

Actuarial Science and the CCRC

A Useful Framework for Making Decisions

by

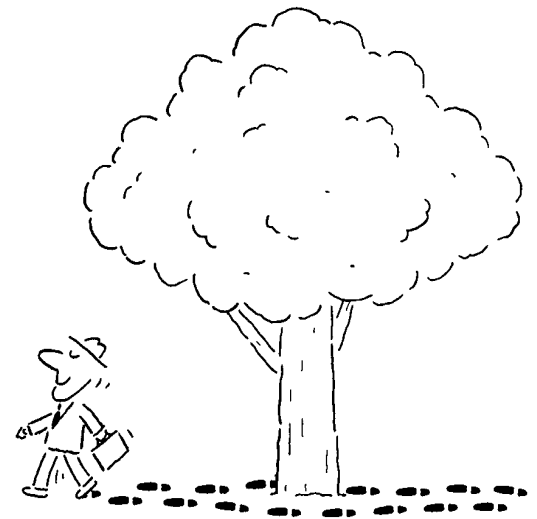
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Our Presentation Process

- ◆ Review learning objectives
- ◆ Case studies
- ◆ Predictions for the future
 - an interactive discussion

Learning Objectives

- ◆ How do we assess financial condition?
 - Credit-worthiness
 - Contract design
 - Mergers and acquisitions
- ◆ What information is needed for financial assessments in addition to GAAP?
 - Long-range financial planning
 - Planning for charitable needs

Learning Objectives (con't)

- ◆ Can we improve the resident underwriting process as it relates to contract selection?
 - Long-range financial planning
 - Health care utilization
- ◆ What types of data will the CCRC need in 2010?
 - Health care utilization

Case Studies

- ◆ Credit-worthiness
- ◆ Long-range financial planning
- ◆ Health care utilization
- ◆ Planning for charitable needs
- ◆ Contract design
- ◆ Mergers and acquisitions (appraisals)

Credit-worthiness

◆ Situation

- An experienced operator wants to develop a “green field” CCRC at lowest financing rates

◆ Process

- Actuarial feasibility study needed to obtain approvals from letter-of-credit banks

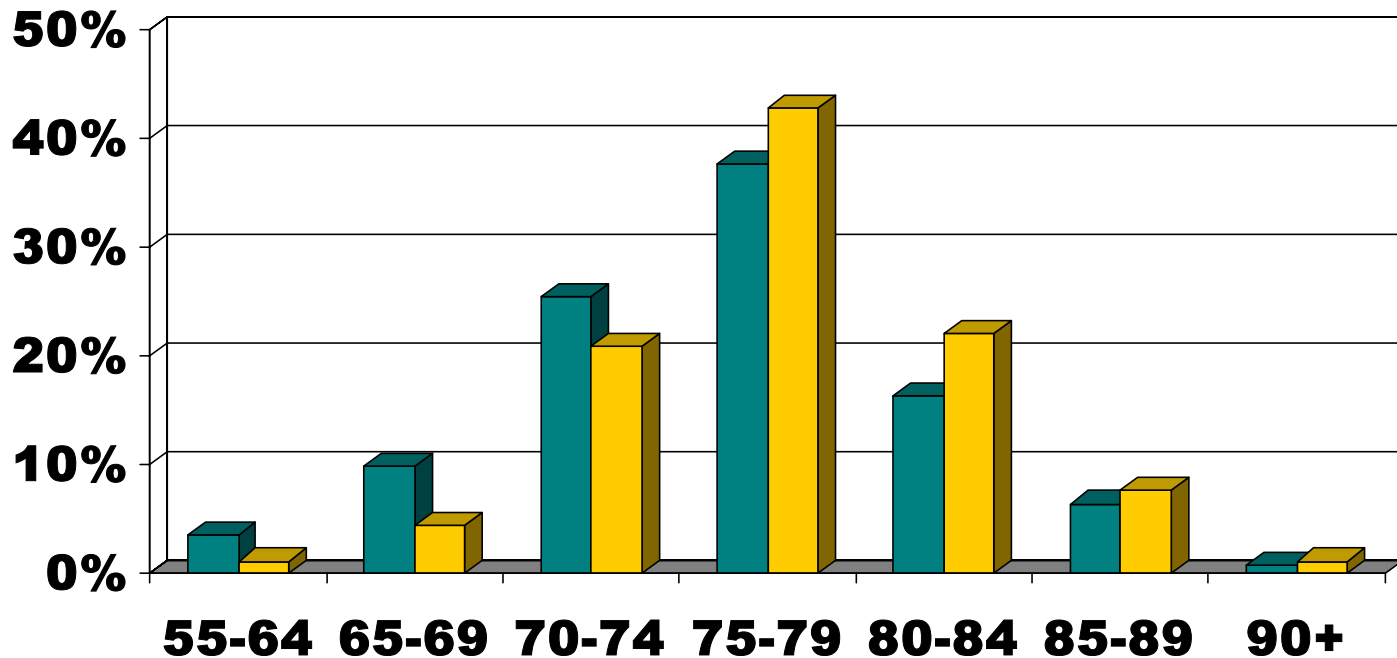
◆ Results

- \$100M financing with 100% variable debt

Credit-worthiness: Process

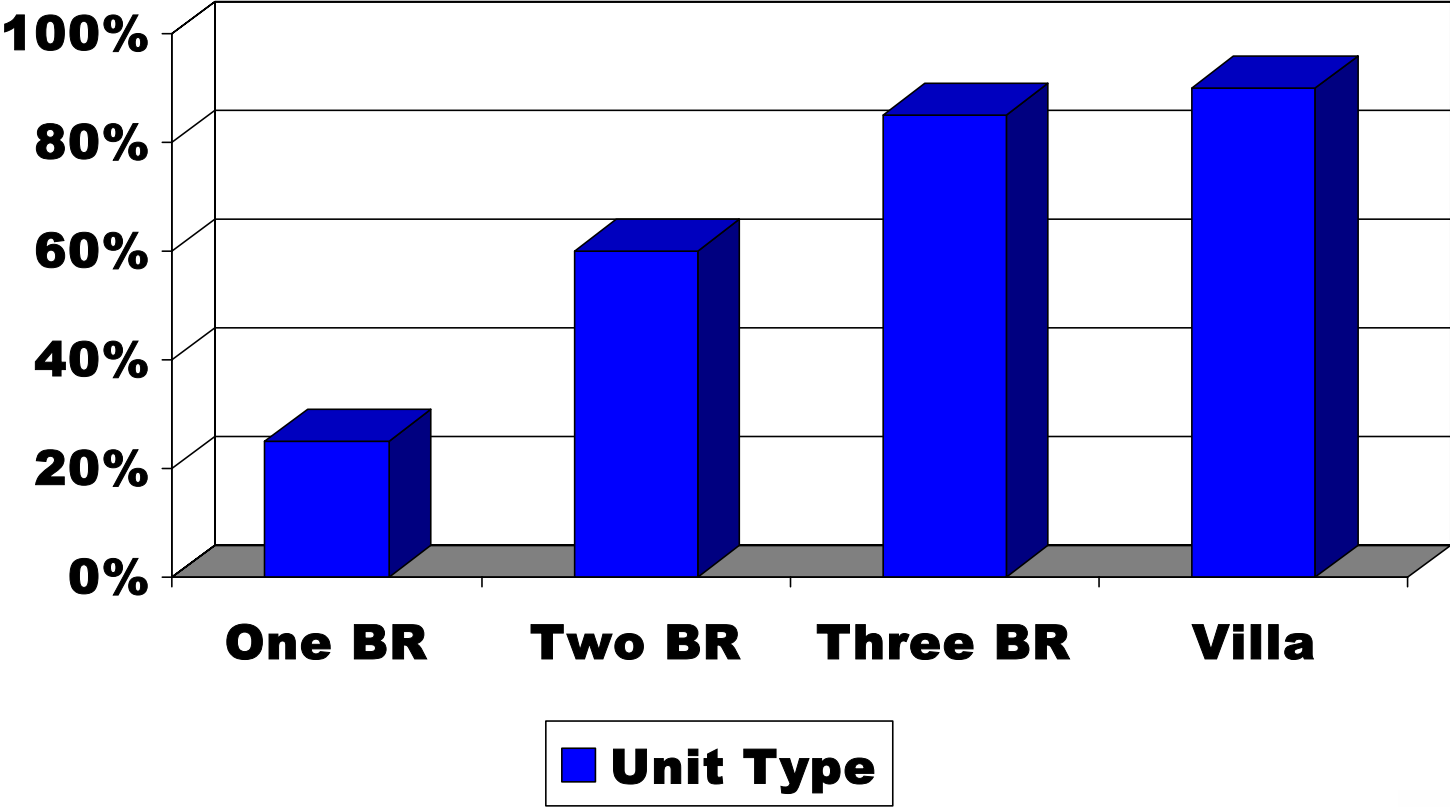
- ◆ Collect demographic data on pre-sales
- ◆ Review operational statistics thru fill-up
- ◆ Obtain financing sources and uses of fund
- ◆ Actuarial test adequacy and “equity” of fees for various contract options
- ◆ Test ability to meet financing covenants
- ◆ Make final pricing recommendations

Entry Age Distribution

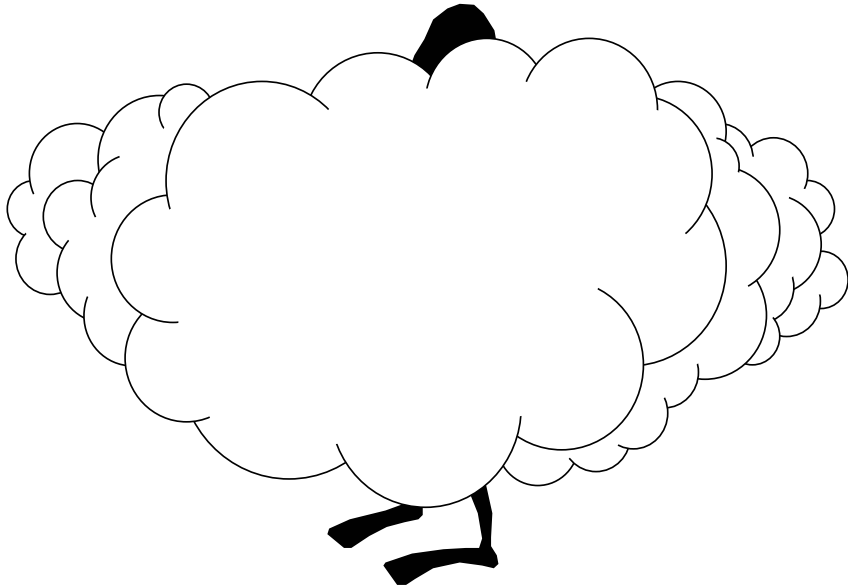


■ Female Avg=76.3 ■ Male Avg=77.9

Double Occupancy Percentage



Uncloaking the Actuarial Black Box



- ◆ CCRCs are really small managed care (insurance) companies
- ◆ Entry fees are simply a prepayment of future monthly fees

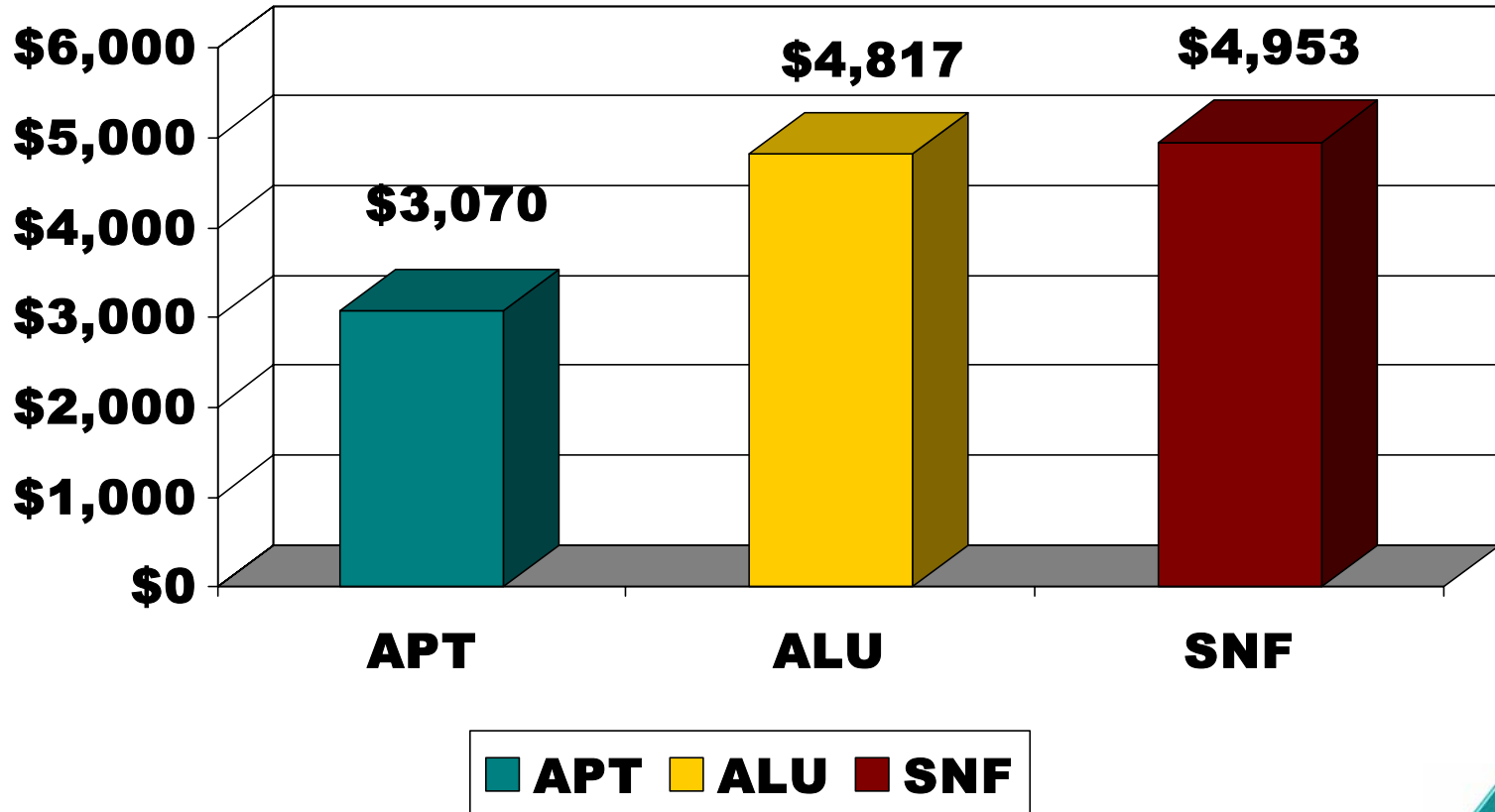
Simple Actuarial Model (S.A.M.)

- ◆ Perfect knowledge
- ◆ Costs of services by level of care
- ◆ Longevity by level of care
- ◆ Economic environment
 - No inflation
 - No interest earnings

S.A.M. Pricing Steps

- ◆ Select assumptions
- ◆ Estimate future costs
 - Operating costs
 - Expenses associated with fixed assets
- ◆ Define contract provisions
- ◆ Determine funding requirements

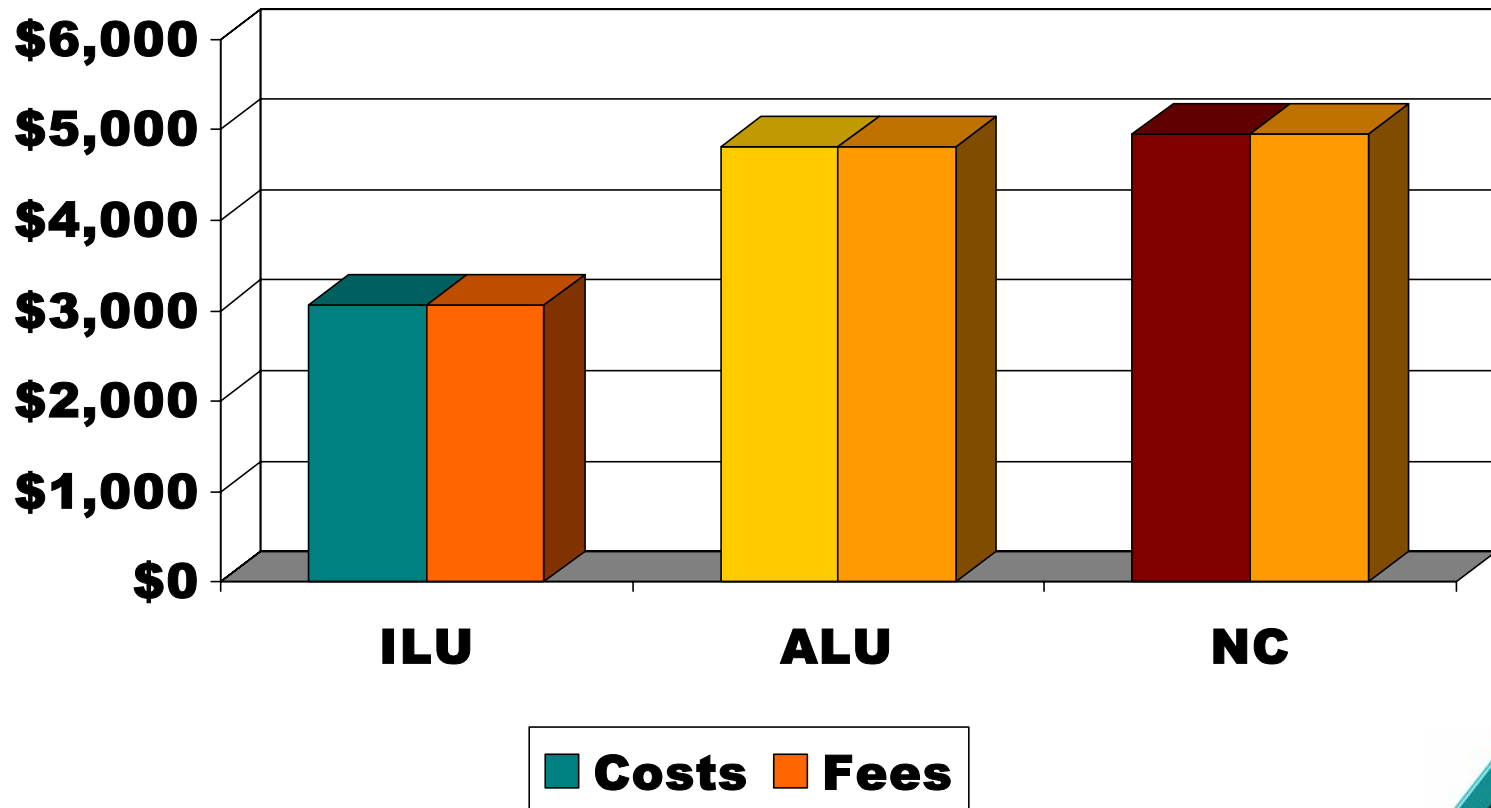
Assumptions for S.A.M. Costs by Level of Care



S.A.M. Pricing: Fee-for-Service

- ◆ Charge monthly fees that equal costs
 - Resident pays \$3,070 while in APT
 - Resident pays \$4,817 while in ALU
 - Resident pays \$4,953 while in SNF
 - No (\$0) entry fee
- ◆ Also known as “rental” or “Type D” contract

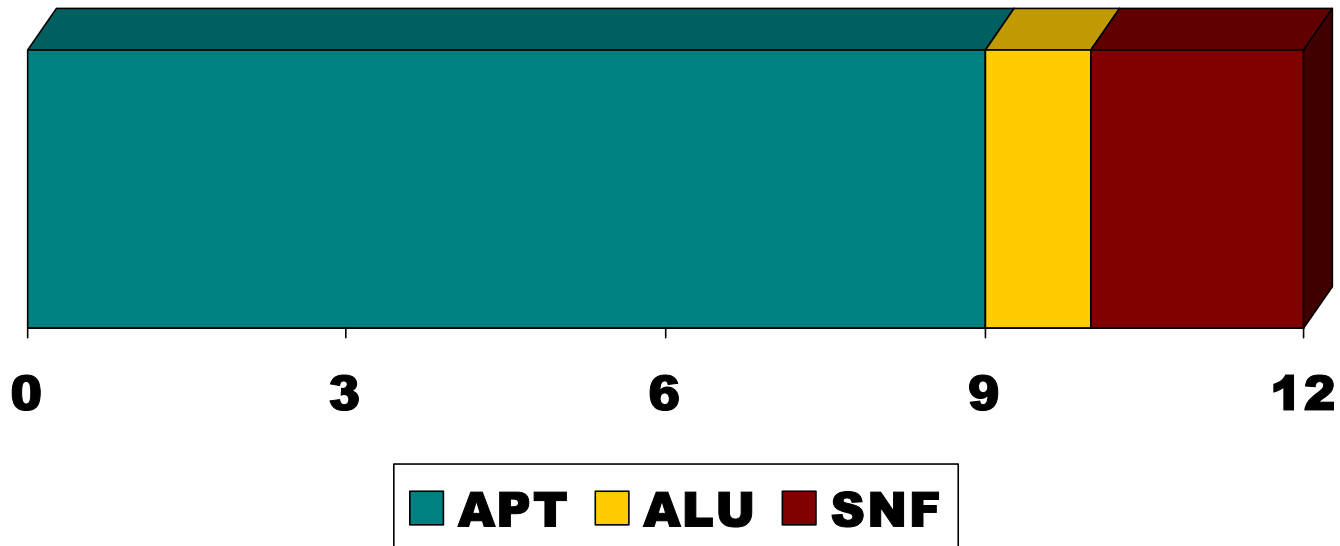
S.A.M. Pricing: Costs and Fees for Rental



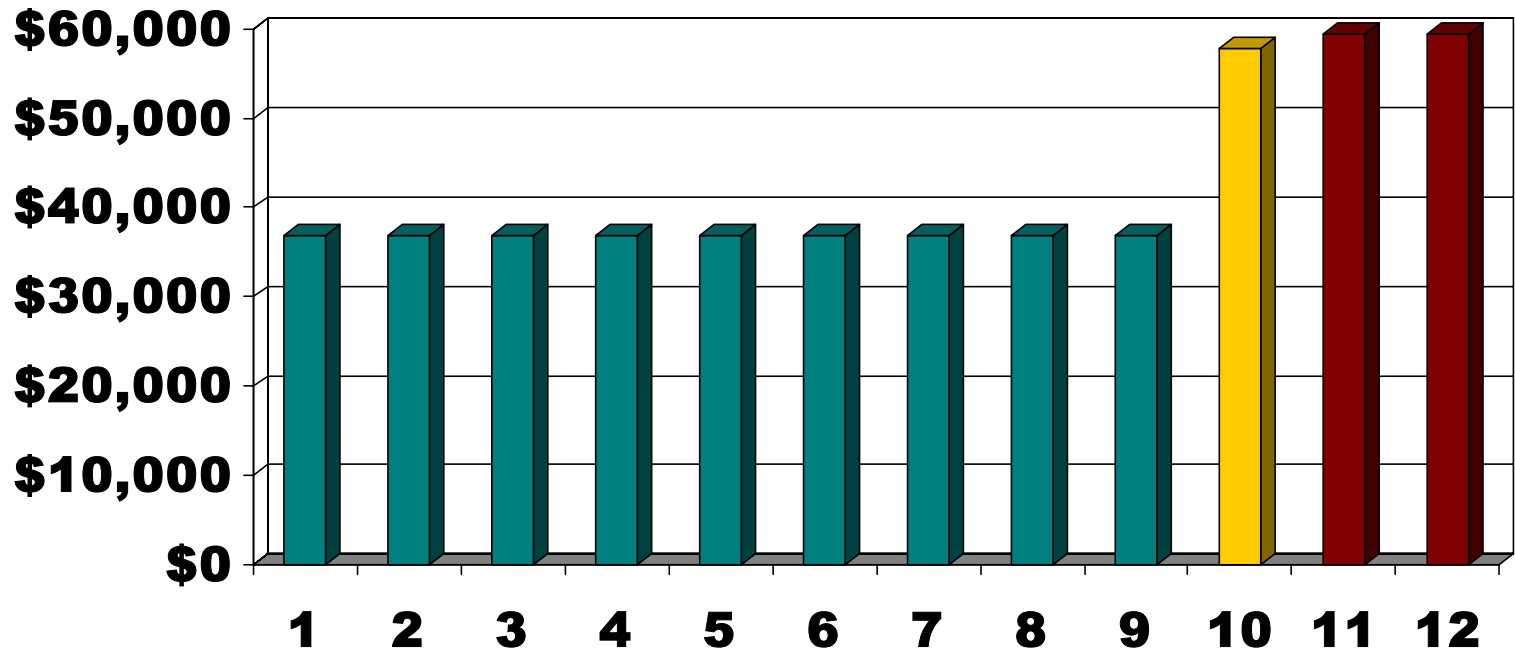
S.A.M. Pricing: What if Fees are $<$ Expenses

- ◆ New funding contract that sets monthly fees to be less than costs
- ◆ Additional information needed
 - Terms of funding provisions
 - How long a resident will live
 - Where a resident will live

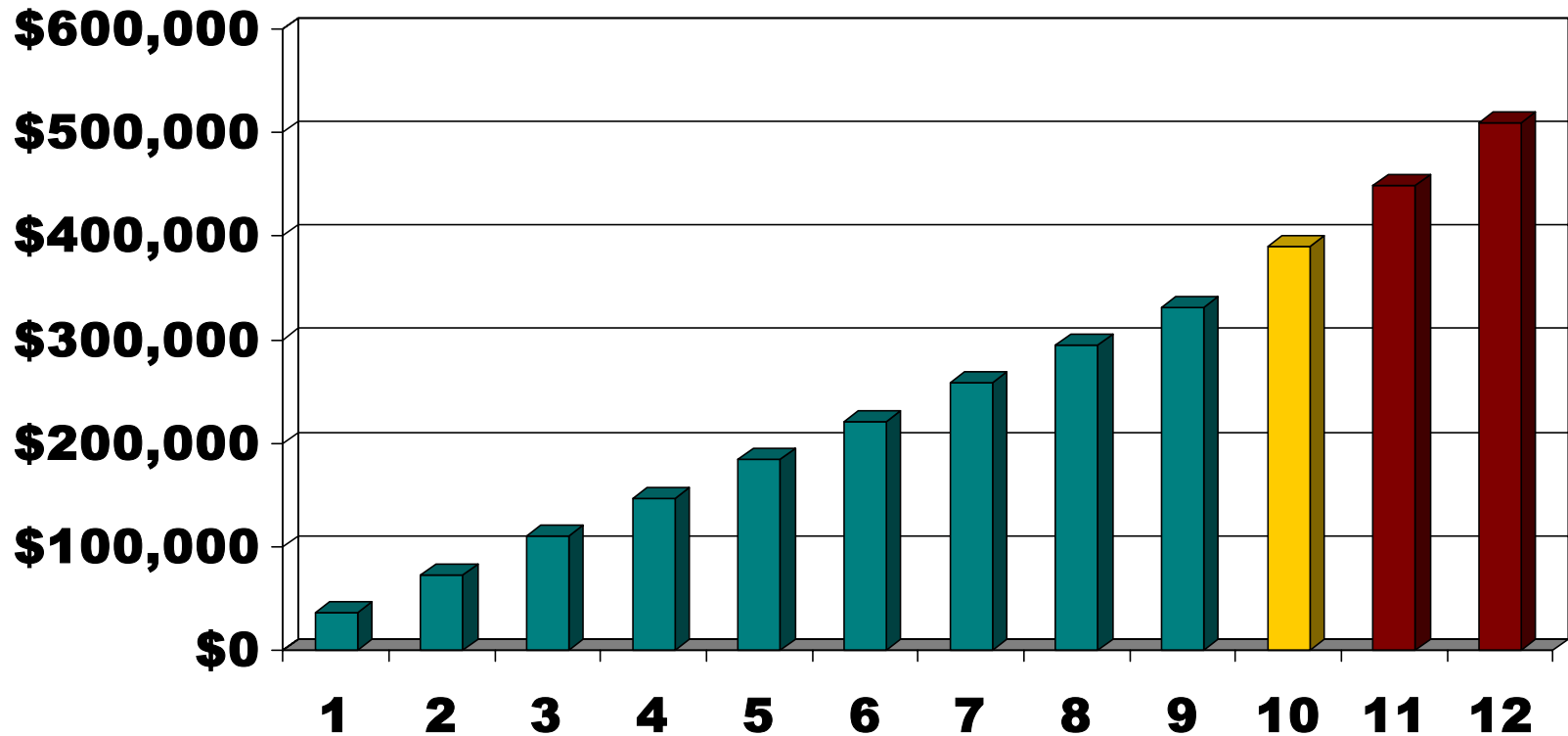
S.A.M. Life Expectancy: Age 79 Female



Assumptions for S.A.M. Projection of Lifetime Costs



Assumptions for S.A.M. Cumulative Lifetime Costs



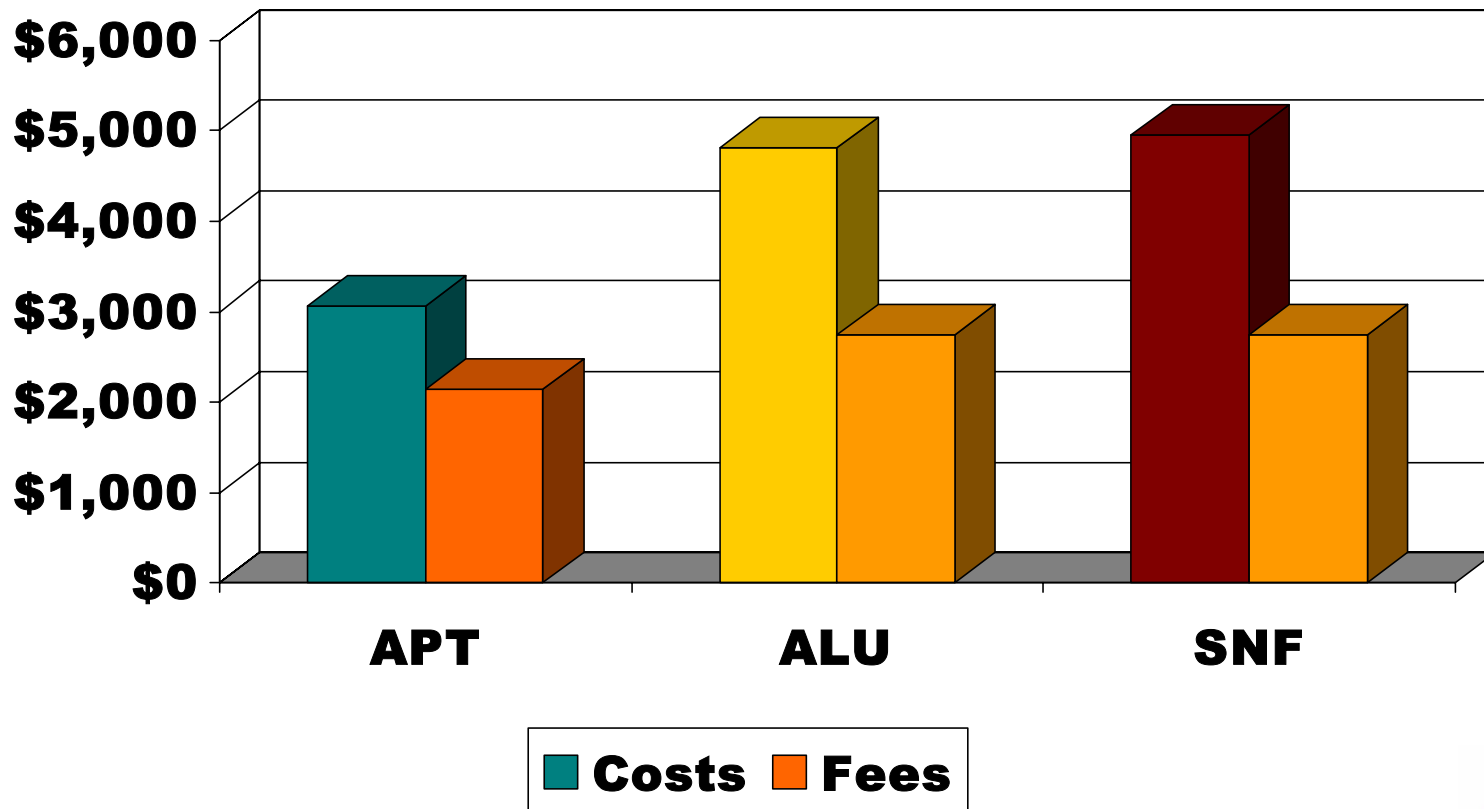
S.A.M. Pricing: Lifetime Costs

- ◆ Total lifetime costs = \$508,236
 - $9 \times \$36,840 = \$331,560$
 - $1 \times \$57,804 = \$ 57,804$
 - $2 \times \$59,436 = \$ 118,872$

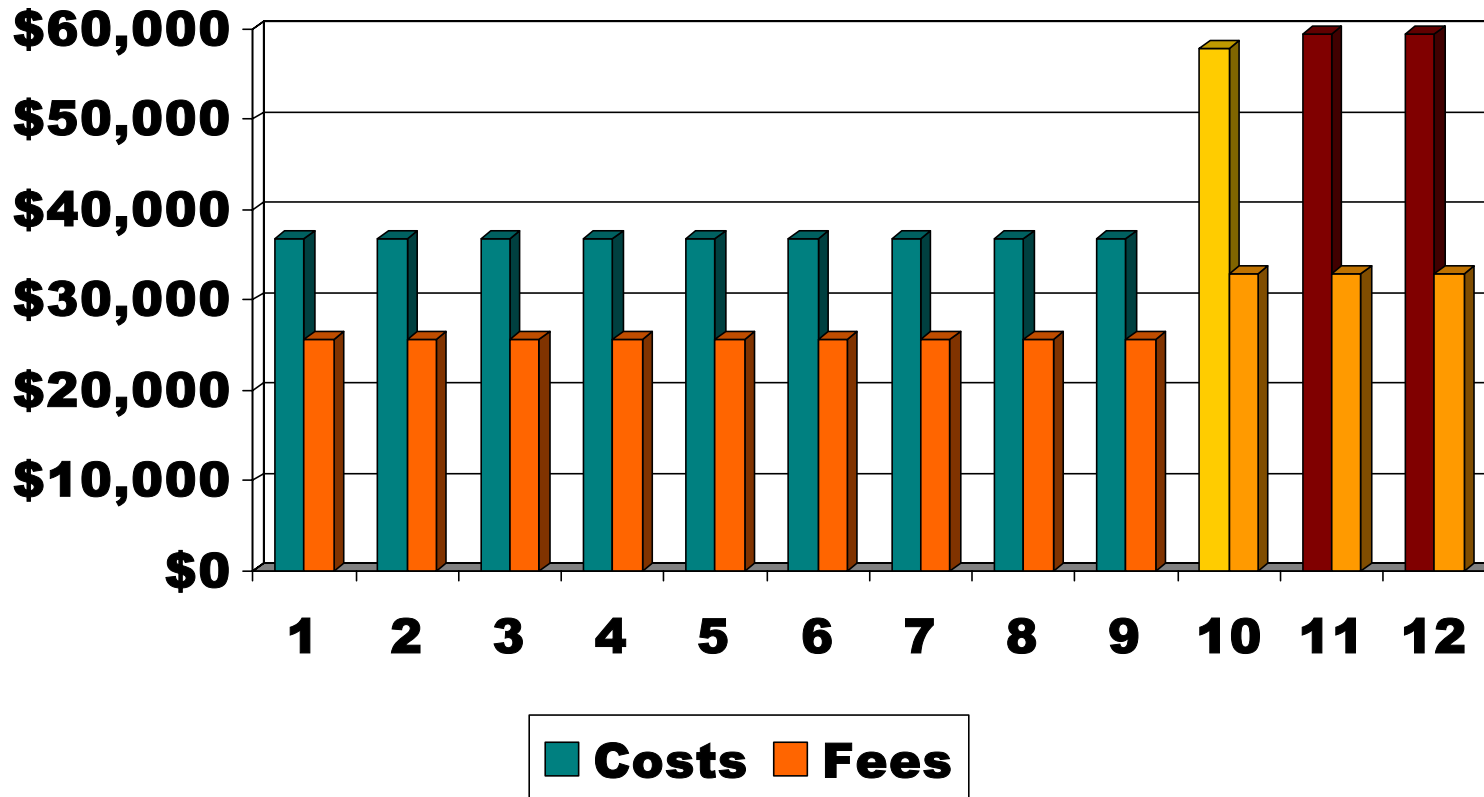
S.A.M. Pricing: Lifecare Contract

- ◆ If resident wanted to pay level monthly fees, what entry fee should be paid at move-in
- ◆ Resident can afford \$2,000/month while in apartment and \$90/day after transfer
- ◆ Also known as “continuing care” or “Type A” contract

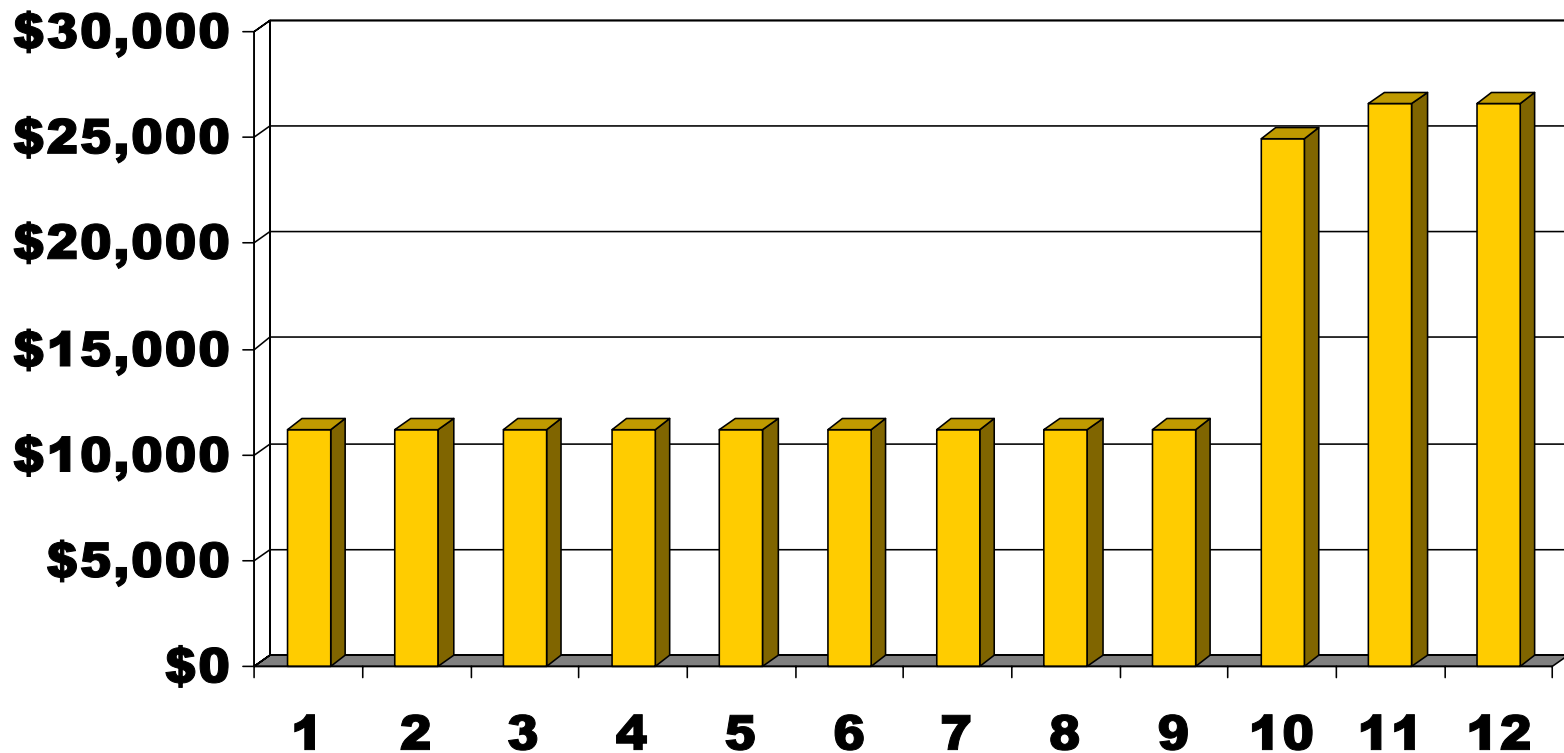
Total Costs and Monthly Fees by Level of Care



Annual Total Costs and Monthly Fees



EF = Total Costs minus Monthly Fees

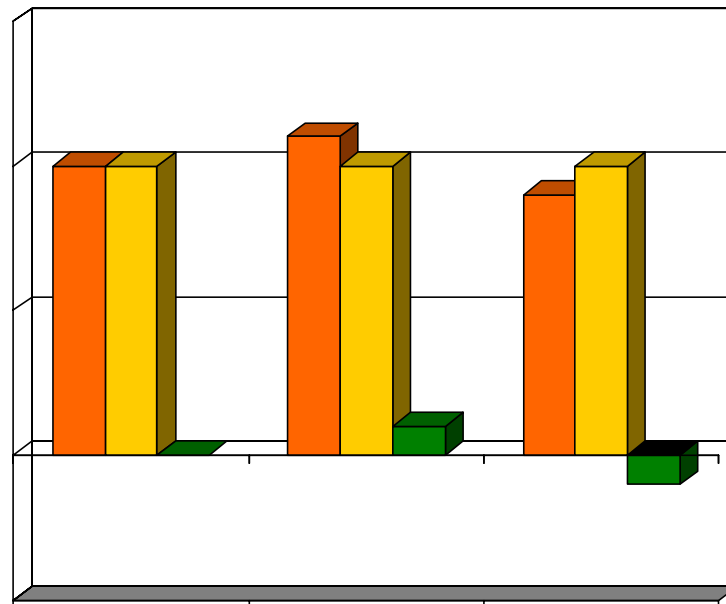


S.A.M. Pricing: Calculating Lifecare Fees

Lifetime Cost	=	\$ 508,236	
Monthly Fee	=	\$ 2,140	2,738
(×) 12 Months per Year	=	× <u>12</u>	<u>12</u>
		\$ 25,680	32,856
(×) Expected Lifetime		× <u>9</u>	<u>3</u>
Net Costs		\$ 231,120	+ 98,568
(-) Derived Entry Fee	=	\$ 178,548	

S.A.M. Pricing: Expressing Fee Adequacy

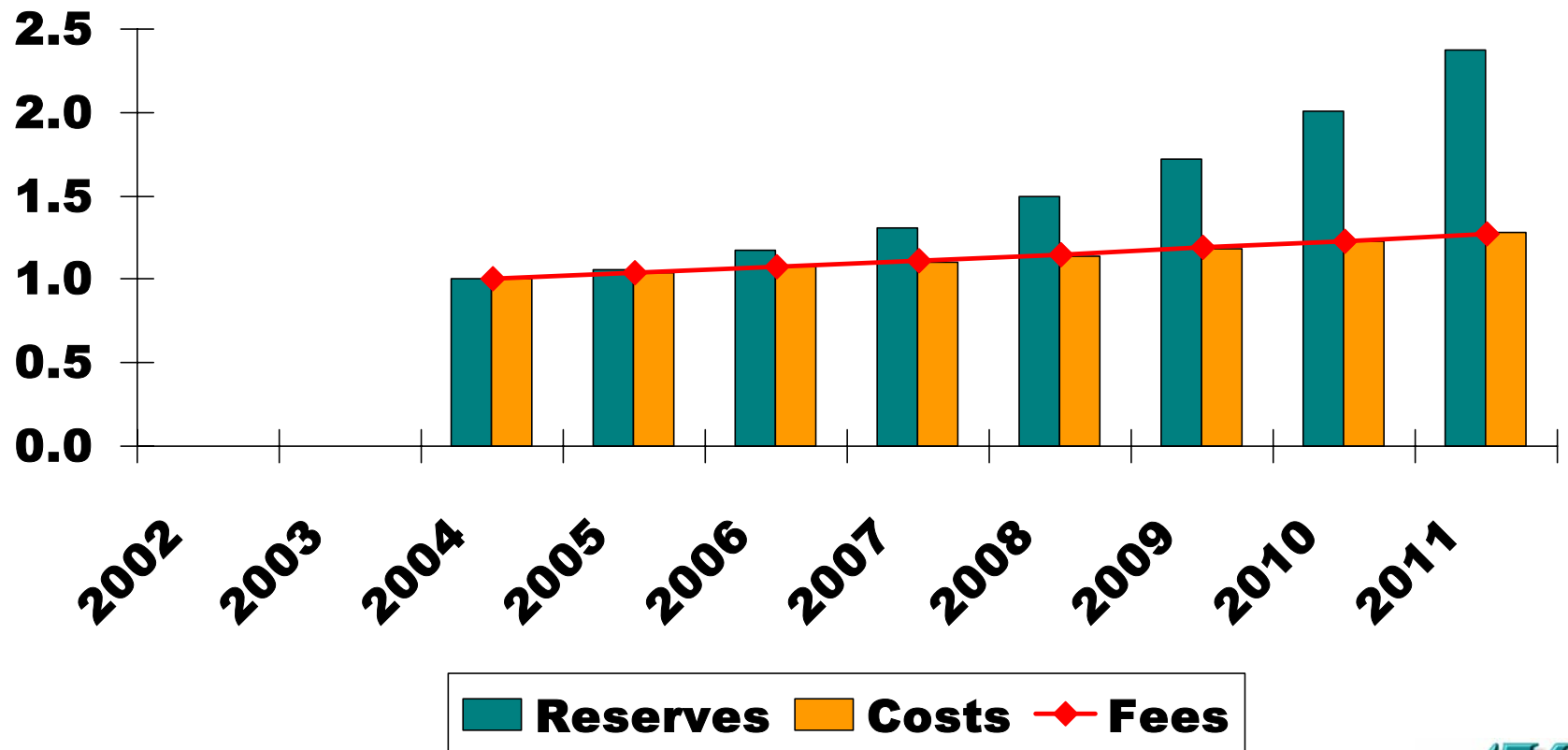
- ◆ New entrant pricing test; compare future costs (actuarial liabilities) with combination of entry fee plus monthly fees (actuarial assets)
- ◆ $\{\text{Assets} \div \text{Liabilities}\} - 1 = \% \text{ Surplus/Deficit}$



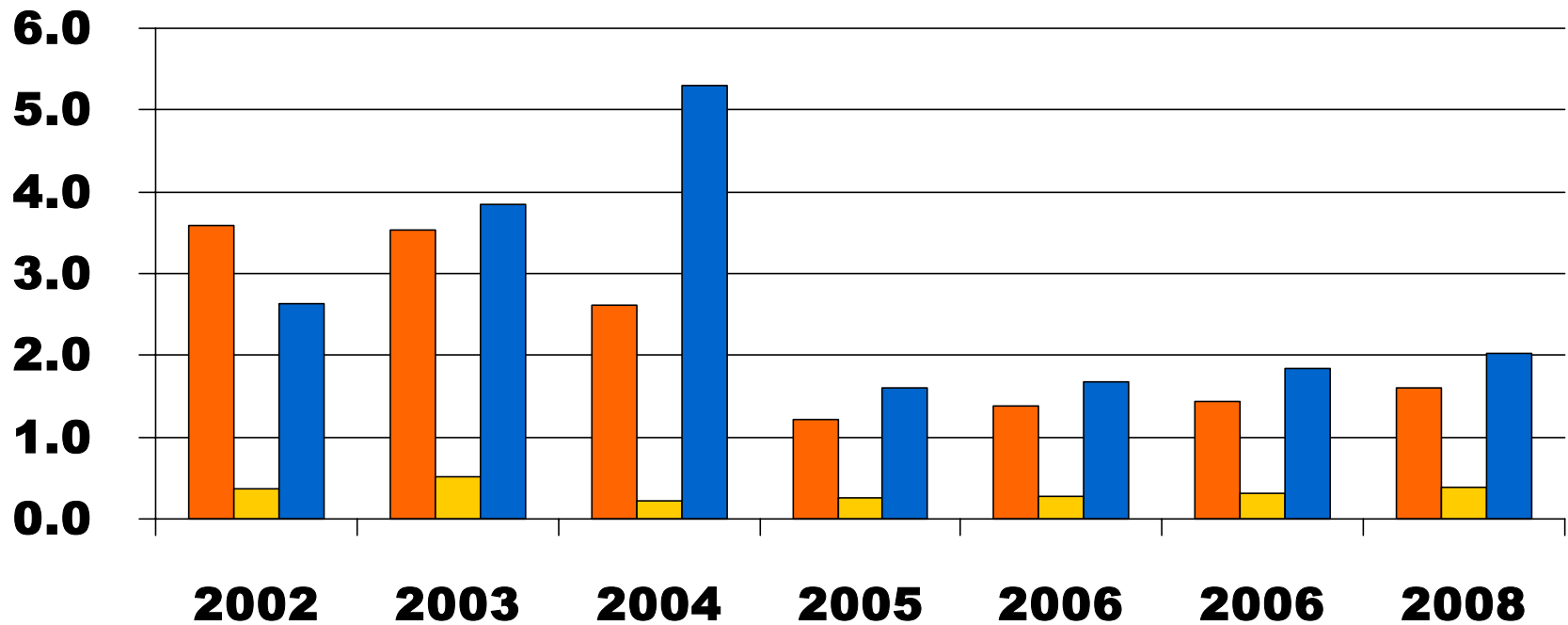
Refinements to SAM

- ◆ Adjustments for real world
 - CCRC contains many residents
 - Inflation and interest earnings
 - Uncertainty about life expectancies
 - Variations in costs by:
 - Size of units
 - Number of occupants
 - Age of occupants
 - Refund provisions

Relationship Between Costs, Fees, and Reserve Increases



Projected Cash Flow Ratios



■ Debt Service ■ Cash-to-Debt ■ Min Liquid

Long-term Financial Planning

◆ Situation

- In 20-year old facility, management is experiencing difficulty in selling smallest units

◆ Process

- Determine the maximum number of combination units that are viable

◆ Results

- Financial position supports 100% combos

CCRC Financial Management

◆ Accounting Standards

- Indicate financial condition as a result of operations to-date
- Compare financial position from period-to-period and between similar organizations

CCRC Financial Management

◆ Actuarial Standards

- Assess long-term solvency
- Provide early warning of potential problems
- Project cost of long-term health care needs
- Compare financial position associated with alternative assumptions for future scenarios

CCRC Financial Management

◆ Future Services Obligation (Accounting)

- Reflect losses from unprofitable contracts when incurred
- Control recognition of entrance fees into income

= Liquidation Liability

CCRC Financial Management

◆ Actuarial Valuation (Actuarial)

- Calculate target reserves
- Compare to current reserves

= Going Concern Liability

CCRC Financial Management

- ◆ Annual budget is short-term planning
- ◆ Long-term planning includes:
 - replacement of fixed assets
 - servicing debt
 - meeting future demands
 - recognition of inflationary impact on reserves

Objectives of Budget Process

- ◆ To set revenues to exceed expenses?
- ◆ To provide a method of control for meeting operating objectives?
- ◆ To ensure the short-term financial health of the organization?

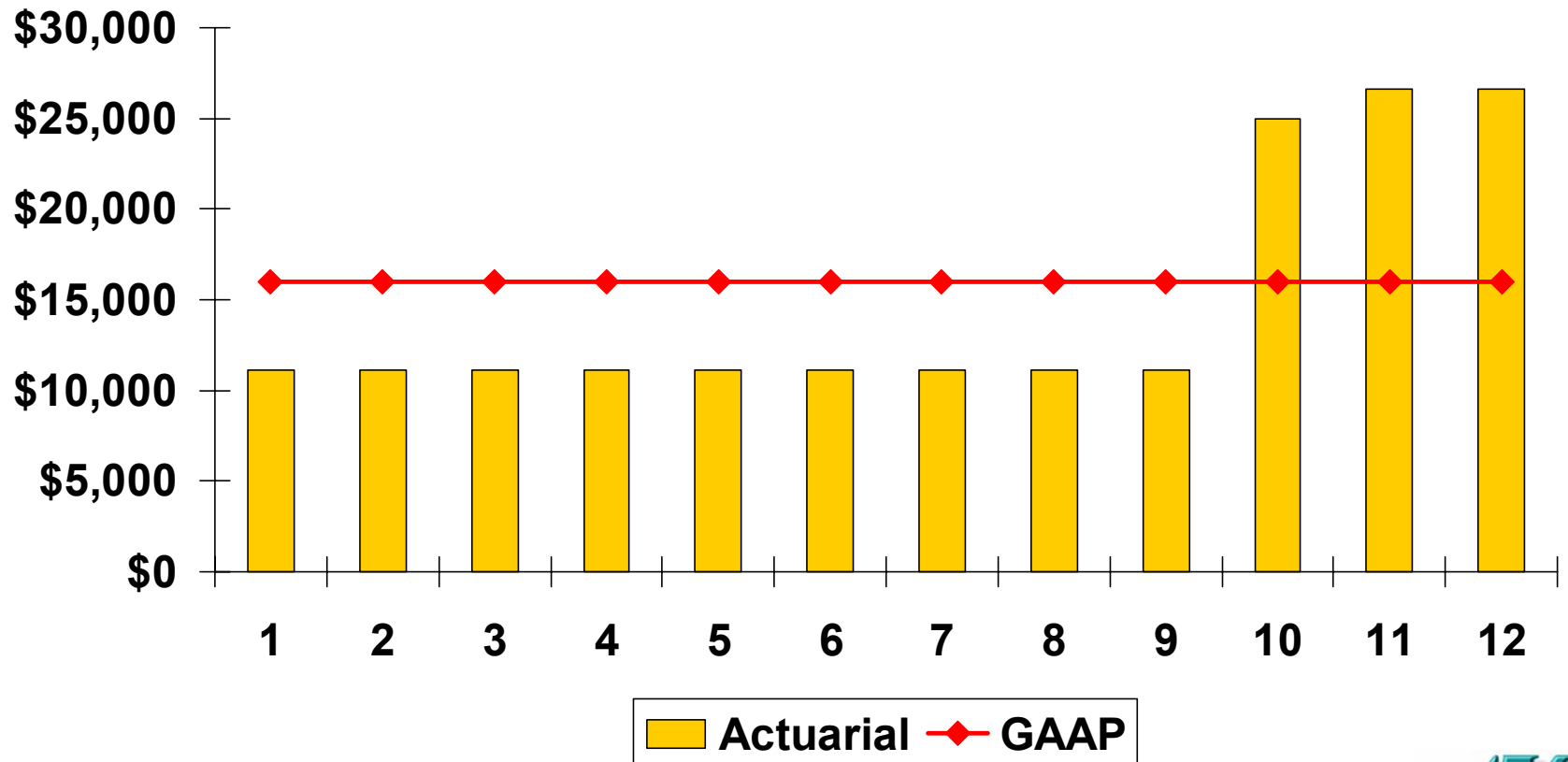
Limitations of Budget Process

- ◆ Amortization may reflect too much income
- ◆ No way to quantify by how much revenues should exceed expenses
- ◆ Issues with future service obligation
 - Real obligation is sum of deferred entry fees, refund liability, plus accounting obligation
 - Calculation is a liquidation value

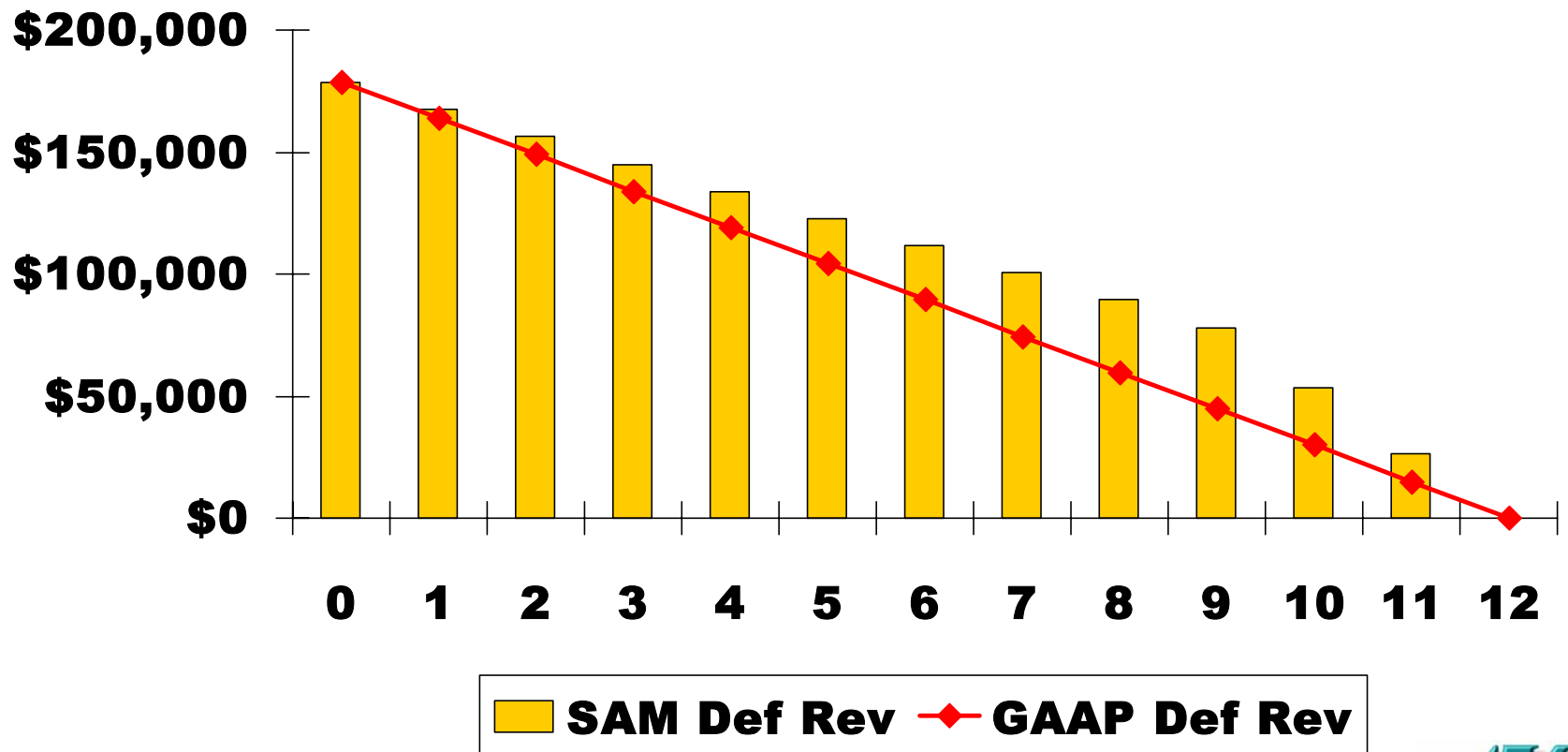
Financial Statement Implications

- ◆ Accounting objectives are revenue and expense matching
- ◆ Actuarial suggests that most of entry fee should be earned (recognized as income) in later years and “risk pooling”
- ◆ GAAP recognizes more income in earlier years and no “risk pooling”

Amortization of Entry Fees for a Lifecare Contract



Deferred Revenue (Unearned) from Entry Fees



CCRC Financial Management

- ◆ CCRCs need financial and actuarial models:
 - Continuing care contracts are long-term commitments
 - Timing of revenue inflow does not match expense outflow
 - Management needs to know long-term impact of today's decisions

CCRC Financial Management

◆ Performance Targets

- Operating Ratio
- Debt Service Coverage Ratio
- Cash to Debt Ratio
- Actuarial Funded Status

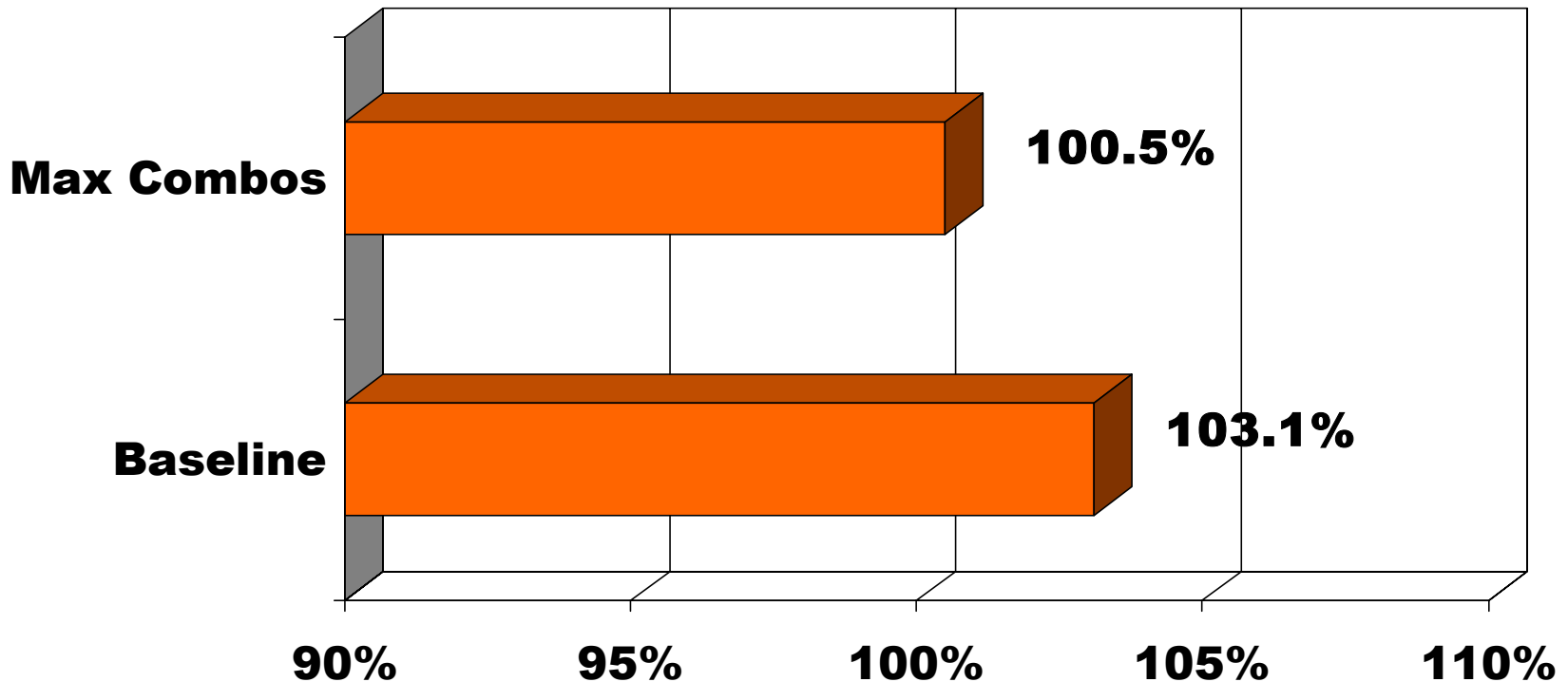
Components of Long-term Financial Planning

- ◆ Actuarial valuation or balance sheet
- ◆ Adequacy PV test of new entrants' fees
- ◆ Cash flow projection

Do Resident Pay Their Fair Share of Costs?

\$ 47.4 million in apartment costs
+ \$ 17.2 million in assisted living costs
+ \$ 53.0 million in nursing care costs
+ \$ 1.2 million in refunds
- \$ 67.5 million monthly fees
- \$ 55.0 million in reserves
= \$ 3.7 million actuarial surplus
(103.1% funded)

Funded Status Before and After Maximum Combos



Health Care Utilization

◆ Situation

- Nursing center outdated, many residents leave facility to obtain services

◆ Process

- Develop scenarios reflecting new services

◆ Results

- Decision to tear-down and build new assisted living and dementia

Health Care Utilization

How many assisted living and nursing care beds do we need?

- ◆ Mortality rates - rates of death by level of care
- ◆ Morbidity rates - rates of transfer to higher levels of care

Experience Study

Actuarial analysis to set mortality and morbidity based on:

- ◆ Age, gender, couple status
- ◆ Assessment of functional status (future enhancement)

Demographic Assumptions

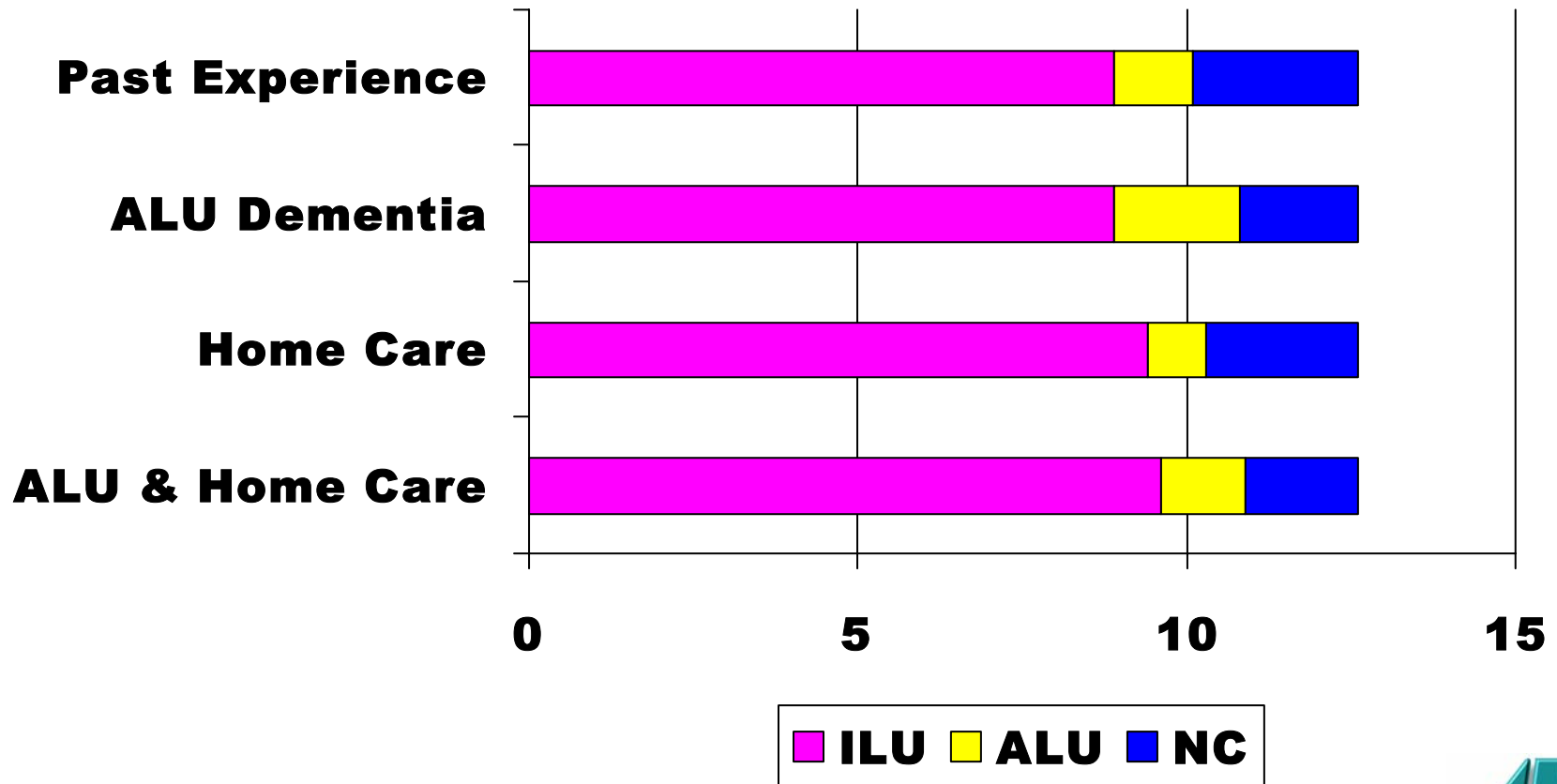
- ◆ Average ILU entry age: 78
 - Increase 1 year every 5 years
 - Increase 2 years every 5 years for aging-in-place acceleration due to home care in ILU

Utilization Assumptions

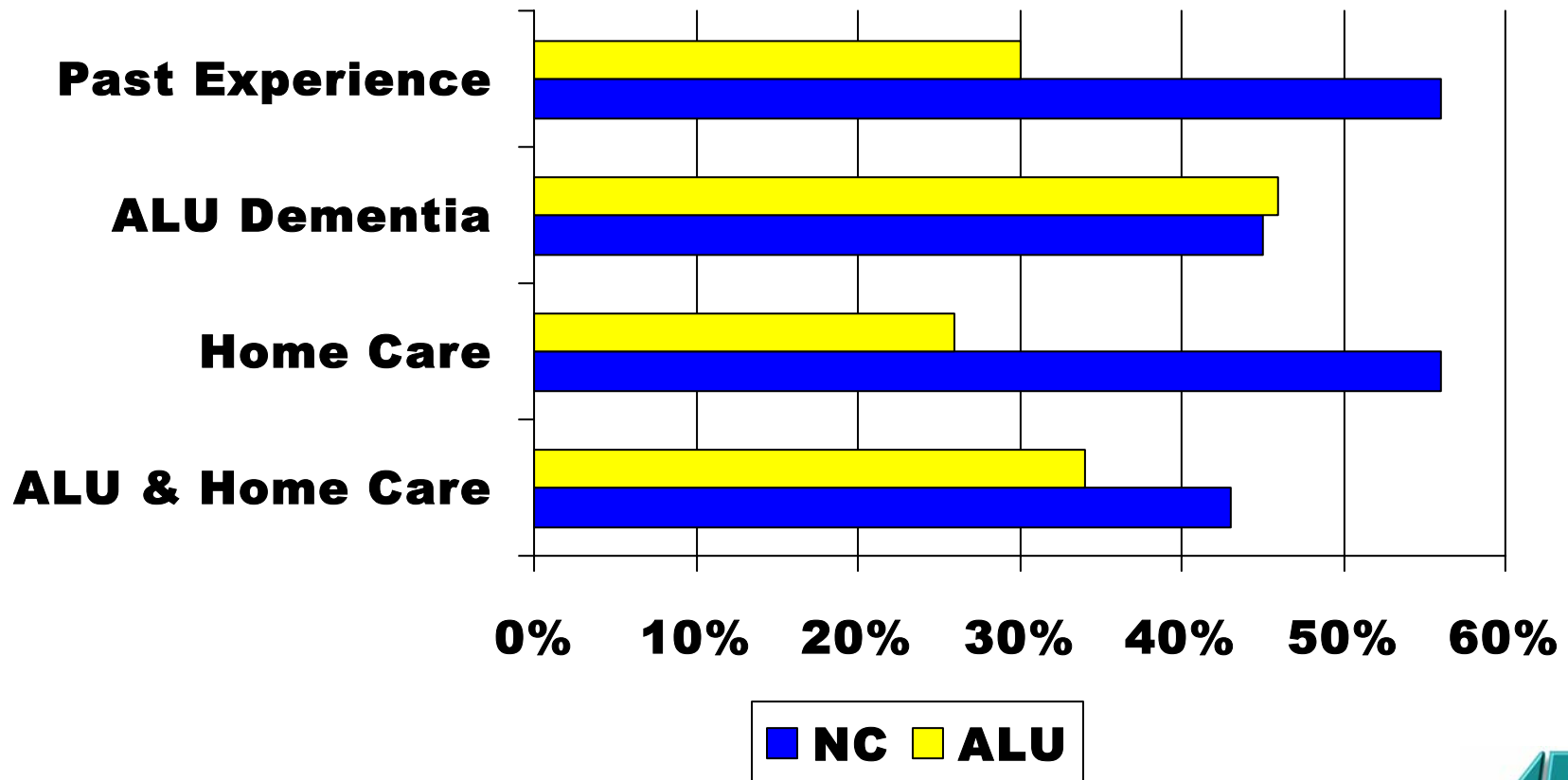
Internal service needs → utilization

- ◆ Past experience
- ◆ Current trends
 - ALU dementia
 - Increase home care
 - ALU dementia and home care

Life Expectancies by Level of Care



Probability of Transfer



Population Projections

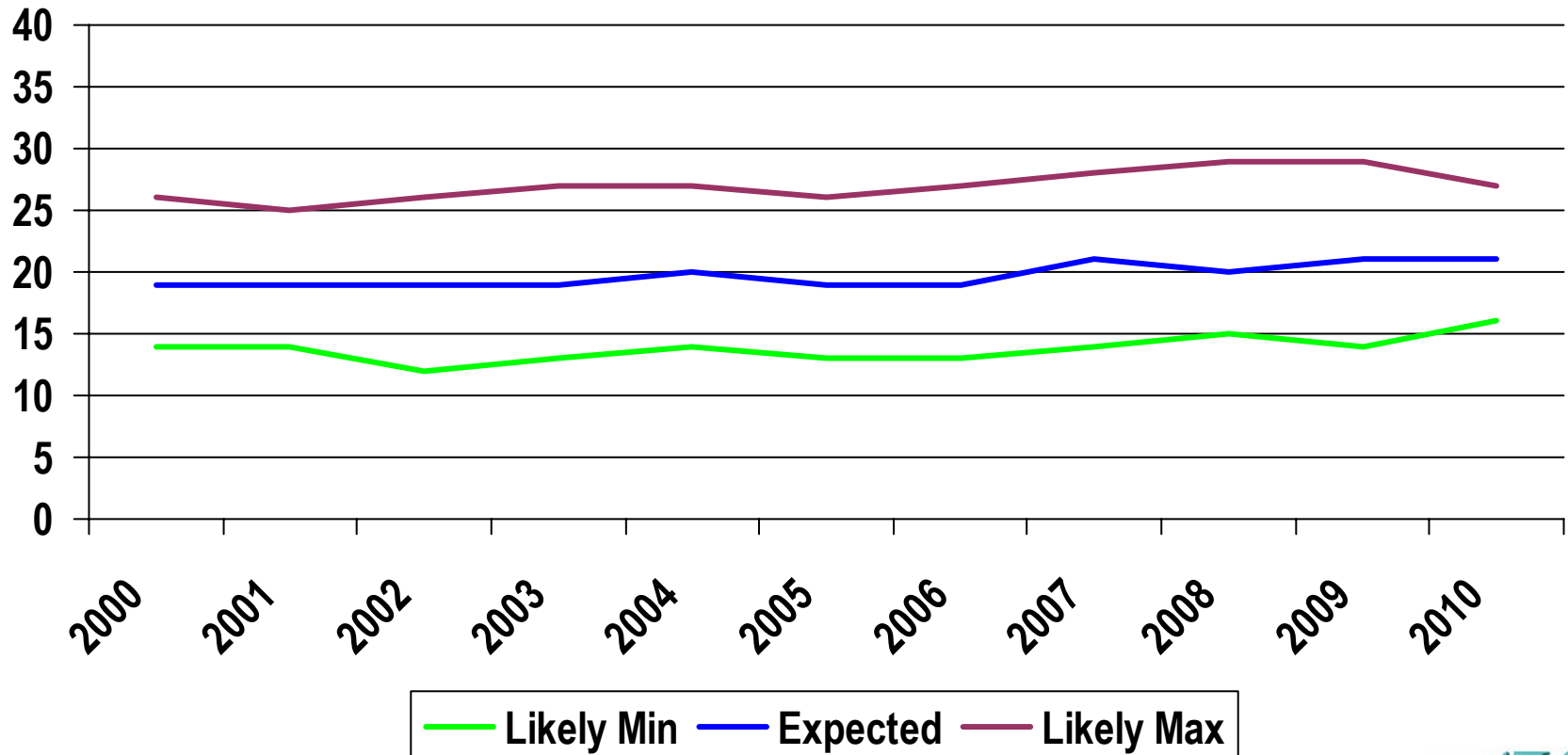
Actuarial population projection will generate:

- ◆ ILU turnover
- ◆ ALU residents
- ◆ NC residents

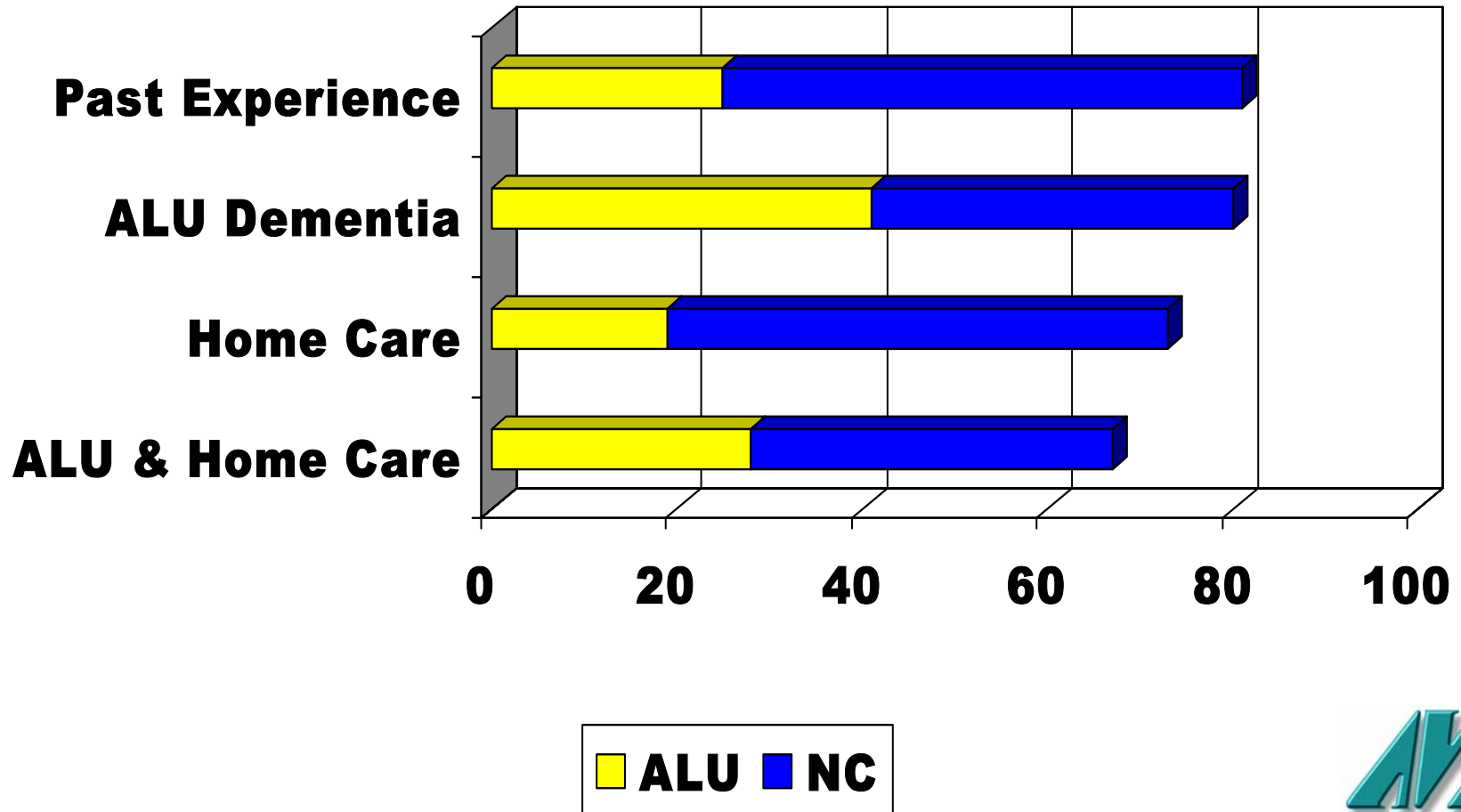
Past Experience: Scientific

Current Trends: What-if

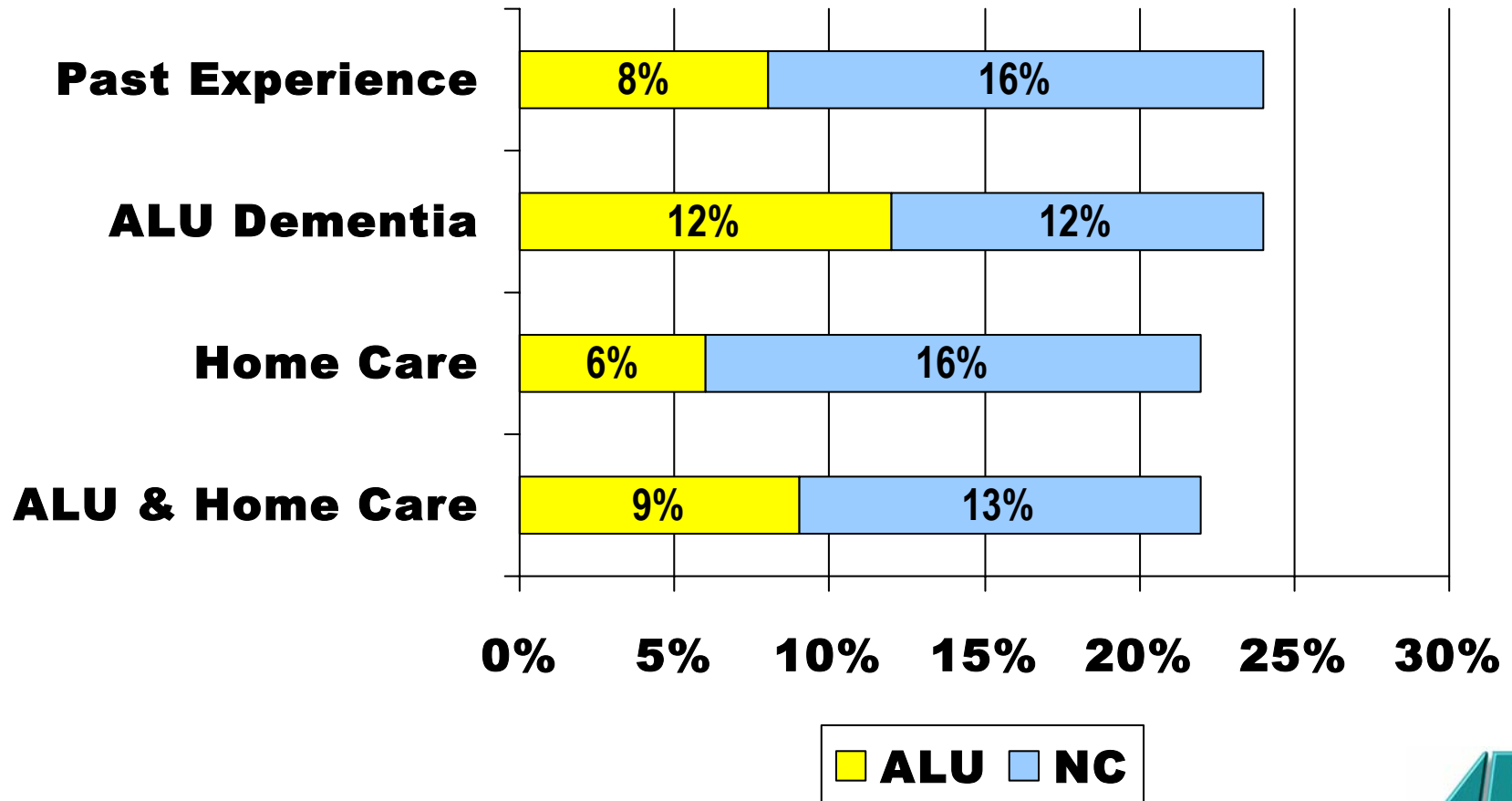
Independent Living Turnover



Is Health Care Capacity Adequate?



Health Care Prevalence & Distribution



Why do Functional Assessments?

Determine risks based on functional status to better:

- ◆ Predict service needs for staffing and HC capacity
- ◆ Perform risk-based underwriting
- ◆ Screen for appropriate contract type at admission

Health Care Utilization Summary

Projections of health care needs are influenced by:

- ◆ Management philosophy regarding aging-in-place
- ◆ Number and mix of health care beds
- ◆ Availability of home care services and private duty nurses

Health Care Utilization Summary

Potential impact of current trends:

- ◆ More assisted living/AL Dementia- shift some NC utilization to AL
- ◆ More home care - shift some AL utilization to ILU
- ◆ Assessments/Interventions/Wellness Programs - reduce overall HC utilization and costs?

Planning for Charitable Needs

◆ Situation

- Increase in requests for charitable assistance

◆ Process

- Determine required benevolent fund needs

◆ Results

- Targets developed for contributions and distributions

Planning for Charitable Needs

Financial Aid Risk:

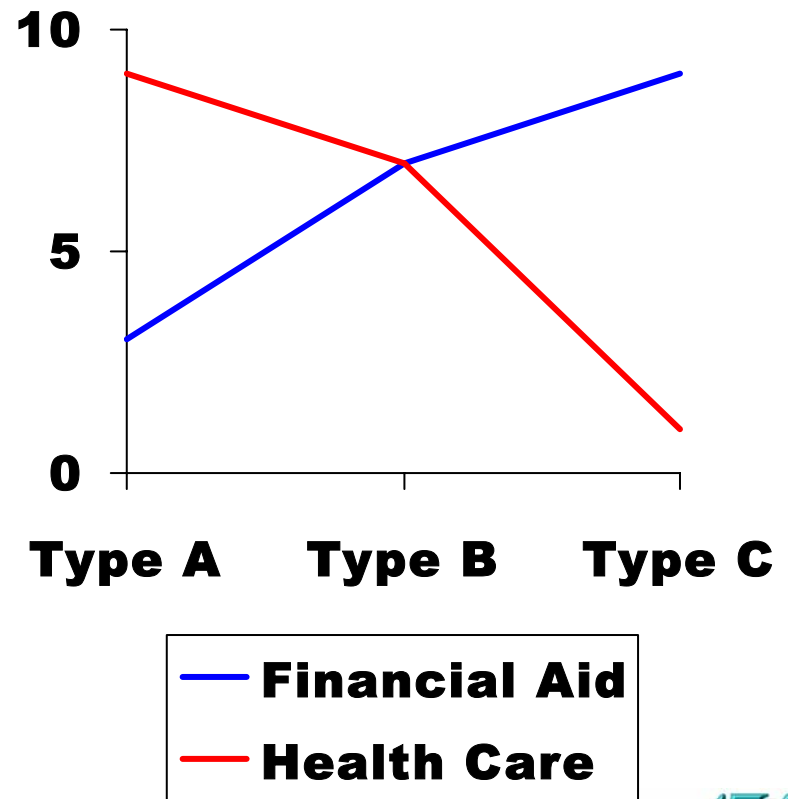
- ◆ Are benevolent funds adequate to provide financial assistance for current residents?
- ◆ How do you evaluate risk for new entrants?

Risk Management

- ◆ Contract provisions - protect against willful mismanagement of assets
- ◆ Financial screening - qualify residents financially before entry into community

Risk by Contract Type

- ◆ All contract types have some form of risk
- ◆ Type A contracts have more health care risk, but less financial aid risk
- ◆ Type C contracts have less health care risk, but more financial aid risk



Measuring Financial Aid Risk

Compare resident's income and assets to expenses

- ◆ Income: Social Security, pension, interest & dividends, draw on assets, long-term care insurance, Medicaid payments
- ◆ Expenses: CCRC fees, personal allowance (food, utilities, medical, clothes, gifts, travel, taxes)

Measuring Financial Aid Risk

Use actuarial projections rather than rules-of-thumb because:

- ◆ Need to estimate how long the resident will live in community (varies by age)
- ◆ If fees change by level of care, need to estimate when resident will transfer and how long they will live at each level

Financial Aid Projection - Female age 80

- ◆ Type A: \$100,000 EF, \$1,500 MF
- ◆ No personal allowance
- ◆ \$200,000 Assets, \$3,000 Mon. Income

Tot. Subsidy=\$0
PV Subsidy = \$0

- ◆ Type A: \$100,000 EF, \$1,500 MF
- ◆ PA: \$1,000 IL, \$500 AL, \$300 NC
- ◆ \$200,000 Assets, \$3,000 Mon. Income

Tot. Subsidy=\$150,000
PV Subsidy = \$90,000

Financial Aid Projection - Female age 80

◆ Type C: \$100,000
EF, \$1,500 IL, \$2,400
AL, \$3,000 NC

◆ PA: \$1,000 IL, \$500
AL, \$300 NC

◆ \$200,000 Assets,
\$3,000 Mon. Income

Tot. Subsidy=\$275,000

PV Subsidy = \$150,000

◆ Type C: \$100,000
EF, \$1,500 IL, \$2,400
AL, \$3,000 NC

◆ PA: \$1,000 IL, \$500
AL, \$300 NC

◆ \$400,000 Assets,
\$4,700 Mon. Income

Tot. Subsidy=\$0

PV Subsidy = \$0

Financial Qualification

What criteria should we use to qualify a resident financially?

- ◆ Demonstrate reasonable and objective qualification process
- ◆ Consider community goals and philosophy
- ◆ Determine adequacy of current benevolent funds

Adequacy of Benevolent Funds

Are current charitable obligations funded?

- ◆ Compare current benevolent funds to present value of expected subsidies for current population
- ◆ Need updated income and asset information on current residents

Planning for Charitable Needs Summary

- ◆ Financial screening process should be objective and consistent
- ◆ Current charitable obligations should be quantified
- ◆ Financial aid calculations must consider variables such as age, gender and contract type
- ◆ Don't forget personal allowance expenses!

Contract Design

◆ Situation

- Prospects with long-term care insurance not interested in lifecare contract

◆ Process

- Develop several funding options for limited healthcare benefits

◆ Results

- Facility implemented new contract options

Contract Design

Marketplace Realities:

- ◆ Residents want options and pricing flexibility
- ◆ CCRCs face increased competition in providing for housing and health care needs of older adults

Contract Design

- ◆ Three considerations for selecting options and setting fees:
 - Costs
 - Marketplace
 - Board and management philosophy

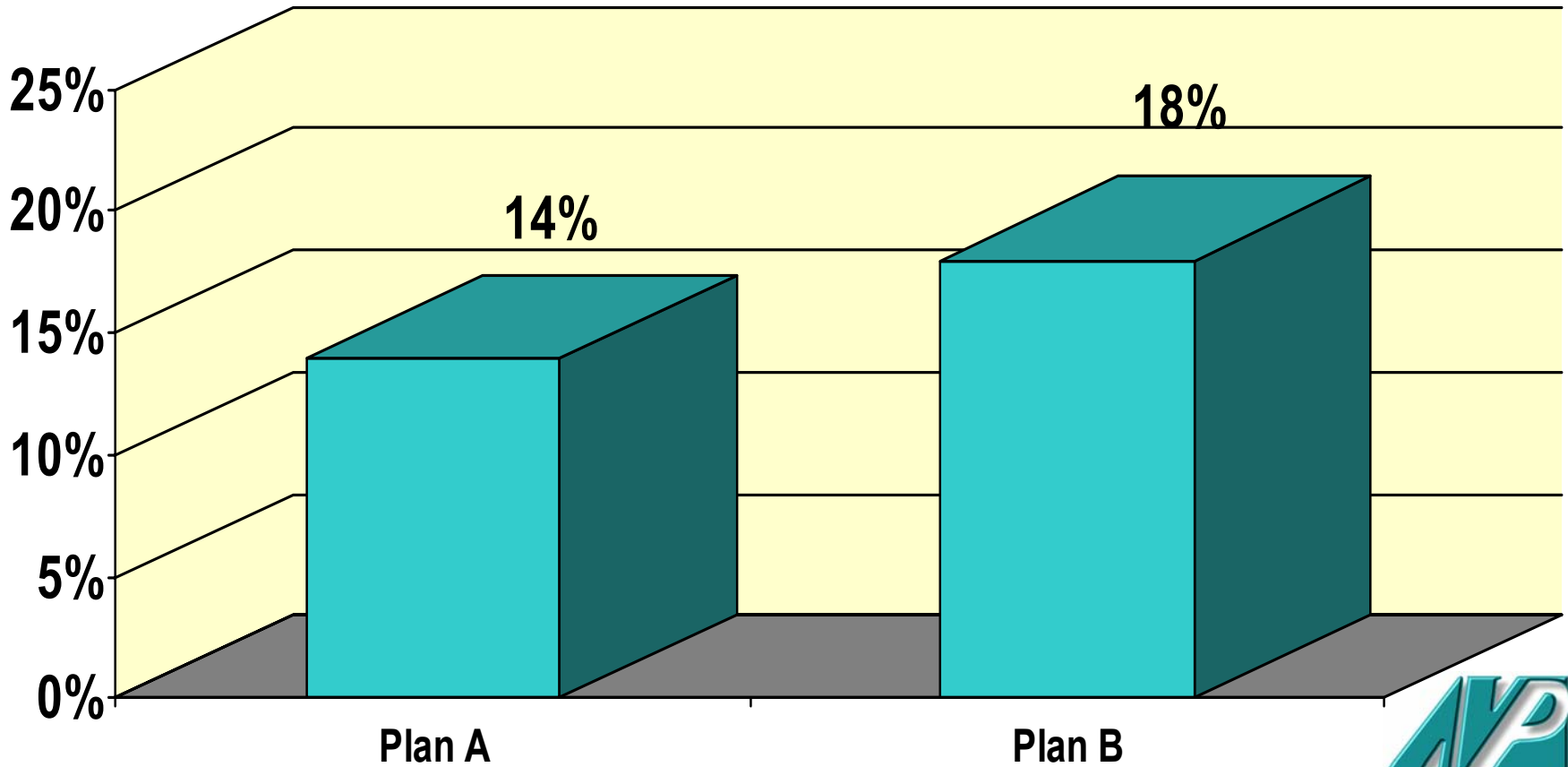
Objectives of Actuarial Analysis

- ◆ To test adequacy of combination of monthly fees and entry fees
- ◆ To evaluate relative equity of fees by unit type and for alternative contract options
- ◆ To determine whether cash balances remain positive and ratio targets are met

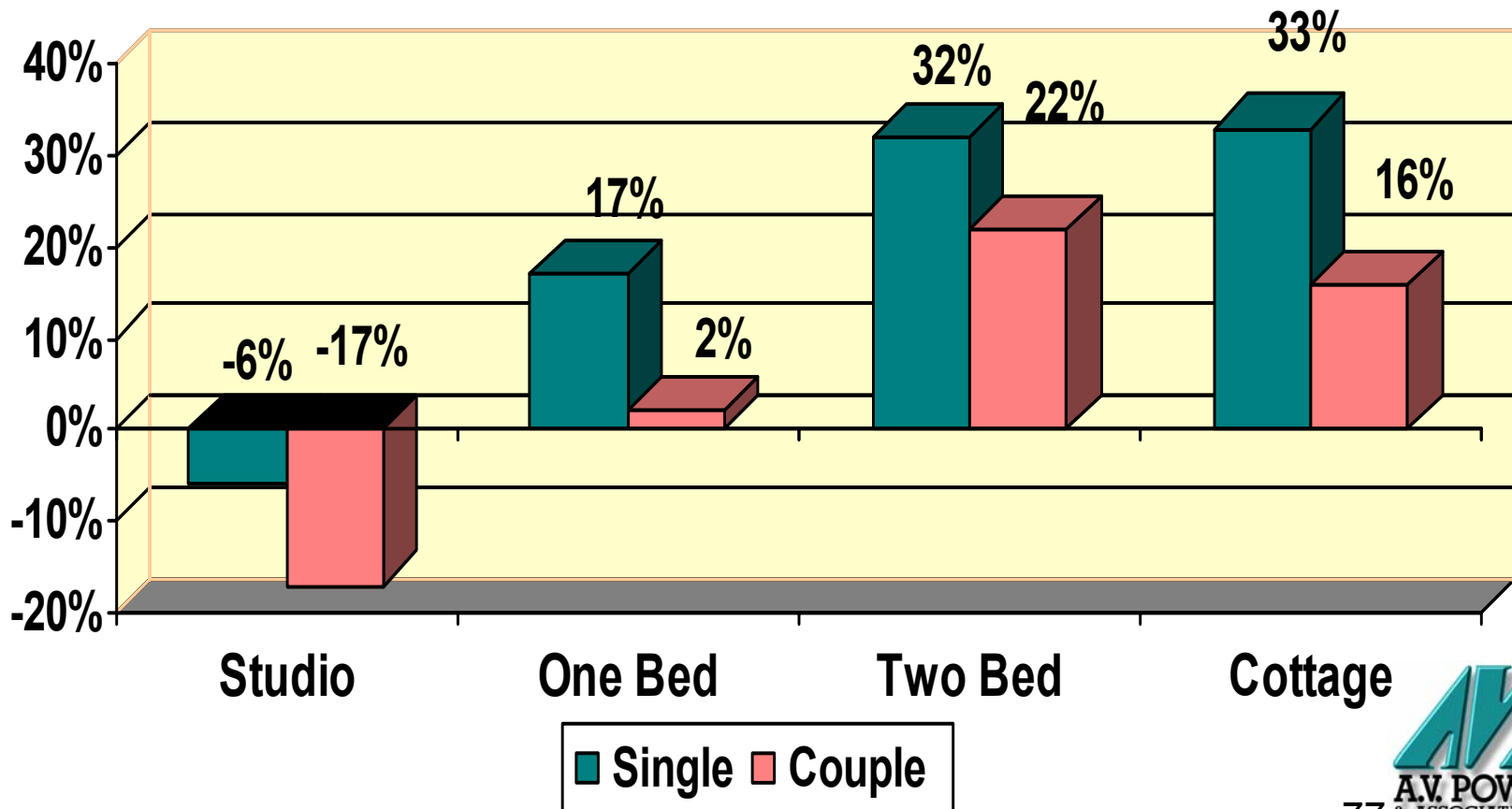
Actuarial Fee Adequacy

- ◆ New entrant pricing:
 - Compare future costs (actuarial liabilities) with combination of entry fee plus monthly fees (actuarial assets)
- ◆ Assets must be equal to or greater than liabilities or subsidy will be required
 - Future generations of residents
 - Future “correction” fee increases
- ◆ Include a margin to cover experience deviations and contribution to surplus

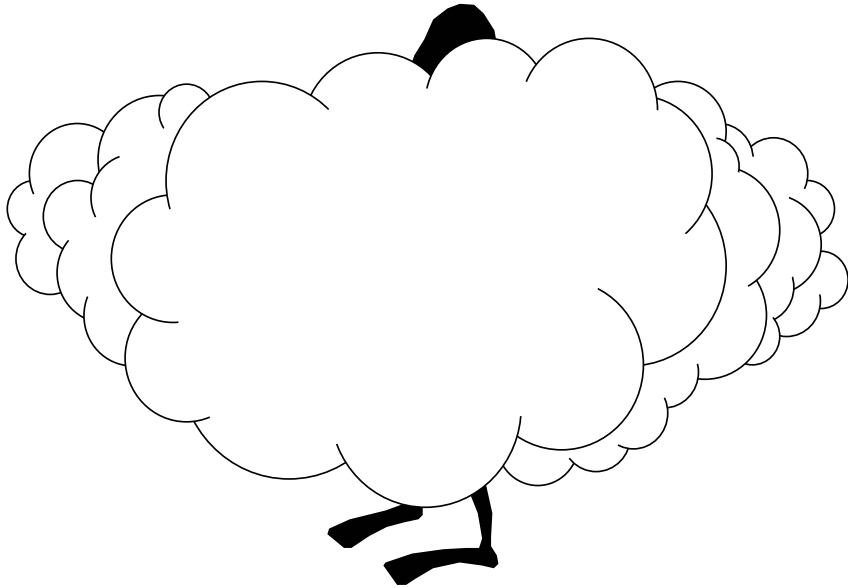
Are the Fees Adequate and Equitable among Contract Types?



Are the Fees Adequate and Equitable among Unit Types?



Uncloaking the Actuarial Black Box



- ◆ Entry fees are simply a prepayment of future monthly fees
- ◆ Entry fees plus monthly fees must cover operating, capital, and refund costs

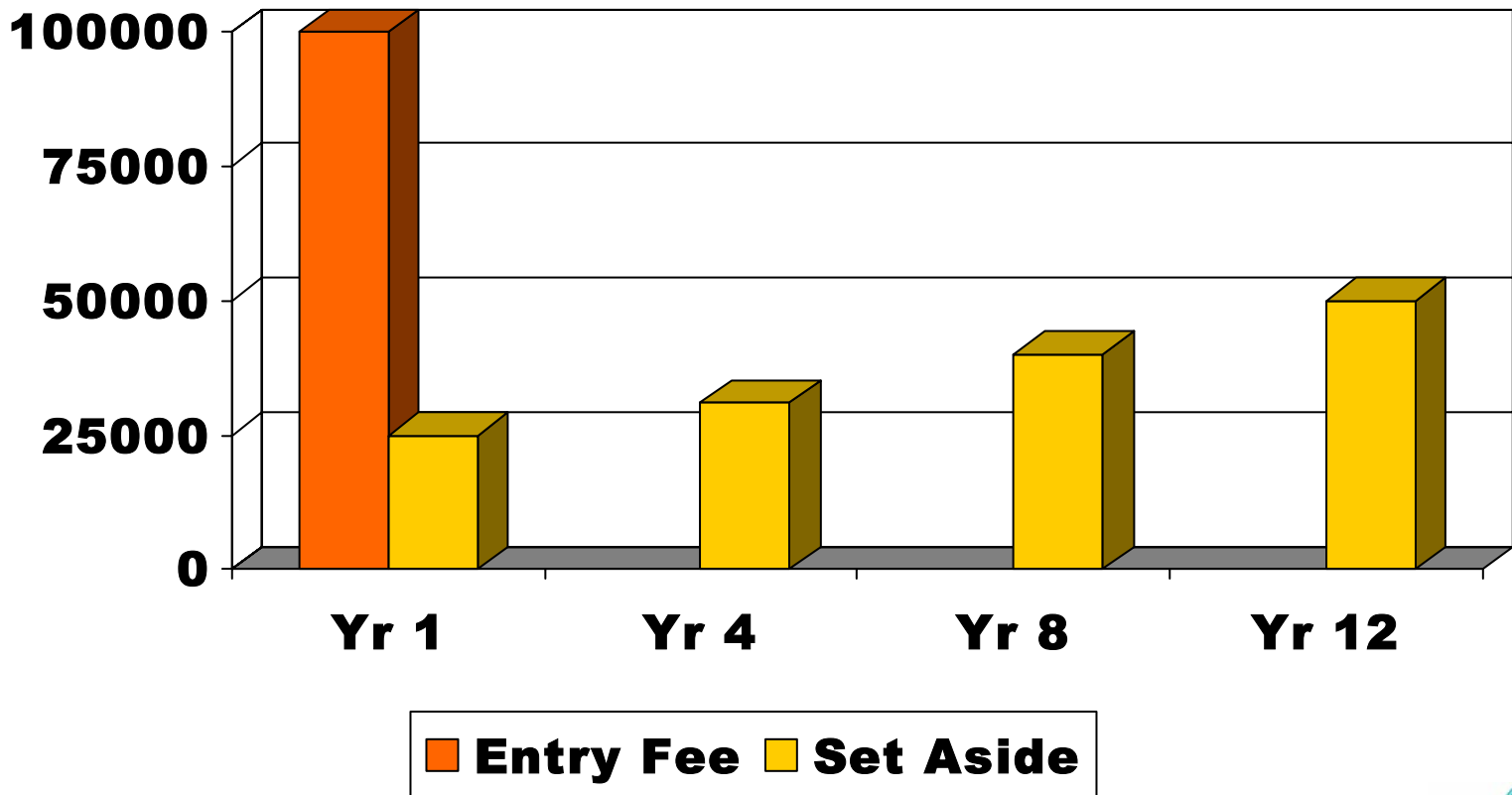
Contract Options

- ◆ Refundable entrance fees
- ◆ Flexible entrance fee/monthly fee combinations
- ◆ Unbundled services
- ◆ Prepaid health care
- ◆ Risk-based pricing

Refundable Entrance Fees

- ◆ Refunds are a future cost that must be prefunded - even if refunds are only paid upon unit reoccupancy
- ◆ Actuarial funding of refunds: Portion of entrance fee will accumulate with interest to equal expected refund payout

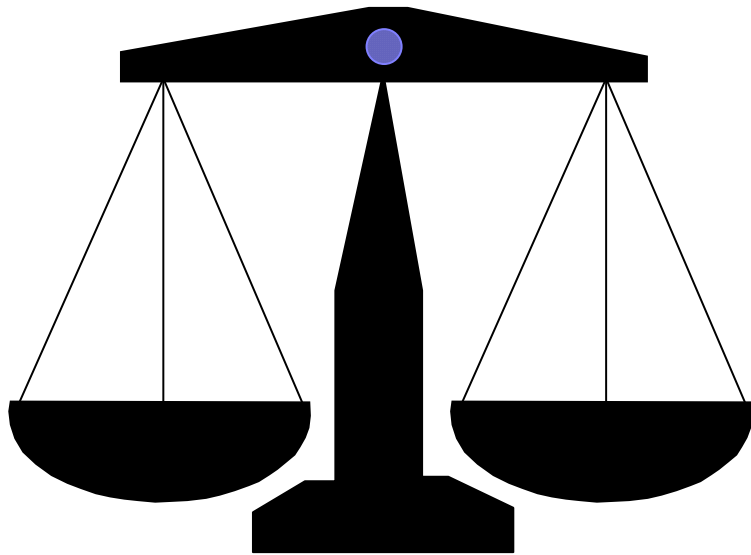
50% Refundable Entrance Fee



Flexible Entrance Fee/Monthly Fee Combinations

- ◆ Residents want a fee structure to match their net worth and income streams
- ◆ CCRC wants to collect equivalent amounts over resident's lifetime and cover expected costs of care

Entrance Fee/Monthly Fee Exchange



◆ Pay larger entrance fee to reduce monthly fee

OR

◆ Pay larger monthly fee to reduce entrance fee

Unbundled Services

Include services in monthly fees or provide on fee-for-service basis?

- ◆ Lower monthly fees if unbundled, but “nickel & dime” billing
- ◆ Need to track usage for billing
- ◆ More difficult to plan if usage can vary significantly

Prepaid Health Care

- ◆ Discounted assisted living or nursing care
- ◆ Limits on number of discounted days
- ◆ Deductible period before eligible for discounted days
- ◆ Residents becoming more familiar with LTC insurance

Risk-Based Pricing

Fee variations based on:

- ◆ Age (younger live longer)
- ◆ Gender (females live longer and use more health care than males)
- ◆ Marital Status (couples live longer and use less health care than singles)
- ◆ Health Status (assessment of individual needs)

Contract Design Summary

- ◆ Pricing of contract options can vary significantly by age or health status
- ◆ Beware of adverse selection risk if multiple options are offered
- ◆ Need systems to track utilization and cost of services to properly manage and adequately price contract options

Mergers and acquisitions (appraisals)

◆ Situation

- A multi-facility organization has opportunity to purchase CCRCs in one of their markets

◆ Process

- Need to evaluate offering projections and develop their purchase criteria

◆ Results

- Made offer based on IRR requirements

What Financial Criteria are Important in Decision?

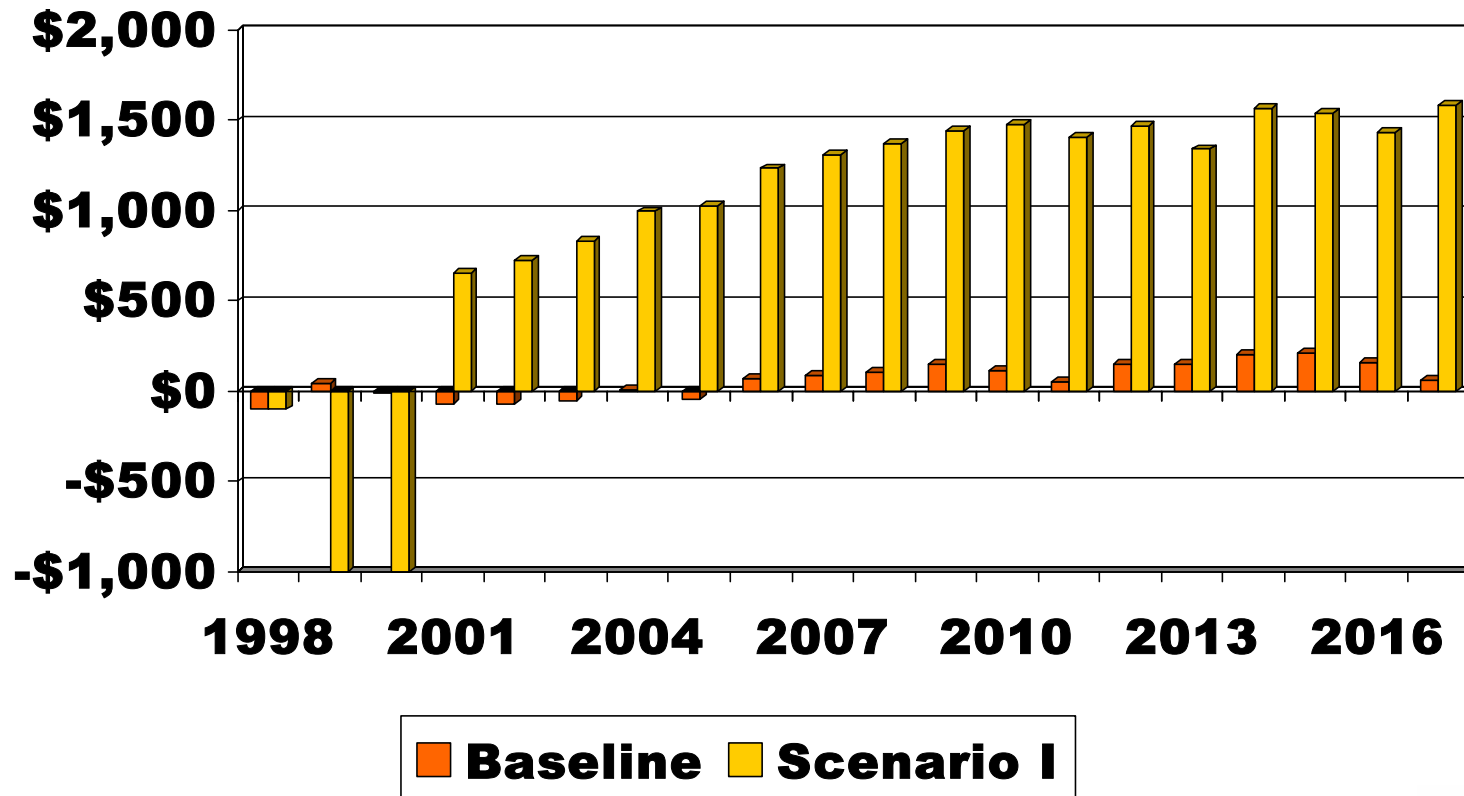
◆ Appraisals

- Comparable facilities
- Alternative use
- Net present value of cash flows or IRR
- Actuarial

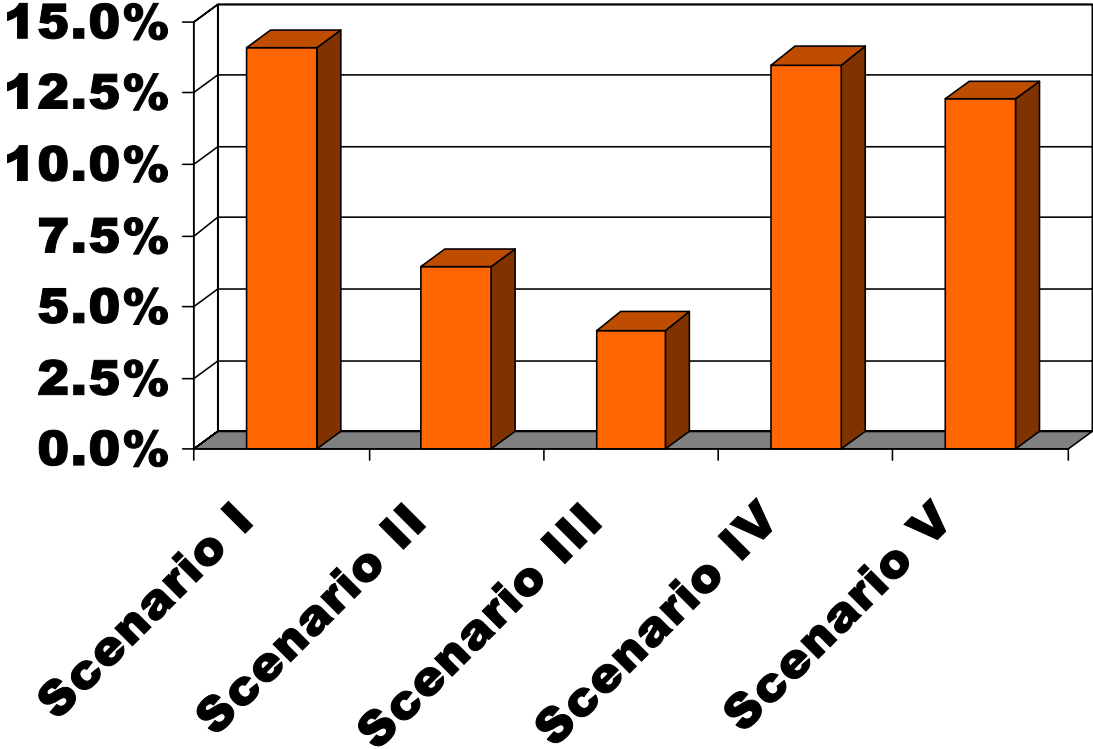
Management Issue A

- ◆ How do we evaluate (justify) use of 50% of credit-line for improving CCRC
- ◆ Description of alternatives
 - \$9.0 million expansion
 - \$3.5 million expansion
 - \$3.5 million expansion with pent-up demand
 - \$10.0 million expansion
 - \$10.0 million expansion with sheltered beds

Baseline Net Cash Flows versus Scenario I = 14.1%



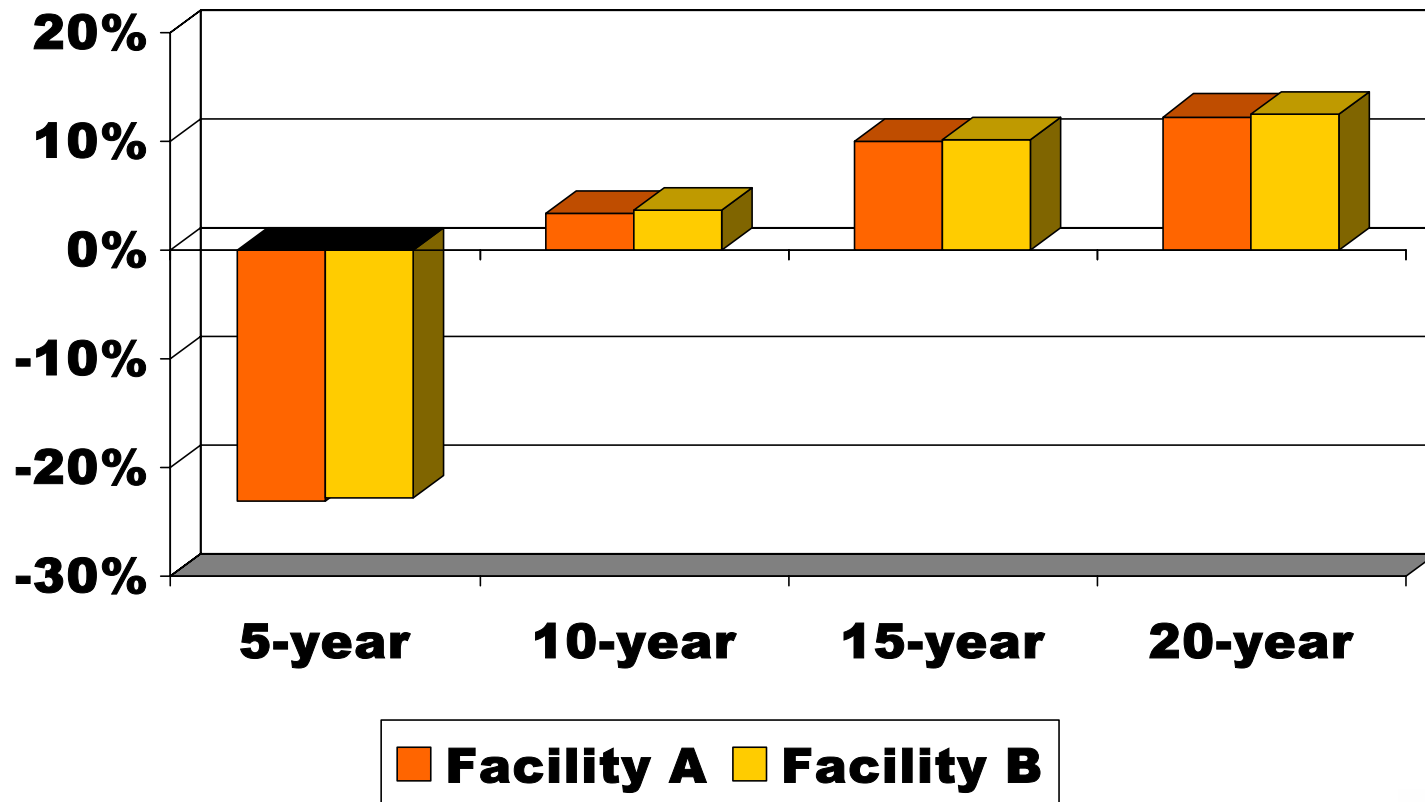
Comparison of IRR Results



Management Issue B

- ◆ How do we determine purchase price for acquiring an existing CCRC?
- ◆ Description of alternatives
 - Commission traditional appraisal
 - Minimum cash payback period
 - Goals for investment returns

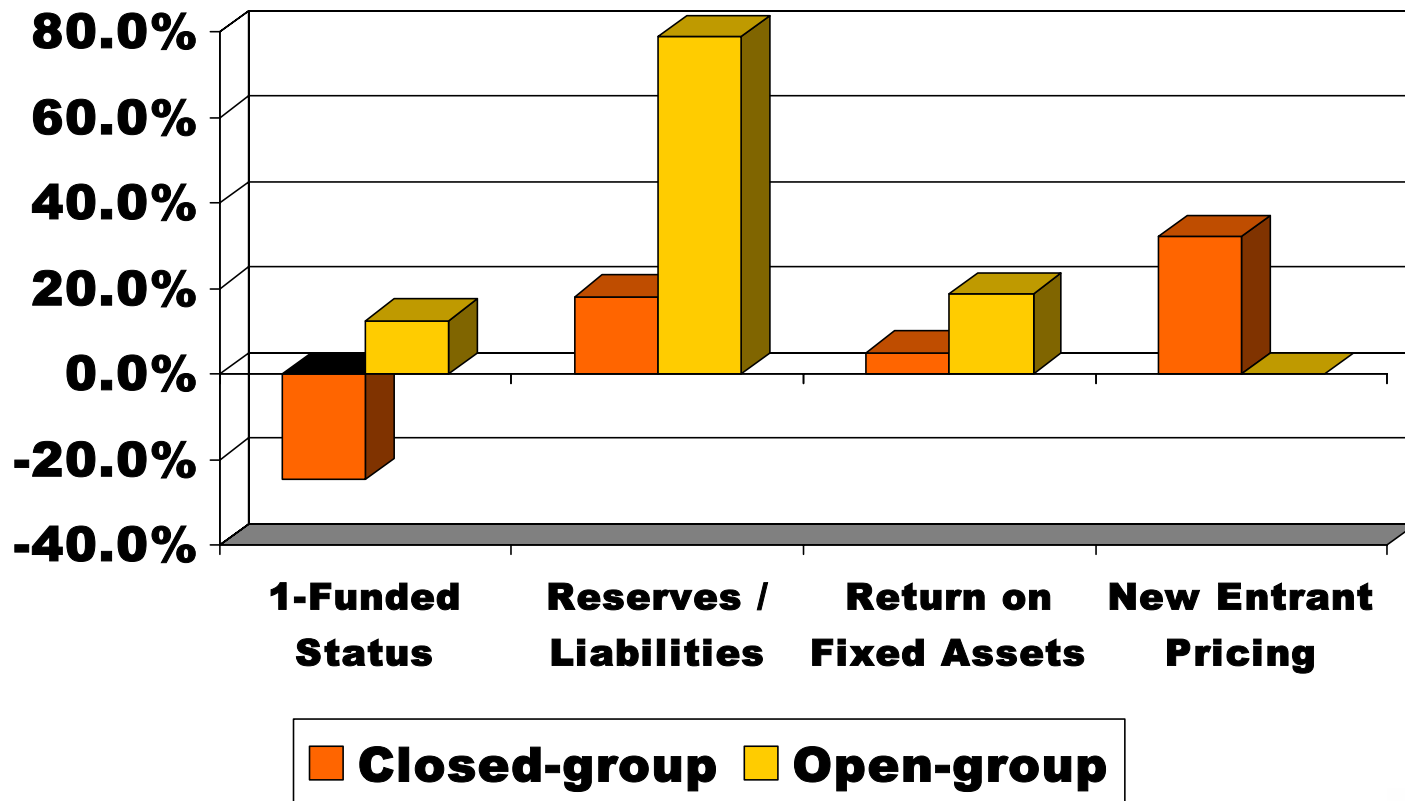
IRR Calculations for Various Timeframes



Management Issue C

- ◆ The actuarial valuation as of December 31, 1999 shows an unfunded liability, but the new entrant pricing test shows an actuarial surplus
- ◆ Is there a method to reflect the surplus in new entrants' fees with the current closed-group actuarial valuation?

Open- and Closed-group Actuarial Valuations



When is an Open-Group Valuation Appropriate?

- ◆ Concept is based on adjusting fixed assets values based on surplus in new entrants' fee--assumes that these fees are accepted in the marketplace
- ◆ In this extreme example, fixed assets are worth nearly 3 times book value
- ◆ Use cautiously when significant intergenerational transfer exists

Predictions for the Future

- ◆ The best way to predict the future is to create it
 - CCRCs with multiple contract options will dominant marketplace, such as Types A, B, and C on same campus along with equity or condo models--this means that pricing and potential adverse selection issues will have to be resolved

Predictions for the Future

- ◆ The best way to predict the future is to create it
 - An information system will arise that will provide meaningful financial, operational, clinical, and marketing information
 - Limited-use tools such as operational reviews, market audits, and capital need assessments will become routine procedures
 - Regulation will remain a state-level initiative