Medical Economics:

The Health Care
Financial Environment

Part 2
Theme: “Hospitals As Businesses”

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Health Care Financial Management

THEMES and GOALS

What is VIABILITY? Is it the same thing for a non-profit organization as for a for-profit organization?

The Hospital (or other health care provider) as a BUSINESS. Non-profits often experience a more complex set of demands and sometimes contradictory goals and objectives - but they too must have a healthy bottom line.

Brief history of hospital reimbursement: cost-based reimbursement; to DRG-based reimbursement; to negotiated or capitated rates. Resulting changes in incentives; effect on management. Government rate-setting vs. market-driven rate setting.

Efficiency vs. Effectiveness
   Efficiency - a measure of inputs needed to produce an output.
   Effectiveness - an analysis of the QUALITY of the output - required that the organization first determine what its GOALS and OBJECTIVES are, so that it can evaluate its effectiveness in reaching those goals.

Financial Statements - focus on Income Statement and Balance Sheet
   Meaning of the expression "THE BOTTOM LINE."
   Surplus/(Deficit) on an Income Statement.
   Very small differences in revenues or expenses can make big differences in the Bottom Line. Sensitivity analysis.
   Fund Balance on a Balance Sheet - a measurement of net worth. Do not use "Cash Balance."
   Ratio analysis

Accrual accounting - a method for reflecting transactions that have not been completed or which occur over a long period of time:
   Accounts Payable
   Accounts Receivable
   Depreciation

The big picture - The increasing cost of health care - to whom does it matter? Discussion of fringe benefit costs to businesses, both small and large. Discussion of Gross National Product.
(Health Care Financial Management)  
(THEMES and GOALS)

Budget projections - IT'S ALL IN THE ASSUMPTIONS. When projecting revenues and expenses out two or three years, what happens when you change the assumptions of growth (or decline)?

Costing and Budgeting
- Market forces requiring cost reduction
- Fixed vs. Variable costs
  - Break-even point - the point at which you have sufficient volume to cover your fixed costs
- Direct vs. indirect costs
- Variance analysis

Operating Indicators
- Length of stay, occupancy, cost per discharge vs. revenue per discharge.

The Time Value of Money
- Present Value and Net Present Value - tools for evaluating the value today of a stream of funds that will flow in the future and relating them to a current flow of funds.

Risk and Reward - investment decision-making

Life Cycle Costing - a method for evaluating the financial outcome of a project that includes both the capital costs as well as the operating revenues and expenses. Using Present Value and Net Present Value to determine least cost.
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Case A: How is running a not-for-profit ("voluntary") hospital different from running a for-profit hospital?

1. What does it mean for a health care organization to be financially viable?

2. You are the Chief Executive Officer of General Health, a voluntary (non-profit) hospital. In what ways are your financial responsibilities and authority similar to the responsibilities and authority of the CEO of General Foods or General Motors? In what ways are they different?
Health Care Financial Management

Case B: What is financial viability or “What's a deficit, what's a surplus, and what's an asset?”

You were just hired to head up a division in the Department of Medicine in the Healthy Hospital, a voluntary (non-profit) in New York City. The Chief Executive Officer (CEO) of the hospital just announced a new spending reduction program for the hospital, stating that the hospital ran a $14 million deficit for the prior fiscal year, which ended on June 30, 2000. There will be belt-tightening, he warns, including the possibility of layoffs.

One week later, your friend the Chief Financial Officer (CFO) of the hospital sits down with you at lunch. Discussion ranges over a broad spectrum of business and non-business matters, and in this discussion she casually mentions that the hospital had a $2 million cash balance on June 30; it is her job to decide whether to invest any of that cash.

After lunch, you begin to ponder the two statements concerning the hospital's financial condition. Because you have studied a few hours of finance while in medical school, you quickly conclude:

A. There is a complete and unreconcilable conflict between the two statements; somebody is wrong.

or

B. There are a number of ways to reconcile the two statements; it is possible that both are accurate.
Discussion and Analysis

The CEO's remarks relate to financial performance over a period of time - the fiscal year that just ended June 30. The Income Statement is the financial document that measures performance over a period of time, by measuring Revenues, Expenses, and the difference between the two, which is Net Income or Surplus/(Deficit). Revenues in a hospital are dominated by payments from third party payors; expenses in a hospital are dominated by salaries, fringe benefits, supplies, equipment, and depreciation (a non-cash expense). A deficit on the Income Statement means that the Fund Balance has declined from one balance sheet to the next.

The CFO's remarks relate to a point in time - the last day of the year. The Balance Sheet is the financial document that measures the financial status of an organization at a point in time, by measuring its Assets, Liabilities, and the difference between the two, which is Fund Balance or Net Assets. The CFO remarks relate only to cash, which is only one asset held by an institution. Other assets include accounts receivable, and depreciated value of property, plant, and equipment. Liabilities are commonly dominated by accounts payable, and loans, mortgages and bonds payable.

The hospital might have started the year with, for instance, a $7 million cash balance. It might have had revenues of, say $100 million, expenses of $114 million, a decline in other assets and an increase in liabilities, and thereby eroded $5 million of its $7 million opening cash balance, causing it to end the year with only $2 million of cash:

<table>
<thead>
<tr>
<th>Income Statement ($ in millions)</th>
<th>7/1/99 to 6/30/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>100</td>
</tr>
<tr>
<td>Expenses</td>
<td>114</td>
</tr>
<tr>
<td>Surplus/(Deficit)</td>
<td>(14)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Balance Sheet ($ in millions)</th>
<th>6/30/99</th>
<th>6/30/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>All other assets</td>
<td>162</td>
<td>157</td>
</tr>
<tr>
<td>Total Assets</td>
<td>169</td>
<td>159</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>63</td>
<td>67</td>
</tr>
<tr>
<td>Fund Balance</td>
<td>106</td>
<td>92</td>
</tr>
</tbody>
</table>
The CEO's and CFO's statements are not inconsistent with each other. While the hospital has a (small) cash balance available at the end of the fiscal year, there are a number of very simple observations which indicate that the hospital is in financial trouble:

1) Most obviously, the $14 million deficit represents a 14% loss on its revenue base of $100 million.

2) Its Days Cash on Hand is now only $2 million on an expense base of $114 million, or about 6.4 days of cash:

$$\frac{2 \text{ million}}{114 \text{ million} / 365 \text{ days}} = 6.4 \text{ days}$$

It's fairly likely that it is going to have trouble making its biweekly payroll, which is probably $2-3 million, and paying its bills.

3) Liabilities have grown, suggesting that, for instance, bills aren't getting paid.
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Case C: Financial Statements and Management Decision-Making
Sometimes one set of numbers within a set of Financial Statements will not reveal any problems while another one will. The last 3 years worth of Balance Sheets for SHH, the Stay Healthy Hospital, showed Total Assets as follows:

<table>
<thead>
<tr>
<th></th>
<th>$ in millions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12/31/98</td>
</tr>
<tr>
<td><strong>Assets</strong></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$10</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>10</td>
</tr>
<tr>
<td>Supplies, Equipment, Property, etc.</td>
<td>80</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>$100</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>2</td>
</tr>
<tr>
<td>Notes &amp; Bonds Payable, Salaries Due, etc.</td>
<td>40</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES</strong></td>
<td>$42</td>
</tr>
<tr>
<td>Fund Balance</td>
<td>?</td>
</tr>
</tbody>
</table>

**Questions**
1. Assets are constant over the three year period, at $100 million. Is this significant? What do the other numbers indicate? Analyze and describe what you think may be happening at SHH.

2. Is this a problem? Why?

3. What was the Fund Balance at the end of 98? 99? 00?

4. Fill in the blanks on the Income Statement:

<table>
<thead>
<tr>
<th></th>
<th>1/1 - 12/31</th>
<th>1/1 - 12/31</th>
<th>1/1 - 12/31</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>1999</td>
<td>2000</td>
</tr>
<tr>
<td>Revenues</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>Expenses</td>
<td>49</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Surplus/(Deficit)</td>
<td>1</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

- 5 -
(Case C: Financial Statements and Management Decision-Making)

Discussion and Analysis:

First, determine the Fund Balance:

<table>
<thead>
<tr>
<th></th>
<th>12/31/98</th>
<th>12/31/99</th>
<th>12/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>42</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>FUND BALANCE</td>
<td>$58</td>
<td>$55</td>
<td>$51</td>
</tr>
</tbody>
</table>

Then note that a change in Fund Balance is tied to the Surplus/(Deficit) on the Income Statement:

From 1998 to 1999, the Fund Balance declined by $3 million, which means that the Income Statement would show a $3 million deficit. Similarly, the Fund Balance declined by $4 million from 1999 to 2000, which means that the Income Statement would show a $4 million deficit. The Expense numbers can then backed into.

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>Expenses</td>
<td>49</td>
<td>53</td>
<td>54</td>
</tr>
<tr>
<td>Surplus/(Deficit)</td>
<td>1</td>
<td>($3)</td>
<td>($4)</td>
</tr>
</tbody>
</table>

So what's happening at SHH?
(Case C: Financial Statements and Management Decision-Making)  
(Discussion and Analysis)  

Income Statement  
Net Income: First, SHH ran a deficit in 1999 and 2000 - i.e. its expenses were greater than its revenues, and as a result, its Fund Balance (or Net Assets) decreased. Just 2 years earlier, in 1998, it had a very slight surplus.

Revenues: Over the three year period we are looking at, its revenues stayed absolutely flat. Given the managed care environment that hospitals and other health providers find themselves in these days, it is entirely possible that they are providing more services to more patients, but that just isn’t good enough to create revenue growth.

Expenses: The growth in expenses of over 8% from 1998 to 1999 and of less than 2% from 1999 to 2000 suggests that hospital management might now be getting its expenses under control after a period of significant expense growth. It might, for instance, be reducing its lengths of stay and reducing staff in order to contain that expense growth.

Balance Sheet:  
Assets: The apparent stability in SHH’s assets is misleading because it masks the fact that its cash is declining rapidly and its receivables are increasing.

Cash: Two years ago, it had $10 million in cash at the end of the year, which for a small hospital was respectable - on annual expenses of $49 million, $10 million represents more than 2 months worth of cash. At the end of 2000, its cash had shrunk to the perilously low level of $1 million, which on $53 million of annual expenses, represents less than one week’s worth of cash. They are now at the point where they may not make the next payroll.

Accounts Receivable: Two years ago, SHH had receivables of $10 million, which on annual revenues of $50 million means that approximately 73 days of revenue were in receivable. At the end of 2000, receivables had risen dramatically, to $36 million, or 263 days of revenue in receivable. The likeliest explanation - though there are others - is that the hospital is suffering from an extreme form of managed care. It is pretty likely that the HMOs, and the other payors, are not paying the hospital in anything like a timely manner.

Liabilities: Over the three year period, SHH’s payables have been growing. In all likelihood, as cash has gotten tighter and tighter, they have slowed down on paying their bills. It’s likely that at the current level of payables, SHH has some pretty unhappy vendors.

What does all this mean for SHH’s viability?
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Case D: Breakeven Analysis, Variable and Fixed Costs

Fixed costs - those costs which occur with the passage of time and do not vary with volume of output. Sometimes referred to as costs associated with the "readiness to serve."

Variable costs - those costs which vary with volume of output

Breakeven point - the volume needed to produce zero profit (no loss and no gain)

Breakeven volume in units = \frac{\text{Fixed Costs}}{\text{Price} - \text{Variable Cost}}

or Breakeven volume in visits = \frac{\text{Fixed Costs}}{\text{Revenue per visit} - \text{Variable cost per visit}}

Problem: You are interested in providing services in a new setting - say, a free-standing ambulatory care center of an acute care hospital. The hospital has a budget culture of "every tub on its own bottom," so you are asked to develop a budget for the proposed new center.

You determine that, just to open the doors, you need a total of 8 people, including physicians, nurses, technicians, and support staff. Those salaries (including physician income) will, you believe, total $500,000 per year. In addition, you must pay fringe benefits, at 28%. The space lease and the equipment lease costs, plus utilities, are expected to total $360,000 per year. In addition to these costs, you estimate that for each visit you incur a cost of $15, for pharmaceuticals, gowns, gloves, linens, and all other supplies.

You have calculated that, when you take into account all the managed care contracts, the other payors, as well as the indigent care you expect to provide, an all-inclusive average revenue per visit is going to be $60.

Question 1 -- Traditional Breakeven Analysis: How many visits per year do you need in order to make your proposed ambulatory care center a breakeven operation?

Question 2 -- Breakeven Analysis Under Capitation:
Now, assume that the entire ambulatory care center has entered into a risk-based financial relationship and is to be reimbursed under a capitated payment model, at $9 per member per month ("PMPM"). (Note that most of the capitated payment is going to the inpatient side of the hospital you are associated with.) How many members have to be in the plan in order for the center to break even? Assume the same fixed and variable costs as before, and assume an average of 2.5 visits per member per year.
Breakeven Analysis

**Answer 1:** This is a classic fixed cost, variable cost, break-even analysis. First, calculate your fixed costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$500,000</td>
</tr>
<tr>
<td>Fringe Benefits @ 26%</td>
<td>140,000</td>
</tr>
<tr>
<td>All other fixed costs</td>
<td>360,000</td>
</tr>
<tr>
<td>Total Fixed Costs</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>

The revenue per visit of $60 contributes $45 to cover the fixed costs listed above, since you need $15 per visit to pay for the variable costs. Therefore, $1,000,000/$45 = 22,222 visits. Or, more formally:

\[
\text{Breakeven Volume in Units} = \frac{\text{Fixed Cost}}{\text{Price} - \text{Variable Cost}}
\]

\[
= \frac{1,000,000}{60 - 15}
\]

\[
= 22,222 \text{ visits}
\]

If you project that you will provide 22,222 visits per year, or 71.2 visits per day if the center is open 312 days per year (closed on Sundays but open all other days of the year), then your revenue will be sufficient to cover your costs. If you provide more than 22,222 visits per year, you will generate a "profit;" less and you will generate a loss.

Note that many hospitals and other organizations will allocate an overhead cost to your facility - that is, it will require that you include as an expense in your analysis some share of central operations, e.g. utilities, debt service, finance, human resources, information services, facilities maintenance, etc. We have not considered that expense in the above discussion.
Breakeven Analysis Under Capitation

Answer 2: The classic model has to be adapted for a capitated reimbursement model. Variable costs must now be viewed in terms of “per member per month” or “per member per year” and you have to estimate annual utilization.

Variable costs: $15/visit x 2.5 visits/yr = $37.50 per member per year

For each member, the center receives: $9/month x 12 months = $108/yr.

The contribution to fixed costs is therefore: $108/yr - $37.50/yr = $70.50 per member per year

To cover $1,000,000 in fixed costs, you will need:

$1,000,000/$70.50 = 14,184 members

If you have more members, you will have a surplus or make a profit.

If you have fewer members, you will have a loss - and you will either have to cut expenses, negotiate for higher rates, or seek support from some other source.

Also - using the assumptions in this example, with 14,184 members and 2.5 visits per year per member, you project that you will have 35,460 visits per year or 113.6 visits per day if the center is open 312 days per year. If you think the current staffing is sufficient to provide that volume of care, you may be in good shape. But if the current staffing is not sufficient, and you need to add staff and expense, the analysis will have to be recast with new numbers.

Note that, again, we have not considered the allocation of overhead costs from the hospital onto your budget. In addition, we have not addressed the complexities of the managed care “gatekeeper” phenomenon - i.e. we did not consider the financial dynamic wherein referring a patient from your center to a specialist may hit you as an expense.
FIXED COST, VARIABLE COST, AND BREAK-EVEN

Traditional Model

Capitation Model