

GAHE 2021 Tutorial

Review of Accounting & Finance (Part 2)

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Topics for Today

- Cost Accounting
 - Fixed Vs Variable costs
 - Direct Vs Indirect costs
 - Cost Allocation
 - Budgeting
 - Capital Structure
 - Capital Budgets
 - Return on Investment
 - Revenue Cycle
 - Reimbursement
 - Productivity Measures
 - Financial Controls and Auditing Principles
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- Parts of this presentation are based on GAHE BOG 2019 tutorial by Prof Robert Eaton

Managerial Accounting (Cost Accounting)

- For Internal Users
- Financial Statements and information useful for
 - Decision-making
 - Starting New Services
 - Service line Profitability and Termination/Discontinuation of services
 - Change of scope
 - Pricing Policy
 - Capital Investments & Debt
 - Measuring performance
 - Benchmarking

“Types” of cost

- Fixed
 - For particular scope/range
 - Over period of time
- Variable
 - Varies with volume
- Semi-Fixed /Step function/ Variable Step
- Concept of “Sunk cost”

Some Cost Calculations

- BOG Exam questions on calculating
 - Average cost
 - Variable cost
 - Contribution margin
 - Break even

Formulae

- Fixed costs are “fixed” over the total volume served or period of time
- Variable cost varies based on per unit served
- Volume of patients served is V
- **Total Cost (TC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)**
- Average cost = TC / V
- **Contribution Margin (CM) = Reimbursement – Variable cost**
- Break Even point (Quantity) $BEQ = TFC / CM$

Example

- MRI cost of equipment = \$2 Million
- MRI cost of operations= \$50(labor) + \$25 (supplies & utility)
- Volume (V) served 1000 patients
- Total Cost (TC)= Total Fixed Cost (TFC) + Total Variable Cost (TVC) = \$2,000,000 + (1000 X (50+25)) = \$2,075,000
- Average cost = $TC / V = \$2,075$ per patient
- Contribution Margin (CM) = Reimbursement – Variable cost
- Reimbursement = \$2,100 per MRI
- Contribution Margin = $2100 - 75 = \$2,025$
- Break Even point (quantity) = $TFC / CM = 2,000,000 / 2025 = 987.65 = 988$ patients

Other Approach to “costs”

- Direct Costs
 - Costs which can be clearly associated with provision of (patient) services
 - E.g.: Salary & wage costs of radiology technicians
- Indirect Costs
 - Costs which cannot be directly associated with specific patient services
 - E.g.: Salary & Wages of Patient Billing department
- Total Cost = Direct + Indirect Costs

Cost Accounting Basics

- Direct Costs can be directly associated with the activities
- Indirect Costs: are allocated to other departments based on a “statistic”/ “denominator”
- **Control Unit** - the responsibility center, generally referred to as *departments* of the health care organization
- **Responsibility Center** – unit where costs or revenues are allocated, which receive resources or inputs and produce services or outputs; the focus of management control efforts
- **Cost Center**: Manager has control over spending, but not revenue (usually costs are allocated to profit centers)
- **Profit Centers** a.k.a. **Revenue Centers**: Manager has responsibility for revenue and costs
- “Simplified” Process of cost allocation
 - Identify Direct and Indirect Costs in revenue centers
 - Identify indirect costs in other supporting departments/cost center and appropriate “statistic” for such cost center
 - Allocate such indirect costs to revenue generating cost centers proportionately based on a statistic

Cost Accounting Basics (Continued)

- What is appropriate statistic?
 - Medicare Cost Reports have specific regulations for such statistics
 - E.g.: Cost of EVS (housekeeping) may be allocated based on floor space (sq. ft.)
 - Medicare Cost Report methodology also provides rules regarding “step-wise/Step-down” cost allocation
- Other Methods of cost allocation
 - Proportion of direct operating costs
 - Proportion of direct revenue
 - Reciprocal Method
 - services provided by one department to another & vice versa
 - Activity Based Costing (ABC)

Cost Accounting (in real world)

- Why do we care?
 - Medicare Cost report
 - Cost based reimbursement
 - For Planning
 - Future Investments, Growth & Discontinuation
 - Budgeting
 - From Operations point of view
 - Provides a more accurate view service line/departmental profitability
 - For example:
 - Traditional departmental statements utilize “gross charges” as the revenue.
 - Often “radiology” appears highly profitable and “inpatient” appears as the loss leader.
 - Further exacerbated by “total cost” based cost allocation
 - Accurate cost accounting (reciprocal method/ABC) can demonstrate this to be a “myth”.

Managerial Accounting (Example)

Departmental Income Statements- Departmental Profit/Loss

Traditional Departmental Income Statements

	<u>Uncorrected Income from Operations</u>
ER	(115,888)
Nursing	(2,383,096)
Surgery Clinic	(346,073)
Rehab Services	(197,645)
EMS	(128,019)
Pediatrics Clinic	(116,738)
OR	540,879
Family Practice Clinic	(71,597)
Oncology	(57,160)
Respiratory	382,571
Wellness	(17,648)
Cardiac Rehab	(1,291)

Managerial Accounting Income Statements

<u>Department</u>	<u>Calculated Contribution</u>
ER	(966,747)
Nursing After rebates	(540,765)
Surgery Clinic	(471,736)
Rehab Services	(465,646)
EMS	(314,497)
Pediatrics Clinic	(312,863)
OR	(292,774)
Family Practice Clinic	(180,864)
Oncology	(83,917)
Respiratory Therapy	(49,232)
Wellness	(17,648)
Cardiac Rehab	(11,007)

Budgeting

- **Purpose:**

- Planning for activities
- Coordinating activities & aligning different levels of organization
- Communication (direct & implicit)
- Measuring outcome of activities
- Motivate personnel (incentive based payments)

- **Types**

- Statistics
- Revenue
- Expense
- Operating
- Cash

- **Budget Cycle**

- Starting point: Statistical budget and planned activity level
- **Important to decide “what is the goal/objective/target”**
- Projected Revenue
- Projected Expenses
- Operating Budget
- Cash Budget
- **Proforma** Balance-sheet, Income Statement and statement of cash flows

Budgeting Methods

- Strategic Plan-->
Strategic Financial Plan-->
Annual Budget -->
Project specific budget
 - Bottom-up
 - Top-down
 - Actual
 - Static
 - Flexible
 - Variance analysis
 - Comprehensive versus limited-in-scope
 - “Continuous budgeting”
- Program budgeting
 - E.g. At service line level
 - Focus is on “outputs”
 - Incremental
 - Past year +
 - Assumes past year was correct
 - Focus is on “inputs”
 - Zero-Base Budgeting
 - Annual justification for every expenditure
 - Lengthy, costly process
 - Standard-Cost budgeting
 - Use cost of each “unit” delivered based on history and industry standards
 - Lengthy, costly process

Financial Management

- Purpose: Manage the assets and make capital decisions to optimize use of assets
- Understanding difference between “accounting costs” and “economic costs”
 - Opportunity costs – benefits given up by not selecting the next best alternative
 - Incremental (marginal) costs – Out-of-pocket costs that will change if and only if a decision is made
 - Sunk cost – costs not changed by the decision under consideration
- Capital Structure
 - Debt & Equity
 - **Financial risk** is the additional risk placed on the firm when debt financing for capital projects is used
- Sources and Uses of funds (capital)
- Uses
 - Operations (CFO)
 - Depreciation
 - Capex
- Sources
 - Operations (CFO)
 - Debt
 - Equity (rare in NFP)

Capital Structure Basics

- Sources of Capital (funds)
- Debt
 - Short Term Debt
 - Line of Credit
 - Long Term Debt
 - notes, (capital) leases, bonds
 - obvious interest rate
- Equity
 - Starting capital
 - Retained Earning (Fund Balance)
 - *Equity Issuance (not in NFP)*
 - for NFP- implicit ROE
- *Other sources (credit from vendors, preferred equity, other creditors)*
- Philanthropy
 - Restricted/Unrestricted
- *Operating Leases*
 - *Generally more expensive*

Debt & cost of debt

- Short Term Debt usually used to “finance” cash fluctuations
- Use of ST Debt reduces liquidity
- Drivers of debt cost:
 - Market conditions (inflation, COVID?)
 - Default Risk (organization level and investment level)
 - Securitization
 - Liquidity of loan
 - Call options
 - Term of loan
- Not for Profit vs. For Profit
 - Tax Exempt Municipal bonds vs. taxable bonds
- Increase risk => Increase interest rate
- Issuance of Debt called “levering up” increases “riskiness of the organization”
- Why? Possibility of not meeting liquidity or solvency needs
- Defeasance (paying off) of Debt decreases risk
- Bond Rating: measure of riskiness
 - Operations (historical & future)
 - Debt Vs Equity
 - Stability over years
 - Management Effectiveness
 - Market Factors

More on Cost of Capital

- How to determine “average” Debt Rate?
 - Weighted Average of Debt outstanding & interest rate for each debt instrument
 - Based on incremental debt rate/ “locked in” rate/ Interest Rate Swaps
 - Industry standard / Bond Rating
- How to determine ROE?
 - Not For Profit **DOES NOT** mean “Equity is free” (Opportunity cost)
 - **Capital Asset Pricing Model** (CAPM)
 - $ROE = \text{Risk Free Rate (e.g. US treasury) } (R_f)$
 - + Beta X Market Rate of Return (R_m)
 - + Size Premium (*smaller businesses are riskier*)
 - + Company Specific Premium

WACC- Weighted Average Cost of Capital

- A commonly used discount rate
- “hurdle rate” for new investments
- ROI = WACC implies the investment does not change the risk profile of the organization
- Inputs
 - Debt Rate
 - Equity Rate
 - Ratio of Debt /Equity (capital structure)
- Formula:
$$WACC = \frac{\text{Rate of Debt} * (1 - \text{Tax Rate}) * \text{Debt}}{\text{Value}} + \frac{\text{Rate of Equity} * \text{Equity}}{\text{Value}}$$
- Value = Debt + Equity

Capital Budget

- Prioritized Capital requests
 - Operating Needs (Funded depreciation)
 - Market Demand
 - Community Needs (CHNA- community health needs assessment)
 - Strategic Plan
- Cash Flow planning for Capex
- Capital Rationing: Deciding which projects will be funded

Refresher in Depreciation

- Capital Assets (Fixed Assets, Capex)
 - Land (**does not depreciate!!**--- may be Impaired!)
 - Buildings
 - Equipment
- >1 year useful life
- Not for resale
- Depreciation
 - Straight Line
 - Based on “useful life” (economic life)
 - ABC- based on usage
 - Capital Budget /Plan should include planned replacement of capital assets based on useful life
 - Age of Plant
 - *Planned “aging” of plant (purpose – conserving cash/reducing leverage)*
 - *Accelerated Depreciation (mostly for Tax purposes)*

Capital Decisions/Project Planning

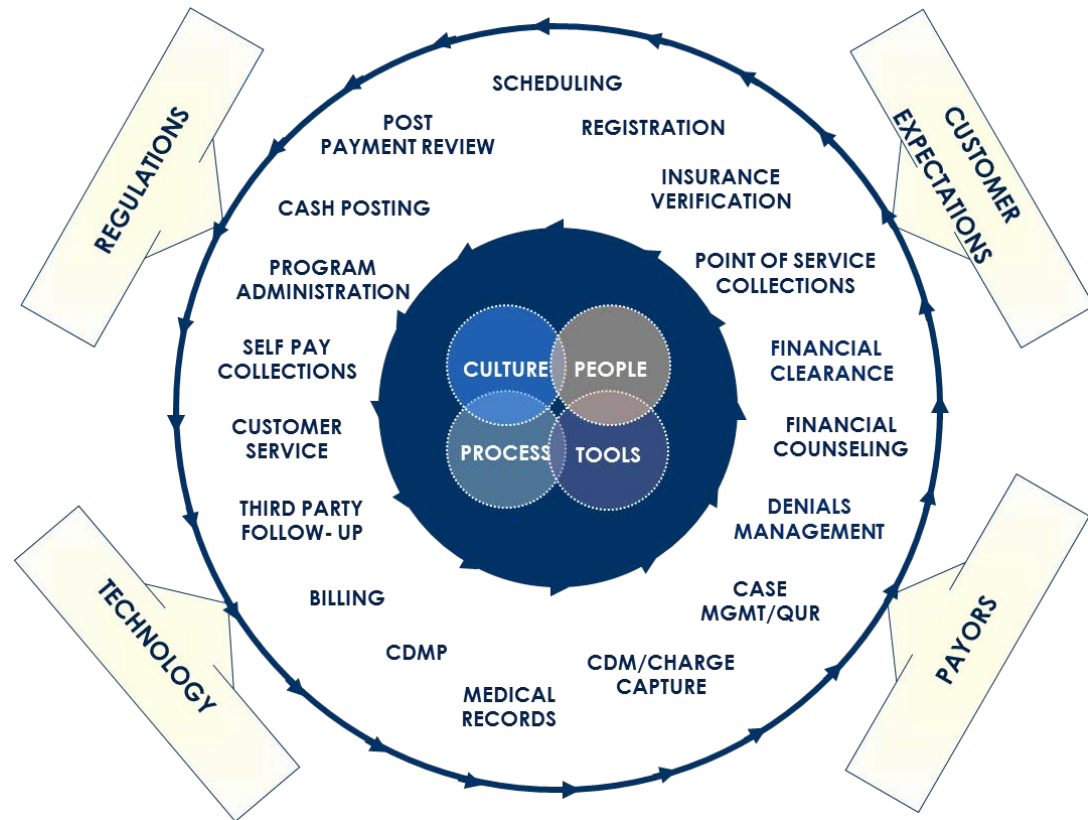
- Funded Depreciation (continuing operations)
- New projects (process)
 - Return on Investment (ROI) to estimate financial impact
 - Proforma CFO (cash inflow & outflow)
 - Projected Volume, Revenue, (cash) Expenses
 - Match “timing of cash” inflow & outflow
 - Capital Purchases
 - Facilities, Equipment, etc.
 - Determine “Discount Rate”
 - Matching the “future benefit stream” with “discount rate”
 - Enterprise free cash flow (unlevered) can be discounted using WACC
 - Cash flow to equity discounted using ROE (return on equity)
 - Impact of Taxes

Methods of determining ROI

- Net Present Value (NPV)
 - = Sum of future cash flows discounted to present value using appropriate discount rate
- Pay back period
 - How soon will cash invested be recovered
 - Limitation – doesn't account for time value of money
 - **Discounted** payback period
- IRR- Internal Rate of return
 - **Discount factor which makes NPV = Zero**
 - Internal or external benchmark for comparison
- Less Common for BOG
 - PI-profitability index
 - EAA-effective annual annuity
 - Excess (economic) Returns

Revenue Cycle

- The Healthcare Financial Management Association defines revenue cycle as “all administrative and clinical functions that contribute to the capture, management, and collection of patient service revenue.”



Source: www.centralohiohfhma.org/presentations/Revenue%20Cycle%20101.ppt
through GAHE BOG Tutorial –Finance Section by Prof Robert Eaton

Accounts Receivable (AR) Management

- **Goal:** Minimize **days in AR**
 - Accurate Information
 - Clean Claims
 - Denial Management
 - Lock box to process payments
- Why?- Cash

Reimbursement

- Cost-based reimbursement (CAH)
- Prospective Payment System (PPS)
- Charge-based reimbursement (% of charges- commercial payers)
- Per-procedure reimbursement (fee schedule)
- Per-diagnosis reimbursement (DRG)
- Per diem reimbursement (long term care)
- Bundled payment (per “total care of particular episode”)
- Capitation (Fixed payment for a population of patients)

Reimbursement (Some terms)

- DRGs: Diagnosis Related Groups (Inpatient Hospital Services)
 - ICD **International** Statistical **Classification** of **Diseases** and Related Health Problems (WHO- World Health Organization)
 - ICD 10 -10th Revision, ICD 9 – 9th Revision
- RBRVS: Resource Based Relative Value Scale (Physician Services) –
 - RVU (relative value unit): Important for physician productivity & compensation
- CPT® (Current Procedural Terminology)- AMA- American Medical Association
- HCPCS: a coding system that expands the CPT system to include non-physician services and durable medical equipment.
- APCs: Ambulatory Payment Classifications (Outpatient Hospital Services)
- RUGS: Resource Utilization Groups (Swing Beds & Skilled Nursing Facilities)
- HHRGS: Home Health Resource Groups
- Charge Master/ Charge Description Master: a list of all services and items for which a firm has established specific rates/prices.
- Charge Capture: (Remember: Accrual Accounting)
 - Old world: Each service/item had a “paper charge slip” (Charge capture sheet), batch processed
 - Modern day: mostly automated, use of barcodes, RFID, etc.
 - Important to estimate actual “cost of providing service”
- Cost to Charge Ratio

Quality Based Payments

- **Gaining momentum since Accountable Care Act (ACA)**
- Value Based Purchasing (VBP) program
 - Medicare program
 - Commercial equivalents
- Penalty Only programs
 - Hospital Acquired Conditions (HAC)
 - Readmission Reduction Program
- Bundle Payments
 - Disease/condition specific such as Total Joint Replacement
 - Voluntary Vs Mandatory
- Accountable Care Organizations
 - Shared Savings
 - ACO tracks
 - <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/about>

Productivity Measures

- Healthcare is a “service industry”. Largest cost item is “labor”
- Productivity in the health care industry seeks to match labor (supply) to associated cost to actual patient volume (demand).
- Benchmarking versus
 - Historical (self)
 - Industry standards (e.g. Optum, Truven/IBM Watson)
 - Target (engineered)
- Hours Per Patient Day
- Cost Per Patient Day
- FTE per **Adjusted** Occupied Bed
 - Full-time Equivalents per Adjusted Occupied Bed is on one of the most common hospital overall productivity metrics. Also occasionally referred to as simply EPAOB (employees per adjusted occupied bed)
 - per adjusted daily census
 - Per occupied beds (inpatient only)
 - Per unit of service (e.g. lab test, radiology tests, etc.)

Productivity Measures Formulae

- FTE per **Adjusted** Occupied Bed *adjusted for CMI*

$$= \frac{FTE}{Adjusted\ Occupied\ Beds}$$

Adjusted Occupied Beds

- $$= \frac{Inpatient\ Days \times \frac{Total\ Gross\ Revenue}{Inpatient\ Gross\ Revenue}}{Days\ in\ Fiscal\ Year}$$

- Hours Per Patient Day
- Cost Per Patient Day

Financial Controls and Auditing Principles

- Financial and management controls are supported through an integrated financial planning process.
- A strategic financial plan and a well-prepared budget are examples of some of the most basic financial controls.
- Financial ratios can be useful in this regard – assessing financial controls and key plan target setting.
- Cost accounting and management control are closely integrated.
- These controls are important functions to the financial viability of a health care organization.
- Source: SC BOG Exam tutorial 2017

Financial Controls and Auditing Principles

- A good information system which supports and enables effective decision-making is a critical component of good financial controls.
- Effective financial controls are essential to the credibility of both financial and operational leadership
- The role of trustworthy and reliable financial information in the decision-making processes of a healthcare organization cannot be overstated.
- All effective healthcare decision-makers must rely heavily on being financially literate along with having information that can be trusted.
- Basic financial controls and good, transparent information have been referred to as “protection against failure” for the organization.

- Source: SC BOG Exam tutorial 2017

Financial Controls and Auditing Principles

- An example of basic financial controls is the segregation of certain duties in handling cash or cash equivalents.
- Another effective financial control for accountability is a basic budget and financial plan involving leaders at all levels of the organization.
- The governing board, through its finance and/or audit committee authorize and request the external financial audit of the organization.
- The audit uses a system of checks and balances to assist management and other associates by detecting departures from mission, vision and values
- High-performing health care organizations have voluntarily implemented the more stringent external standards of the Sarbanes-Oxley Act, which calls for greater protection against fraudulent diversion of assets and more complete disclosure of actual performance.
- Source: SC BOG Exam tutorial 2017

Thank you