phase II takes place in the (roughly) two to three months following the Phase I training program. During the program, the participants identify a department, division, program, or other organizational unit that would benefit from an improved management control system. The design and implementation of the new management control system is the goal of Phase II.

If, after completing the Phase I program, the medical center's physician, nurse, and administrative leaders feel that sufficient knowledge and momentum exist to carry out a change effort on their own, Phase II can be undertaken in-house. If they wish consulting assistance for Phase II, Professor Young would make periodic visits over a two to three month period to assist in the design and implementation effort (but the effort would be undertaken by the organizational unit itself, led by its manager). Professor Young would assist the members of that unit to design the new management control system, provide guidance and training, and assist them in implementing the system.

Phase III. Expanding the Change Effort

Phase III is a one-day workshop that presents the new management control system and describes how it is being used by the managers, clinical professionals, and staff in the unit where it was implemented. It is essential for all members of the medical center's senior management team, plus all senior physician and nurse leaders, to attend this workshop. Following the presentation, the participants will discuss how similar changes might be made in other organizational units, and will develop an action plan for doing so.

Prior to conducting the workshop, Professor Young will work with the organizational unit where the new management control system was implemented to prepare a case study that describes the system and the issues involved in its implementation. This case study will provide the basis for discussions at the workshop.

PROJECT COST

The project's cost is broken down as follows (The cost spreads are a function of the additional travel and lodging costs that would be required depending on the location).

Phase I **$23,000 to $25,000.** This fee includes everything needed for the program except the local facility cost and any out-of-pocket costs incurred by the medical center or the participants. Specifically, the fee comprises all honoraria, plus all travel, lodging, material costs (including a copy of the text *Management Accounting in Healthcare Organizations* for each participant), and administrative time and expenses incurred in working with the local facility to organize and prepare for the program. With 25-30 participants, this fee averages about $200 to $250 per day per participant for the training.

Phase II
No on-site consulting
$5,000. Professor Young would remain in E-mail and telephone contact with the organizational unit to make sure that the effort is making progress as planned. He would answer any questions that arose, and provide suggestions, but he would make no visits to the medical center.

With on-site consulting
$35,000 to $45,000. Professor Young would make several visits to meet with the managers, physicians, nurses, and administrative staff of the organizational unit to discuss the various issues and problems that created the need for a new management control system. He would assist these individuals to design the new system and initiate the change effort, and he would work with the them to make sure the new system is used appropriately. The fee comprises all honoraria, plus all travel, lodging, and other costs.

Phase III **$$21,000 to $25,000.** Once the new management control system is operating smoothly, Professor Young would make an on-site visit to discuss the system and gather information for the case study, and he would prepare the case study. He also would organize and lead the workshop. The fee comprises all honoraria for the case study and workshop, plus all travel, lodging, material costs, and administrative time and expenses incurred in working with the local facility to organize and prepare for the workshop. As with the training program in Phase I, the fee does not include the local facility cost or any out-of-pocket costs incurred by the medical center or the participants.

Cost Summary

Phase	With On-Site Consulting	No On-Site Consulting
I	$23,000 to $25,000	$23,000 to $25,000
II	35,000 to 45,000	5,000
III	21,000 to 25,000	21,000 to 25,000
Total	$79,000 to $95,000	$49,000 to $55,000

ABOUT THE FACILITATOR

David W. Young is Professor of Management at Boston University's School of Management, where he is affiliated with the school's Healthcare Management Program, and its Public and Nonprofit Management Program. He has been nominated four times for BU's prestigious Metcalf Award for teaching excellence, and in 2003-04 was voted "best professor" by the School's MBA students. He also has been a core faculty member for the past 27 years in Harvard University's Programs for Chiefs of Clinical Service, Health Systems Management, and Leadership Development for Physicians.

In the mid-1990s, Professor Young served a 3-year term as a Gubernatorial-appointed commissioner and chair of the Massachusetts Hospital Payment System Advisory Commission, a 7-member body charged with monitoring access, quality, and fair-market standards as Massachusetts shifted to a more market-oriented health care system. In 2004, he was a visiting professor of accounting and control at IESE Business School in Barcelona, Spain, one of Europe's leading business schools. He also has lectured and taught extensively throughout Europe, Latin America, Japan, and the Middle East, and has served as a consultant on management control system design to a wide variety of organizations.

Professor Young specializes in the application of management accounting principles to matters of cost control in healthcare and other organizations. He is the author of *Financial Control in Health Care: A Managerial Perspective*, the coauthor (with Richard B. Saltman) of *The Hospital Power Equilibrium: Physician Behavior and Cost Control,* and the coauthor (with Sheila M. McCarthy) of *Managing Integrated Delivery Systems: A Framework for Action.* His book (co-authored with Robert N. Anthony), *Management Control in Nonprofit Organizations,* is in its seventh edition, and has been translated into Japanese and Italian. His most recent books are *A Manager's Guide to Creative Cost Cutting: 181 Ways to Build the Bottom Line; Techniques of Management Accounting: An Essential Guide for Managers and Financial Professionals* (which has been translated into Chinese); and *Management Accounting in Health Care Organizations.*

Professor Young's article (co-authored with Diana Barrett), "Managing Clinical Integration in Integrated Delivery Systems: A Framework for Action,"received the Edgar C. Hayhow Award from the American College of Healthcare Executives as best article of 1997. His articles "Two-Part Transfer Pricing Improves IDS Financial Control," and "Aligning Physician Financial Incentives in a Mixed Payment Environment" (the latter co-authored with Sheila McCarthy), received the Helen Yerger/L.Vann Seawell Award from the Healthcare Financial Management Association for best articles of 1998 and 2000.

Professor Young has a B.A. from Occidental College, an M.A. in economics from the University of California at Los Angeles, and a doctorate in administrative systems (a field combining management control, strategy, and organizational behavior) from the Harvard Business School.

APPENDIX A. DETAILS OF THE FOUR-DAY PROGRAM ON FINANCIAL MANAGEMENT
Exhibit 1. Program Schedule

Day 1 A half-day. Begins with lunch (allowing participants to spend the morning in their offices and/or, in the case of physicians and nurses, with patients)

12:00 Arrival and lunch
1:00 Introduction to the program
1:30 Group meetings for Classes #1 and #2
2:00 Class #1. *Carroll University Hospital*
3:15 Break
3:45 Class #2. *Lakeside Hospital*
5:00 Break
6:00 Dinner
7:00 Preparation for Day 2 (approximately 4 hours)

Day 2 A full day

7:30 Continental breakfast
8:00 Group meetings for Classes #3, #5, and #6
9:00 Break
9:15 Class #3. *Boston University Medical Center Hospital*
10:30 Break
11:00 Class #4. *Lecture on Management Control Systems*
12:00 Lunch
1:00 Class #5 *Lomita Hospital*
2:15 Break
2:45 Class #6 *Bandon Medical Associates (A)*
3:45 Break and begin preparation for Day 3 (approximately 6 hours)
6:00 Dinner
7:00 Continue preparation for Day 3

Day 3 A full day

7:30 Continental breakfast
8:00 Group meetings for Classes #7, #8, and #10
9:00 Break
9:15 Class #7. *Bandon Medical Associates (B)*
10:30 Break
11:00 Class #8. *Yoland Research Institute*
12:30 Lunch
1:30 Class #9 *Lecture on the Reporting Phase of the Management Control Process*
2:15 Stretch break
2:30 Class #10 *Los Reyes Hospital (B)*
3:45 Break and preparation for Day 4 (approximately 4 hours)
6:00 Dinner
7:00 Continue preparation for Day 4

Day 4 A half-day. Ends with lunch (allowing participants to spend the afternoon in their offices and/or, in the case of physicians and nurses, with patients)

7:30 Continental breakfast
8:00 Group meetings for Classes #11 and #12
9:00 Break
9:15 Class #11. *Union Medical Center*
10:30 Break
11:00 Class #12. *Southern State University Health System*
12:15 Closure and evaluations
12:45 Snack lunch
1:15 Departure

APPENDIX A. DETAILS OF THE FOUR-DAY PROGRAM ON FINANCIAL MANAGEMENT
Exhibit 2. Preparation Guidelines

Prior to the Program

For Class #1

Read: Young, David W. *Management Accounting in Health Care Organizations*, Preface and Chapter 1 "Essentials of Full Cost Accounting"
Analyze case: Carroll University Hospital *A case that shows several ways to perform a full-cost computation*
Approximate Time Needed: 3 hours

For Class #2

Read: Young, Chapter 2 "Differential Cost Accounting"
Analyze case: Lakeside Hospital *A case involving a decision to keep or discontinue an unprofitable product line; must consider the behavior of both direct costs and allocated indirect costs (using a detailed stepdown report). A rather complicated case.*
Approximate Time Needed: 4 hours

For Class #3

Analyze case: Boston University Medical Center Hospital *A case that has a hospital bidding for an HMO's business using a "bundled price" that includes both the hospital's charges and the physicians' fees. There are a lot of unexpected twists that serve to cement the concepts of cost behavior, and to demonstrate the link between strategy, operations, and costs.*
Approximate Time Needed: 2 hours

For Other Classes:

Read: Young, Chapter 5 "Responsibility Accounting: An Overview"
Read: Young, Chapter 6 "Programming and Budgeting"
Read: Young, Chapter 7 "Measuring and Reporting"
Read: Young, Chapter 8 "Implementing a New Responsibility Accounting System"
Approximate Time Needed: 8 hours

Evening of Day 1

For Class #3

Review your analysis of Boston University Medical Center Hospital
Approximate Time Needed: 1/2 hour

For Class #5

Review Chapter 5
Analyze case: Lomita Hospital *Determining the most appropriate type of responsibility center for a department of pathology in a complicated setting where there is a lack of trust between fiscal affairs and the clinical departments.*
Approximate Time Needed: 2 hours

For Class #6

Review Chapter 6, pp. 319 to end
Analyze case: Bandon Medical Associates (A). *Building a budget for a physician practice using budget drivers.*
Approximate Time Needed: 1 1/2 hours

Evening of Day 2

For Class #7

Review Chapter 7
Analyze case: Bandon Medical Associates (B). *Analyzing deviations between budgeted and actual results using variance analysis, and assessing the behavioral consequences of responsibility center design.*
Approximate Time Needed: 2 hours

For Class #8

Review Chapter, pp. 305-319
Analyze case: Yoland Research Institute. *Capital budgeting with some behavioral complications.*
Approximate Time Needed: 2 hours

For Class #10

Analyze case: Los Reyes Hospital (B). *Using variance analysis as a tool for taking action.*
Approximate Time Needed: 2 hours

Evening of Day 3

For Class #11

Review Chapter 8
Analyze case: Union Medical Center. *Variances used in conjunction with a set of reports on a single DRG. Raises the issue of what the chief of surgery should do given considerable physician resistance to the new management control system.*
Approximate Time Needed: 2 hours

For Class #12

Analyze case: Southern State University Health System. *Assessing a division's business plan in light of its budget and some changes taking place in its staffing.*
Approximate Time Needed: 2 hours

APPENDIX A. DETAILS OF THE FOUR-DAY PROGRAM ON FINANCIAL MANAGEMENT
Exhibit 3. Key Concepts by Case

Carroll University Hospital

- While total costs do not change, the cost of a particular activity (such as a procedure) will change as cost centers change.

- The ideal cost center is one in which all activities that take place are homogeneous. That is, the same set of things happens to each unit while in the cost center. Few cost centers have this characteristic, however, such that there always will be some heterogeneity.

- The link between measurement and management of costs is key. If physicians are not being asked to manage costs, any cost computation will do. If physicians are to play a role in cost management, the choice of cost centers and the activities that drive the costs in each must resonate with a physician's intuition. For example, the idea that a day of care drives all costs is counter intuitive to most physicians. Having cost centers such as nursing, where the cost is driven by nursing acuity, is much more intuitive.

- Even when the cost driver is intuitive, the problem of heterogeneity may remain. For example, it seemed clear that pharmaceutical usage was driven by something other than a "medical treatment unit," such as A prescription written. It thus seemed to make sense to have pharmaceuticals as a separate cost center.

- One must be careful in separating cost centers to make sure that the extra information is worth the additional cost associated with the increased record keeping. Given the dollar magnitude of pharmaceuticals, this seemed to make sense in the Carroll case. It most likely would not make sense for those cost items that are relatively small.

Lakeside Hospital

- There is a difference between how costs are allocated and how they behave in response to changes in volume. Thus, a full cost report is of little use if one wants to determine how costs will change with the elimination of a particular program or activity.

- However, if the volume of activity, staffing patterns, square feet occupied, and other "bases of allocation" change in a given cost center, and there are few changes to these bases in the remaining cost centers, that cost center's "fair share" of overhead will change. It was *possible*, but not the case, that with the decline in activity in the dialysis unit, the allocations would have fallen to the point where the unit was as profitable this year as last.

- A contribution income statement can help to clarify the economic reality of a given cost center or program. It indicates how much the unit "contributes" to the recovery of overhead costs. Economists argue that if there is a positive contribution, the unit should be retained since discontinuing it will result in less overhead being covered by operations. Many managers disagree, arguing that if overhead can be reduced by more than the amount of contribution, it makes (financial) sense to discontinue the activity, or if some other activity can produce a greater contribution with comparable overhead, it should replace the activity in question.

- Lowering costs requires thinking about step function costs. In Lakeside's case, if Dr. Newell had recognized that he was operating on a different step and had reduced his staffing pattern to conform to the needs at that step, he likely would have been able to reduce his direct costs. Doing so would have led to further reductions in overhead allocations, returning him to profitability.

Boston University Medical Center Hospital

- Bundled pricing can align incentives between physicians and the hospital. At the same time, it leads to new forms of conflict, namely how to divide the "pie" between physicians and the hospital and how to divide the physicians' "slice" among the various physicians involved in caring for the patient.

- Beware of the idea that all direct costs are variable. If a unit (OR, ward, etc.) is operating below capacity, the incremental patients will incur only variable costs. Even if usage increases by more than a few patients, the incremental costs will be only step costs. Many hospital units have high fixed direct costs that will not change even with a large increase in volume.

- If capacity is used by patients for whom payment results in a low contribution margin, that capacity is not available for patients whose payers pay a higher rate and hence provide higher contribution margins. There may be no problem if full capacity is not reached, but otherwise there may lost contribution.

- Beware of the effect on payers who do not receive the discount. They likely will learn of it and want it too. Airlines have solved this problem by introducing certain features that prevent most full-fare flyers from taking advantage of discounts (such as required Saturday night stays). Hospitals have a more difficult time doing this. Some hospitals might take a lesson from

the airlines, however, and offer a discount for those patients who are willing to come in over the weekend. This, of course, would require rethinking working hours, shifts, and other matters across the board (e.g., in the labs), but it might allow the hospital to use otherwise unused capacity. An empty bed day cannot be put in inventory—it is gone forever!

Lomita Hospital

- A cost-driver approach can be used to build a budget in a clinical service department, such as a department of pathology or radiology, where there is no revenue

- The most appropriate responsibility center for a clinical service department probably is a standard expense center, but these departments frequently are established as discretionary expense centers due to a lack of trust between fiscal affairs and the department chief.

- In a standard expense center, the department head must be prepared to flex down as well as up.

- If the department is a discretionary expense center, there frequently is a need for an "integrator" who "speaks the language" of both clinical and fiscal.

Bandon Medical Associates (A)

- A physician practice, or, more generally, an outpatient department can build a budget using budget drivers. This allows for a more strategic approach in making cost reductions.

- Revenue can be a surrogate for level of effort.

- The level of detail for expenses need not be great to have a budgeting system where "what if" assumptions can be easily tested.

Bandon Medical Associates (B)

- Deviations between budgeted and actual results can be measured by using variance analysis based on the same cost drivers used to build the budget.

- The way a responsibility center is designed (in this case, a revenue center), coupled with an appropriate incentive system, can have a profound impact on physician behavior.

- A responsibility center design needs to consider the motivational effects. If there are no rewards (or punishments), the responsibility center design is unimportant.

Yoland Research Institute

- Capital investment and other programming decisions represent the first phase of the management control process. In this phase, senior management makes decisions that have multi-year consequences.

- Every organization has a weighted cost of capital, which can be relatively easily computed. While the computations are easy, the assignment of an interest rate to equity is quite controversial. Rates vary from 0% to inflation (not the CPI, but rather the index of medical supplies and equipment), to opportunity cost. In general, equity should be assigned an interest rate that is no lower than the organization's rate of inflation.

- In addition to a weighted cost of capital, a weighted return on assets can be computed. If the weighted return on assets is below the weighted cost of capital, the organization is atrophying.

- Very few investment proposals will arrive with a projected negative net present value. Thus, one job of senior management is to look for the soft spots. Generally, the investment amount is a hard number. Cash flows can be relatively predictable if they are represented by cost savings, but quite spongy if based on expected additional contribution. The discount rate may be the weighted cost of capital, or it may be the WCC increased by some amount to account for risk.

- Most of the risk in many organizations—certainly in health care organizations—is in the economic life of the investment, particularly with high technology investments. When the economic life is very short, many projects will have a difficult time generating a positive NPV.

- In response to this, some physicians have included as a cash flow the opportunity cost of lost contribution from those physicians who will leave the hospital if the new technology is not purchased. This is a high risk negotiating strategy, since it represents a "Pandora's Box" for the administration.

- A mistake in the past is a "sunk cost," and therefore is ignored in any given investment proposal. However, just because it is a sunk cost does not change the fact that it cost the organization something. A series of mistakes like it, when the amounts are significant, can lead to serious financial difficulties.

Los Reyes Hospital

- We have the technology to compute variances by the major cost drivers: price, case mix, volume, resources per case (or utilization), cost per resource unit, and fixed costs. The real question is how physician managers will use this information in a cost management effort.

- How the information is used will depend, to a large extent, on responsibility center designations. A department that is a profit center will need to know variances for all items. To be successful in managing these variances, the department (or division) head will need to make sure that he/she has reasonable (although probably not total) control over the activities that give rise to the use of the cost driver. By contrast, if a department is a standard expense center, it is responsible only for utilization.

- Establishing a standard expense center requires developing cost formula for each unit of service provided, i.e., a variable element and a fixed element. (If we assume that the relevant range is within a single step in the step function costs, they can be treated as fixed in a flexible budget.) This is pretty easy in the laundry (where the units are homogeneous), but tricky in a laboratory (where the units—tests—are very heterogeneous).

- Establishing a standard expense center also requires the use of a flexible budget. Senior management tends to resist this, as they know that physician leaders will have an easy time "flexing up," when volume increases, but worry about their commitment to"flex down" when volume falls.

- For these reasons and others, many hospitals have not reached this "stage" of the cost accounting effort. Yet doing so is essential if physicians are to play a role in cost management.

Union Medical Center

- While physicians may not like the idea of being a profit center, given the wide range of factors that they will be asked to control, it is likely that many will be, especially in clinical care departments (e.g. surgery) as opposed to clinical support departments (e.g. radiology).

- The main issue is control over case mix and volume. If not the clinical department, who? Saying "no one" is not acceptable as it essentially subjects the hospital to the whims of its environment.

- If a hospital sets up clinical departments and divisions as profit centers, it is obligated (in the name of the fairness criterion) to give leaders of those departments reasonable control over the elements that comprise profit.

- Of all of the elements of control, the most difficult to achieve is internal purchasing. In the corporate sector, transfer prices constitute a powerful means of control, but establishing them can be extremely tricky.

- When setting up management control systems beware: the perfect is the enemy of the good. The key is to have physician leaders committed to using the system even though it may not be perfect.

Southern State University Health System

- Budgets can be built "bottom-up" by beginning with individual physicians, asking each to determine how he/she will be spending time during the year, and using a daily "wage rate" as the "transfer price" for building a budget

- With physician time determinations as the building blocks, budgets can be built by program, department, or any of several other ways.

- Beware of assumptions about how time will be spent. They may diverge considerably from reality.

- There is no "free lunch." If a physician spends time in an uncompensated activity, that is time that cannot be spent in a compensated one.