Laboratory Management of a Quality System

Module 11: Financial Management of the Laboratory

Learning Objectives

- Describe the components of a laboratory budget
- Define ways of monitoring and decreasing expenses in a laboratory

ACKNOWLEDGEMENT

- Ministry of Health and Social Welfare – Tanzania
- Muhimbili University of Health and Allied Science
- World Bank
- ECSA- HC

Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

The Laboratory Budget

- The Laboratory Budget is a planning tool that reflects projected revenues, expenses, and operating margin
  - Margin (net contribution) = revenue – expenses
- There are two components to the budget
  - Capital
  - Operating

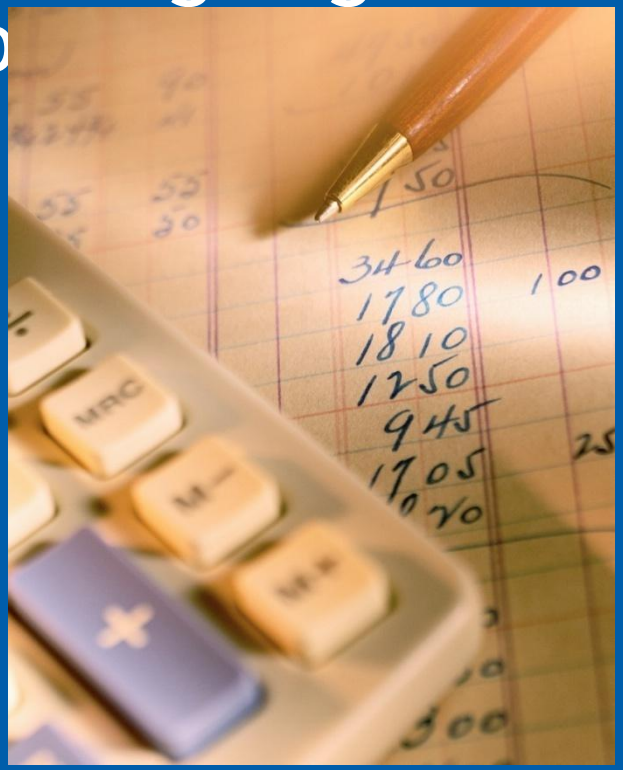
Any questions so far?

Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

The Operating Budget

- The operating budget is for ongoing expenses of operations, fo
  - Personnel Expense
  - Laboratory Supplies
  - Blood Expense
  - Reference Lab Testing
  - Leases
  - Depreciation
  - Courier Costs
  - Service Contracts



Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

The Capital Budget

- Large one-time expense items greater than $1000
  - Example – equipment, renovations
- Hospitals/Health Centers have fixed capital budget
  - Includes instrument purchases, furniture, renovations, LIS, refrigerators, and most other laboratory equipment
- Must justify carefully by identifying the goals for new programs and projections for future workload.

The Capital Budget (continued)

- Categories of Capital Budget Items
  1. Capital expenditures necessary for continuance of present service or new equipment required for volume growth
  2. Capital items that represent a cost savings for profit with the present service volume and mix.
  3. Capital items that represent an improvement in the quality of effectiveness for present services
  4. Capital items related to new programs or improvement fo existing programs

The Capital Budget (continued)

- Write the business plan including:
  - Initial outlay
  - Estimate of future revenues and expenses
  - Return on investment (ROI)
- Link capital to expense budget

Capital Equipment Justification

- **Support Documentation for High-Cost Budget Items**
  1. A statement of the general purpose of the item
  2. A statement of the importance of the item
  3. Some measure of expected use of the item
  4. A description of availability of the same or similar items or services available elsewhere
  5. An estimate of patient care benefits, the number number who will benefit, and the basic characteristics of the population served by the item.

Capital Equipment Justification (continued)

- **Support Documentation for High-Cost Budget Items (continued)**
  6. An estimate of the expected life of the item
  7. An estimate of all costs associated with the acquisition of the item
  8. An estimate of yearly cash outflows associated with the item
  9. An estimate of yearly cash inflows or savings associated with the item

Capital Equipment Justification Methods

- Net present value (NPV) analysis, payback period, or critical to laboratory operations
- NPV analysis
  - Analyze cash outlay
  - Analyze cash recovery (revenue, labor savings)
  - Depreciation
  - Must be positive

Capital Equipment Justification Methods (Continued)

- Payback Period/ROI
  - Time to repay original capital cost
  - Time value of money not considered
  - Example –
    - The purchase cost is $200,000
    - The instrument generates $40,000
    - What is payback period?

Exercise – Which Budget?

- On which budget would you find each item?
  - Salary for new lab technician
  - Cost for repairs to Hematology analyzer
  - Monthly phone / fax expenses
  - Cost for new BD Facscount analyzer
  - Invoice for 1,000 test tubes and 5,000 gloves
  - Renovations and expansion of lab size
  - Laundry expenses / replacement lab coats

Any questions about the Operating Budget or the Capital Budget?

Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

Laboratory Costs

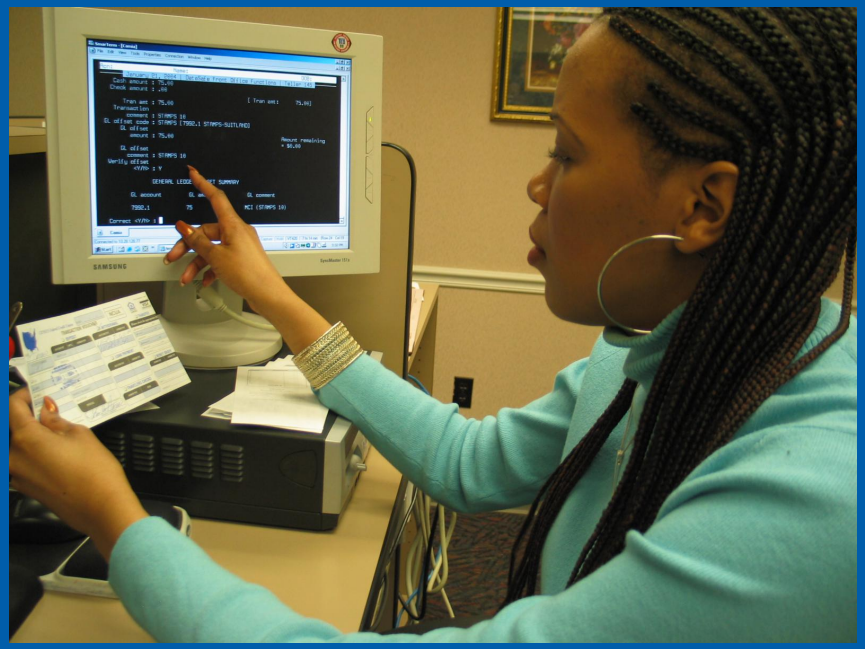
- Budgets help anticipate and contain costs
- Costs are divided into cost categories
  - Direct Cost
  - Indirect Costs
  - Overhead Costs
  - Fixed Cost
  - Variable Cost

Laboratory Costs (Continued)

- Direct Costs
  - Cost associated with a particular service or production cost
    - Reagents/Supplies
    - Technician/ Technologist Salaries
    - Supervisory and clerical personnel

Laboratory Costs (Continued)

- Indirect Costs
  - Cost associated with many services and products
  - Cost not directly traceable to the test
    - Building and equipment maintenance
    - Utilities
    - Housekeeping
    - Purchasing



Laboratory Costs (Continued)

- Overhead Costs
- Costs that do not contribute to revenue
  - Utilities
  - Administration of hospital

Laboratory Costs (Continued)

- Fixed cost
  - Cost that does not change with volume
    - Manager's salary
    - Custodial wages
    - Depreciation of plant and equipment

Laboratory Costs (Continued)

- Variable cost
  - Costs that change proportionately with a change in volume
  - Increases/decreases with volume
    - Testing reagents
    - Phlebotomy
    - Supplies
  - Step variable cost – varies with volume, but not in direct proportion to volume

Exercise – What type of cost?

- What type of cost is each item?
  - Salary for new lab technician
  - Lease for a new Hematology analyzer
  - Monthly phone / fax expenses
  - Invoice for 1,000 test tubes and 5,000 gloves
  - Service contract on new analyzer

Cost Accounting

- Two Models
  - Job order costing – accumulate all costs for a single test; more accurate but demanding
  - Process costing – accumulate all costs and then divide by units produced; less accurate but easier

Cost Per Test Evaluation

- Used to compare analyzers being considered, to determine prices, and to evaluate operational changes like batching tests or sending a test to a reference laboratory
- Include all direct and indirect costs of producing the test including calibrators, controls, and repeat tests

Cost Per Test Evaluation (Continued)

- Example:
  - Total fixed cost for the test system are $300 and total variable expense is $1 per test.
  - Your monthly volume is 100.
  - Total cost is $300 plus $1x100 = $400.
  - Cost per test - $400 divided by 100 = $4.00

Full Test Cost

- Direct:
  - Labor (variable and fixed)
  - Materials (supplies, reagents, disposables)
  - Equipment (lease, rental, or purchase depreciation)
  - Equipment service and maintenance
- Indirect:
  - Laboratory overhead
  - Hospital expense allocation

Make vs. Buy Decisions

- Produce test (Make) or send-out (Buy) to reference lab
  - Send out should be considered if send out costs less; if TAT is better; if valuable testing personnel time is used; if expertise does not exist
- Perform instrument maintenance internally (Make) or buy vendor service contract
- Grow your own staff (Make) or buy from other institution/agency

Group Work

- Work in pairs of two and decide what you would do and why?
- Last year your lab spent 12,000,000 TSH to send out a test to the national reference lab. To do the test internally, your full test cost is 52,000 TSH. The number of tests have increased over the last 3 years and averages about 200 tests per year. Your staffing is limited but could probably absorb the testing.

Any questions about Laboratory Costs?

Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

Variance Analysis

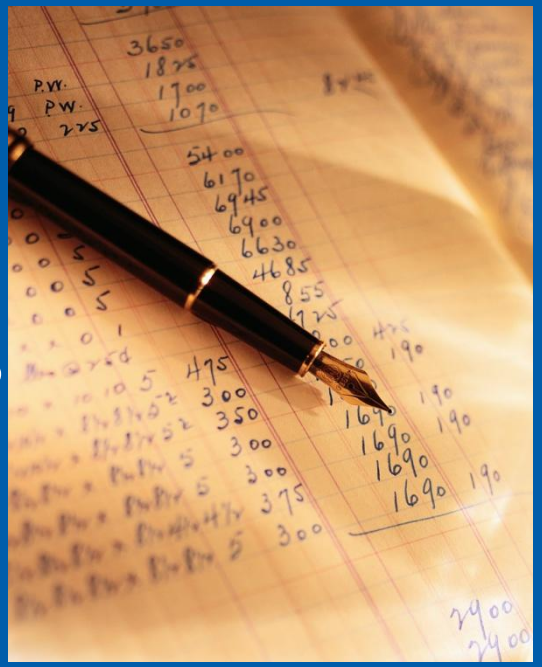
- Variance analysis is the comparison of the deviation of actual costs to budgeted or expected standard costs.
- Materials and labor variances can be computed for each materials (reagents, supplies, consumables) item and for each labor operation.

Variance Analysis

- Monitor revenue and expenses monthly
- Identify any significant dollar and % variances from the budget (plus or minus 5%)
- Verify budget numbers – verify expenses carefully
- Gather data and identify cause of variances
- Take corrective actions if possible

Causes of Budget Variances

- Posting errors
- Billing errors by vendors
- Staffing problems/overtime
- Volume increases or decreases
- Bulk purchase
- Unanticipated purchase
- Supply Losses/Expiration
- Large expense realized in one month



Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

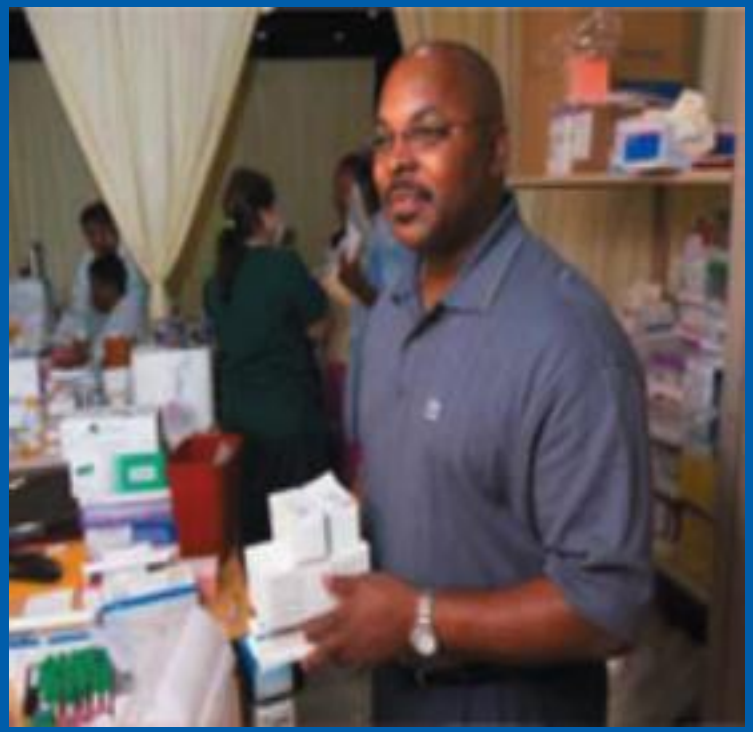
Expense Reduction Strategies

- High quality testing with reduced repeats, errors (higher quality costs less)
- Automation of testing
- Computerization of tasks
- Workstation consolidation
- Staff cross-training
- Good scheduling with high productivity
- Control of overtime and extra hours

Expense Reduction Strategies

(Continued)

- Turnaround time management
- Reduce use of controls where possible (no over-control on highly accurate, precise instruments)
- Streamlining processes
- Reduce/eliminate waste
- Volume discount on reagents
- Careful inventory control



Financial/Productivity Monitors

- Total tests per full-time employee (FTE)
- Total tests per worked hour
- Total supply expense
- Supply expense/test
- Staffing expense/test
- Total expense/test

Today's Agenda

- The Laboratory Budget
  - The Operating Budget
  - The Capital Budget
  - Laboratory Costs
- Monitoring Laboratory Expenses
  - Variance Analysis
  - Expense Reduction Strategies
- Module Summary

Module Summary

- There are two types of budgets: Operating and Capital
- Budgets are used to anticipate and contain laboratory costs
- Cost information can be used to make better financial management decisions for the lab
- Financial information can be used to benchmark and measure overall laboratory productivity.

What questions do you have on Financial Management of the Laboratory?

Thank you