Case Study: Denison Specialty Hospital Part I

Denison Specialty Hospital is planning its master budget for the coming year. The budget will include operating, capital, cash, and flexible budgets. The hospital is noted for its three fine programs: oncology (cancer), cardiac (heart), and rhinoplasty (nose jobs).

Section A

The managers at Denison have been busy working. They have reviewed past records and considered changes in competition, the general economy, and overall medical trends. Using past charges and anticipated rates of medical inflation, they have also made a first attempt at setting their prices.

Based on a thorough review and discussion of these data, they have projected that next year they will have 240 patients. They expect 120 oncology patients, 80 cardiac patients, and 40 rhinoplasty patients.

The charge, or list price, for oncology patients will average $50,000. Cardiac patients will be charged an average of $40,000, and rhinoplasty patients, $25,000. However, those charges often are not the actual amount ultimately received.

The amount the hospital receives depends on whether patients pay their own hospital bills or have health-care insurance. Assume that private insurance companies pay the full charge or list price. However, Medicare and Medicaid have announced rates they will pay for the coming year as follows: oncology patients $40,000, cardiac patients $30,000, and rhinoplasty patients $10,000. Self-pay patients are supposed to pay the full charge, but generally 25 percent of Denison's charges to self-pay patients are not collected. Expected amounts that will not be collected reduce the amount of revenue reported. No payment for charity care is ever received, and charity care is not shown as a revenue or expense.

The payer mix is as follows:

	Private Insurance	Medicare/Medicaid	Self-Pay	Charity
Oncology	30%	50%	10%	10%
Cardiac	20%	60%	10%	10%
Rhinoplasty	10%	20%	60%	10%

Gift shop revenue is projected to be $120,000 for the current year and is expected to remain the same. However, this revenue will increase or decline in proportion to changes in patient volume.

Denison Hospital has an endowment of $1 million. It is invested as follows:

$500,000 in 6 percent US Government Bonds that pay interest annually
$250,000 in AT&T stock, which pays a dividend of 8 percent annually
$250,000 in growth stocks that pay no dividend

Section A Requirements:

1. Calculate patient revenue on an accrual basis for the coming year. Subdivide revenue by program, and within each program subdivide it by type of payer.
2. Calculate endowment revenue on an accrual basis for the coming year.
3. Prepare a revenue budget on an accrual basis, including all sources of revenue discussed previously. The revenue budget does not have to show all the detail from requirements 1 and 2, but should show each major source of revenue, such as patient services and endowment.

Section B
The hospital expects to employ workers in the following departments:

	Radiology	Nursing	Administration	Total
Managers	$ 100,000	$ 200,000	$200,000	$ 500,000
Staff	1,900,000	4,200,000	300,000	6,400,000
Total	$2,000,000	$4,400,000	$500,000	$6,900,000

Supplies are expected to be purchased throughout the year for the departments:

	Total
Radiology	$360,000
Nursing	160,000
Administration	20,000
Total	$540,000

Assume that all supply use varies with the number of patients.

Denison Hospital currently pays rent on its buildings and equipment of $300,000 per year. Rent is expected to be unchanged next year. The rent is paid $75,000 each quarter.

To better serve its patients, Denison would like to buy $500,000 of new oncology equipment at the start of next year. It would be paid for immediately upon purchase. The equipment has a 5-year life and would be expected to be used up evenly over that lifetime. Although the capital budget would normally include justification for why the equipment is needed, it is sufficient for our purposes to know that the capital budget for Denison is $500,000 and the equipment to be purchased has a 5-year useful life. It will have no value left at the end of the 5 years. Denison charges the cost of its capital acquisitions on a straight-line depreciation basis. That means that the cost is spread out over the useful life, with an equal share being charged as an expense, called depreciation expense, each year.

Section B Requirements:

1. Calculate an expense budget on an accrual basis for the coming year. The expense budget does not require detailed information by program or department but should show each type of expense such as salaries and supplies. Be sure to consider the impact of capital acquisitions on the expense budget.
2. Combine the revenue (Section A) and expense budgets to present an operating budget for the coming year.

Case Study: Denison Specialty Hospital—Part II

To complete the requirements in this section, use the information from both Parts I from last class and Part II (here).

Section C

The programs at Denison consume the services of departments as follows:

	Radiology	Nursing	Administration
Oncology	80%	50%	50%
Cardiac	15%	40%	35%
Rhinoplasty	5%	10%	15%

That is, oncology patients consume 80 percent of the services of the radiology department but only 50 percent of the nursing services provided.

Note that Denison classifies rent and depreciation as general expenses rather than assigning them to any specific department. However, if equipment can be specifically traced to a program, the depreciation on that equipment is charged to that program.

Section C Requirements:
In Part I, Section B, number 2, you prepared a line-item expense budget on an accrual basis. Prepare the expense budget again as a responsibility center budget, showing the projected costs for each department (radiology, nursing, and administration).
Prepare an expense budget with expenses shown by program (oncology, cardiac, rhinoplasty).

Section D

The hospital usually prepares a flexible budget as part of its annual master budget to assess the likely impact of patient volume variations on revenues and expenses.

The salaries of managers are all fixed costs. That type of expense does not change as patient volume changes. The staff salaries are variable costs (expenses) in all areas except in the administration department, where they are fixed. All salaries are paid in equal amounts each month. Variable salaries vary in direct proportion to patient volume. Supplies vary in direct proportion to patient volume.

Section D Requirement:
Prepare a flexible budget assuming patient volumes are 10 percent and 20 percent higher and 10 percent and 20 percent lower than expected. Also include the expected patient volume level in the flexible budget. Prepare the flexible budget before doing the cash flow budget in Section E.

Section E
Patients are expected to be treated and discharged throughout the year as follows:

Quarter 1	**Quarter 2**	**Quarter 3**	**Quarter 4**	
January–March	April–June	July–September	October–December	Total
30%	25%	20%	25%	100%

Historically, Denison has found that private insurance pays in full in the quarter after patient discharge. Medicare/Medicaid pays half of their discounted amount in the quarter after discharge and half in the following quarter. Twenty five percent of the charges to self pay patients are not expected to be collected. Of the remaining amount that is recorded as revenue, one-third is collected in each quarter for the three quarters following discharge. Also, charity care is never collected.

For simplicity, assume that the current year's patient flow, payment rates, staffing, and supplies purchases are the same as those projected in the budget for the coming year.

Supplies are expected to be purchased in the following months:

Quarter 1	**Quarter 2**	**Quarter 3**	**Quarter 4**	
January–March	April–June	July–September	October–December	Total
$150,000	$124,000	$138,000	$128,000	$540,000

The supplies are paid for in the quarter after purchase.

Assume that all interest and dividends on endowment investments are received on the first day of the seventh month of the year. Assume that gift shop revenue is received equally each quarter. (This may be an unrealistic assumption.) Assume that salaries are paid equally each quarter.

Denison plans to start next year with $50,000 of cash and likes to end every quarter with at least $50,000 in its cash account. If necessary, it will borrow from the bank at a rate of 12 percent per year. Each quarter it must pay interest on any outstanding loan balance from the end of the previous quarter. When it has extra cash, it repays its outstanding bank loan. If it has extra cash beyond that, it simply leaves it in its non-interest-bearing cash account.

Denison prepares its operating budget (revenues and expenses) on an accrual basis. The hospital expects to buy the oncology equipment as described in Part I of the case.

Section E Requirements:

1. Prepare a cash budget for the coming year. It will help if you prepare it in the following order:
   a. Determine patient revenues by quarter by type of payer for the coming year. That is, determine private insurance revenues for each quarter, Medicare/Medicaid revenues by quarter, and so on.
   b. Determine patient revenues by quarter for the current year. Since many payers pay with a lag, some of the coming year's cash receipts come from the current year's revenues.
   c. Determine patient cash collections by quarter for the coming year, using revenue information from Parts a and b above, and payment lag information provided in the narrative of the problem.
   d. Develop the cash budget by quarter.

   Start with the beginning cash, add cash receipts shown by source (e.g., patient revenue by payer, endowment). Calculate the available cash. (Note that it will be necessary to determine other cash receipts and payments by quarter. For example, determine how much is received from endowment each quarter and how much is paid for supplies.)

   Deduct cash payments by line item (e.g., salaries). Be sure to include interest payments. Assume Denison does not owe any money at the beginning of the year. Subtract cash payments (called disbursements) from available amount to get a subtotal.

   Based on the subtotal, calculate the amount to be borrowed or repaid. Combine the amount borrowed or repaid with the subtotal to get the ending cash balance for the quarter.

   Show loan payable amount on cash budget below the ending cash balance.

   It is easier to develop a correct cash budget if you work one quarter at a time.

2. Based on your cash budget, prepare a revised operating budget. That is, take

the operating budget Part I, Section B, Number 3, and incorporate the interest expense from the cash budget. Do not prepare a revised flexible budget.

3. As an advisor to Denison Hospital, you are certain of one thing: The board of trustees of the hospital will not approve a budget that projects an operating deficit. If the operating budget projects a deficit, what do you suggest that Denison do about it?