CASE 28

University of Virginia Health System: The Long-Term Acute Care Hospital Project

On the morning of March 2, 2006, Larry Fitzgerald knew he had to complete all the last-minute details for the board meeting the following day. Fitzgerald, the vice president for business development and finance for the University of Virginia Health System (U.Va. Health System), was eager to see the board's reaction to his proposal for a new long-term acute care (LTAC) hospital. His excitement was somewhat tempered that the board had rejected the LTAC hospital concept when Fitzgerald had first joined the U.Va. Health System in 1999. Since that time, however, the regulations regarding LTAC facilities had changed, which gave Fitzgerald reason to give the project another chance. The bottom line was that Fitzgerald thought that a LTAC hospital would improve patient care and, at the same time, bring more money into the U.Va. Health System.

As he looked at the memo on his desk from his analyst Karen Mulroney regarding the LTAC facility, Fitzgerald began to consider what guidance he could give her that would lead to the best possible proposal to present to the hospital's board of directors.

The U.Va. Health System

The University of Virginia (U.Va.) opened its first hospital in 1901, with a tripartite mission of service, education, and research. At its inception, the hospital had only 25 beds and 3 operating rooms, but by 2005, it had expanded to more than 570 beds and 24 operating rooms, with 28,000 admissions and 65,000 surgeries per year. This first hospital was the only Level 1 trauma center in the area and provided care for Charlottesville residents as well as patients from across the state of Virginia and the Southeast.[1]

[1]Trauma centers were designated Level 1, 2, or 3. Level 1 centers provided the highest level of surgical care to patients.

This case was prepared by Nili Mehta (MBA '12) and Kenneth Eades, the Paul Tudor Jones Research Professor of Business Administration. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation.

For each patient admitted, the hospital was reimbursed a predetermined amount by a private or public insurance company. For an open-heart surgery, for example, the hospital typically received $25,000 regardless of how many days a patient stayed in the hospital or which medications or interventions the patient needed during that time. But the cost to the hospital varied considerably based on length of stay and level of care received, which gave the hospital the incentive to help the patient recover and be discharged as quickly as possible.

Numerous studies showed that it was also in the patient's best interest to have a short stay in the hospital; longer stays put patients at risk for infections, morbidity, and mortality because there were more infectious diseases in hospitals than in patients' homes or other facilities. Lengthier hospital stays also compromised patient morale, which, in turn, was counterproductive to healing.

Like many hospital systems, U.Va.'s faced capacity issues due to its inadequate number of patient beds. The sooner it was able to discharge a patient, the sooner its staff could start caring for another; therefore, efficient patient turnover was beneficial to both patients and U.Va.

Before coming to the U.Va. Health System, Fitzgerald had been the CFO of American Medical International, a hospital ownership company that later became known as Tenet. His experience in the for-profit sector had convinced him that LTAC facilities brought value to a hospital system. Even though the idea of LTAC hospitals was relatively new in the nonprofit sector, Fitzgerald had pitched the idea for opening one when he first arrived at the U.Va. Health System in 1999. At that time, however, the regulatory system required a LTAC facility to be built within the original hospital structure. The project was rejected by the board partly because of anticipated disputes from medical service units within the hospital that would be asked to forfeit some beds to make room for the LTAC hospital. But in 2006, Fitzgerald still saw the advantages of having a LTAC facility and was certain he could justify building one within the U.Va. Hospital.

Fitzgerald knew it was critical to gain approval for adding an LTAC facility at the following day's board meeting, because the Centers for Medicare & Medicaid Services (CMS) had recently decided that, because LTAC hospitals were making so much money, they were partly responsible for driving up health care costs.[2] Reacting to this finding, the CMS had decided to put a moratorium on the establishment of new LTAC facilities beginning January 2007. For Fitzgerald, this meant that it was now or never to make his case for establishing an LTAC as part of the U.Va. Health System.

The Advantages of LTAC Hospitals

LTAC hospitals were designed to service patients who required hospital stays of 25 days or more and at least some acute care during that time. LTACs especially benefited patients who were diagnosed with infectious diseases and who needed to be

[2]CMS was a federal agency within the U.S. Department of Health and Human Services that had a number of health care–related responsibilities, including the determination of quality standards for long-term care facilities.

weaned off ventilators, required pulmonary care or wound care, and who had critical care issues. It was often elderly patients who required these complex treatments, which were difficult to perform in a normal hospital setting.

LTAC hospitals were financially attractive to medical centers, because having one increased the amount of money available for patient care. Insurance companies reimbursed hospitals set amounts of money for each patient in its facility based on the patient's diagnosis, regardless of the time involved the patient's treatment and hospital stay. Yet if the patient was transferred to a LTAC facility, the hospital could bill insurance for the patient's stay in the hospital as well as for time spent in the LTAC. The LTAC facility also reduced patient care costs as the average daily hospital stay per patient cost more than $3,000 compared to only $1,500 per day for an LTAC.

Another advantage of an LTAC facility was that it helped address the capacity issues that the U.Va. Health System and most other hospital systems faced. By adding an LTAC facility, a hospital gained an additional 25 bed days for each patient transferred to the LTAC hospital. The average patient stay was five days in the hospital, compared to the average patient stay of 25 days in an LTAC facility. Therefore, by adding an LTAC facility, a hospital gained an additional 25 bed days for each patient transferred to the LTAC hospital. Thus, the hospital could take five more admissions for each patient transferred to an LTAC facility.

A stay in an LTAC facility had a number of advantages from the patient's perspective as well. The typical hospital setting was loud, the food could quickly become boring, and patients usually had to share rooms. Because the LTAC facility was essentially an extended-stay hospital, each patient had a private room, and the extended stay also helped a patient become more familiar with the caregivers. Fitzgerald remembered how, at one LTAC facility he had helped set up, a patient who was an avid bird watcher missed not seeing birds outside his window. To fix the problem, the staff climbed the tree outside his room and set up a bird feeder to allow him to enjoy his favorite pastime. This experience was not feasible within a regular hospital setting that often suffered from overcrowding of patients, understaffing, and an impersonal atmosphere. By contrast, patients were generally delighted with the atmosphere of an LTAC hospital with its attractive facilities, single rooms, fewer beds, and general lack of overcrowding. Higher patient morale meant a better rate of recovery and a lower rate of infection than in a typical hospital.

The U.Va. Health System comprised a large primary care network, a large hospital center, a community hospital in nearby Culpepper, a home health agency, a rehabilitation hospital, several nursing homes, an imaging center, and a physical therapy network. The LTAC facility would be another important part of the U.Va. Health System's network of care. Having all their medical care provided by U.Va. was advantageous for patients because it facilitated better communication between physicians through its electronic medical-records system.

Capital Investments at U.Va.

The U.Va. Health System's mission was to provide the highest quality health care service to the surrounding community while reinvesting in teaching and research.

Unlike the for-profit hospitals that ultimately had to earn a return for shareholders, nonprofits such as the U.Va. Health System had to strike a balance across its various objectives. A typical for-profit hospital required a pretax profit margin of 15% to justify a capital investment, whereas a nonprofit could require a lower margin and still meet its objective of providing excellent clinical care.

During Fitzgerald's tenure, the U.Va. Health System had maintained an average net profit margin of 4.9%. The board of directors considered a margin of 3.0% to be the minimum needed to sustain the system. In order to be able to grow and develop the system, however, the board wanted a 5.0% profit margin as the minimum for new projects. The board reinvested any profits beyond the 5.0% level in the School of Medicine to support the U.Va. Health System's teaching and research missions.

When an investment proposal was brought forward, the board generally considered three distinct sources of funding: cash, debt, and leasing. When analyzing a project, a primary consideration for the board was to maintain an AA bond rating for the hospital. This was the highest rating a hospital could receive due to associated business risk. Maintaining the credit rating kept borrowing costs low and allowed the hospital to effectively compete for debt dollars in the future. On the other hand, the desire for an AA rating limited the total amount of debt the hospital could carry. Based on discussions with several banks about the LTAC project, Fitzgerald was confident that he could obtain the $15 million loan needed and that the added debt on the balance sheet would not jeopardize the U.Va. Health System's AA bond rating.

LTAC Project Analysis

Larry Fitzgerald looked at the memo and financial projections from his analyst (**Exhibits 1** and **2**) and realized that much work needed to be done before the board meeting the next day. But before he began to prepare his answers for Mulroney, he notified his assistant that she should expect a late addition to the paperwork for the board by early the next morning.

Fitzgerald was pleased that Mulroney had gathered working capital data and financial data from the for-profit hospital sector. But he was disappointed to see so many omissions in her projections on the eve of the board meeting. Fitzgerald was convinced that the LTAC facility would be profitable for the U.Va. Health System, but to get board approval, he would need to present an analysis that justified such a large undertaking. Because of the size and risk of the project, the LTAC hospital would need to have a profit margin well above the 5.0% level, and if it was to be debt-financed, he would need to show an adequate coverage of the interest expense. Finally, he would have to be ready to defend each of the assumptions used to create the financial projections, because the financial acumen varied significantly across the board members.

EXHIBIT 1 | Memo from Karen Mulroney

MEMO: Long-Term Acute Care Facility

Date: March 3, 2006

To: Larry Fitzgerald, Vice President of Business Development and Finance

From: Karen Mulroney, Analyst

Dear Mr. Fitzgerald,

After our meeting last week, I have developed the attached spreadsheet for the LTAC facility project. As you can see, I have most of the necessary assumptions in place to generate an operating profit, but more work needs to be done, and I have a few questions. What follows are my explanations about the key parts of the analysis.

VOLUME Metrics

We are assuming a 50-bed facility, which equals a capacity of 18,250 patient days. As with all LTAC facilities, the initial year is expected to have a low utilization rate (26%) until it is granted Medicare certification. Medicare will only provide certification if the facility can demonstrate that the average length of stay for patients is at least 25 days. If the facility is not certified, it will not be able to bill the LTAC rate for its patients on Medicare. Therefore, in the first year, we assume LTAC will be very selective by only admitting patients who are certain to stay for more than 25 days, which is why I have assumed 30 days as the average length of stay for Year 1. After the first year, I used 27 days, which is the national average length of stay for an LTAC facility patient.

For Year 2, I raised the utilization estimate to 60%, although a worst-case estimate is closer to 45%. For subsequent years, the utilization rate should increase 3% to 5% each year but will not be able to exceed 90% utilization. The utilization of the facility will be based on a number of factors including whether the facility is well received by the community, support from referring physicians, and hiring of hospitalists and nurses to ensure the facility runs smoothly and that patients receive exceptional care. Note that this version uses a 4% annual increase in the utilization, but we can easily reduce that if you want to see a more conservative scenario.

Total patient days for each year are computed as the utilization rate multiplied by the patient day capacity of 18,250 days. The next metric is the average patient census per day. Patient census measures how many patients the LTAC facility expects to serve on the average day. The average patient census is an important number because it is used to estimate how many full-time employees (FTEs) are needed to care for the patients. Due to the inefficiencies of the first year and based on the experiences of comparable LTAC facilities, we assume 4.8 FTEs are needed per occupied bed in the first year of operation. For subsequent years, we assume 3.5 FTEs will be needed as a reflection of operating at the efficiency level of an average LTAC facility.

EXHIBIT 1 | Memo from Karen Mulroney (*Continued*)

PAYER MIX metrics

Based on national trends and the local population demographics, we are confident that Medicare, Medicaid, and Indigent patients will represent 36%, 29%, and 2%, respectively, of our patient population. The "Commercial Payer Pool" and "Other"[1] were more difficult to estimate. The only information on this data is from for-profit hospital systems, and I am unsure if these numbers can be applied to a nonprofit organization such as U.Va. The data I found suggested commercial payers ranged from 20% to 28% of the mix with "Other" ranging from 5% to 13%.

NET REVENUE

Revenues for the LTAC facility are determined by patients' insurance policies. Medicare, Medicaid, Other, and Indigent categories are billed and paid per case. Those figures range from $28,000 to $38,000 per case. Commercial payers, however, pay based on the number days spent in the facility. Using current contracts and taking into account the mix of major commercial insurance carriers, we estimated an average billing rate of $2,800 per day.

I have also used historical data to estimate the annual billing rate increases for each of the payer categories, with commercial payers' rates increasing about 5% annually. Per our standard practice, net revenue is computed as total revenue less 1% to reflect noncollectable billings.

EXPENSES

Salaries, wages, and benefits for FTEs are estimated at $60,250 per employee with an increase of 3% per year, based on university and other local salary data. Supplies, drugs, and food for patient care are estimated as 16.3% of net revenues. Per your suggestion, I have included 8% of net revenues as the fees paid for managing the LTAC facility, which includes management salaries, billing, and overhead.

Operating expenses include utilities, minor equipment purchases and repairs, and legal and professional expenses. These costs were estimated to have a fixed component of $1.2 million and a variable component. The variable portion is estimated to range from 7% to 10% of net revenues.

The land for the LTAC facility will be leased for $200,000 per year. We have several bids from construction companies, all of which are close to an all-in cost of $15 million to build the facility. About half the construction will occur prior to the first operating year, and the balance will be spent in the first half of Year 1.

[1]The "Other" category included out-of-pocket and foreign patients, who were always difficult to estimate.

EXHIBIT 1 | Memo from Karen Mulroney (*Continued*)

Per your request, my final objective of the analysis is to compute a net present value and internal rate of return for the cash flows of the project. I recognize that in order to compute the cash flows, I will need to convert the above assumptions into revenues and costs, but first, I have a few questions:

1. It looks like we can get bank financing on the facility at 8.0%. This will be structured as a 30-year mortgage with monthly payments that include both principal and interest, which on an annual basis sum to $1.33 million. To calculate net profit, should I include the full amount as "interest expense," or should I segregate the interest and principal and only report the interest portion? When I worked in the for-profit world, we omitted interest expense because we wanted an "unlevered" cash flow (i.e., without financing cash flows). I assume that I should also compute an unlevered cash flow here for the NPV and IRR calculations, but I need to include interest expense to calculate a net profit, which I know the board wants to see.
2. Should I include depreciation of the facility as an expense? In my previous positions in manufacturing companies, we always viewed depreciation as a noncash flow, except for its impact upon taxes. Since this is a nonprofit entity that pays no taxes, would it be easier for me to just ignore depreciation?
3. You had instructed me to use 10 years as the time frame for the analysis, but the facility will last much longer, albeit with the benefit of significant renovations along the way. What should I show for cash flows after 10 years?
4. Are there any balance sheet effects for me to consider such as changes in working capital? Based on other LTAC facilities and the hospital, I would assume accounts receivable of 30 days, inventory of supplies, drugs, and food of 60 days, and accounts payable of 30 days. Would you be comfortable with these numbers?
5. What should I use as the discount rate to compute the NPV and to assess the IRR? I have compiled financial information for comparable publicly traded health care companies (**Exhibit 3**). I have also collected data about current yields on government and corporate bonds (**Exhibit 4**). Should I rely on these data to estimate a "market-based" cost of capital to use as the discount rate?

My notes from our January meeting indicate that you wanted this analysis completed by the end of February. I apologize for being late with this, but I have been busy analyzing the behavior of our receivables and payables balances for the hospital.

Any feedback you have on the attached projections would be greatly appreciated.

Sincerely,

Karen Mulroney
Analyst

EXHIBIT 2 | Karen Mulroney's LTAC Hospital Financial Projections

Assumptions	
Number of Beds	50
Year 1 Utilization	26%
Year 2 Utilization	60%
Utilization Increase after Year 2	4%
Commercial Payer Mix	24%
Commercial Payer Billing per Day	$2,800
Operating Variable Expense	7.0%

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
VOLUME										
Patient Day Capacity	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250
Utilization	26%	60%	64%	68%	72%	76%	80%	84%	88%	90%
Patient Days Used	4,745	10,950	11,680	12,410	13,140	13,870	14,600	15,330	16,060	16,425
Average Patient Census per Day	13	30	32	34	36	38	40	42	44	45
Average Length of Stay	30	27	27	27	27	27	27	27	27	27
Number of Patients per Year	158	406	433	460	487	514	541	568	595	608
Full-Time Employees/Census	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Full-Time Employees	62	105	112	119	126	133	140	147	154	158

INSURANCE PAYERS	MIX	Billing Rate		Annual Increase
Medicare	36%	$27,795	per case	0.0%
Medicaid	29%	$35,000	per case	1.3%
Commercial Payers	24%	$2,800	per day	5.0%
Other	9%	$38,500	per case	1.3%
Indigent	2%	$35,000	per case	1.3%

			Total Revenue
			Net Revenues
EXPENSES			**Annual Increase**
Salary, Wage, Benefits	$60,250	per FTE	3%
Supplies, Drugs, Food	16.3%	of net rev	N.Ap.
Management Fees	8.0%	of net rev	N.Ap.
Operating Expenses (fixed)	$1,200,000		N.Ap.
Operating Expenses (variable)	7%	of net rev	N.Ap.
Land Lease (annual rate)	$200,000		3%
Construction	$15,000,000		N.Ap.
			Total Operating Expenses
			–Interest Expense
			Net Profit

Source: Created by case writer.

EXHIBIT 3 | Financial Data of For-Profit Health Care Companies

	HCA Inc	Community Health	Health Management Associates	Manor Care	Triad Hospitals	Universal Health Services
Revenues (millions)	$24,475	$3,720	$3,580	$3,375	$4,805	$4,030
Assets (millions)	$5,222	$961	$997	$693	$1,458	$775
Total debt (millions)	$9,278	$1,810	$1,014	$857	$1,703	$532
Stock price ($/share)	$52.12	$39.73	$23.25	$39.49	$41.46	$49.03
Shares outstanding (millions)	452.7	88.5	247.2	78.7	84.8	54.6
Market cap (millions)	$23,593	$3,517	$5,747	$3,108	$3,517	$2,676
Bond rating	A	B	BB	BB	B	BB
Beta	0.60	0.60	0.70	0.80	0.60	0.60

- HCA Inc.—hospital management company; manages hospitals mainly in the Southeast and Texas.
- Community Health—operates general acute care hospitals in nonurban communities.
- Health Management Associates, Inc.—provides a range of general an acute care health services in nonurban communities.
- Manor Care—provider of health services with broad capabilities; operates skilled nursing facilities, subacute medical and rehabilitation units, outpatient rehab clinics, assisted living facilities, and acute care hospitals.
- Triad Hospitals—owns and manages health care facilities including hospitals and ambulatory surgery centers.
- Universal Health Services—owns and operates acute care and surgical hospitals, behavioral health centers, and surgery and radiation oncology centers.

Data Source: Value Line, December 2005.

EXHIBIT 4 | U.S. Treasury and Corporate Bond Yields for March 2, 2006

U.S. Treasury Yields*	
1-year	4.77%
5-year	4.72%
10-year	4.72%
30-year	4.73%
Corporate Bond Yields**	
AAA	5.31%
AA	5.38%
A	5.45%
BBB	5.88%
BB	6.79%
B	7.57%

*Data Source: http://federalreserve.gov/releases/h15/data.htm (accessed March 2006).

**Data Source: Bloomberg, "Fair Market Curve Analysis," 10-Year Corporate Bonds, March 2, 2006.

PART 5

Management of the Firm's Equity: Dividends and Repurchases