# Cost-effectiveness in Healthcare

### QALY Analysis

Quality-Adjusted Life Years in economic evaluation

### Budget Impact

Healthcare system financial implications

### Value Frameworks

ASCO, ESMO, NCCN value assessment tools

### Reimbursement

Insurance coverage and payment models

**Access Issues: Balance innovation with affordability and equitable distribution**

## Detailed Analysis

### 1 QALY Analysis (Quality-Adjusted Life Years)

QALY is a measure that combines the quantity and quality of life gained from medical interventions. It represents one year of life in perfect health, with values ranging from 0 (death) to 1 (perfect health). This metric is crucial for comparing the cost-effectiveness of different treatments and making healthcare resource allocation decisions.

### QALY Comparison Example

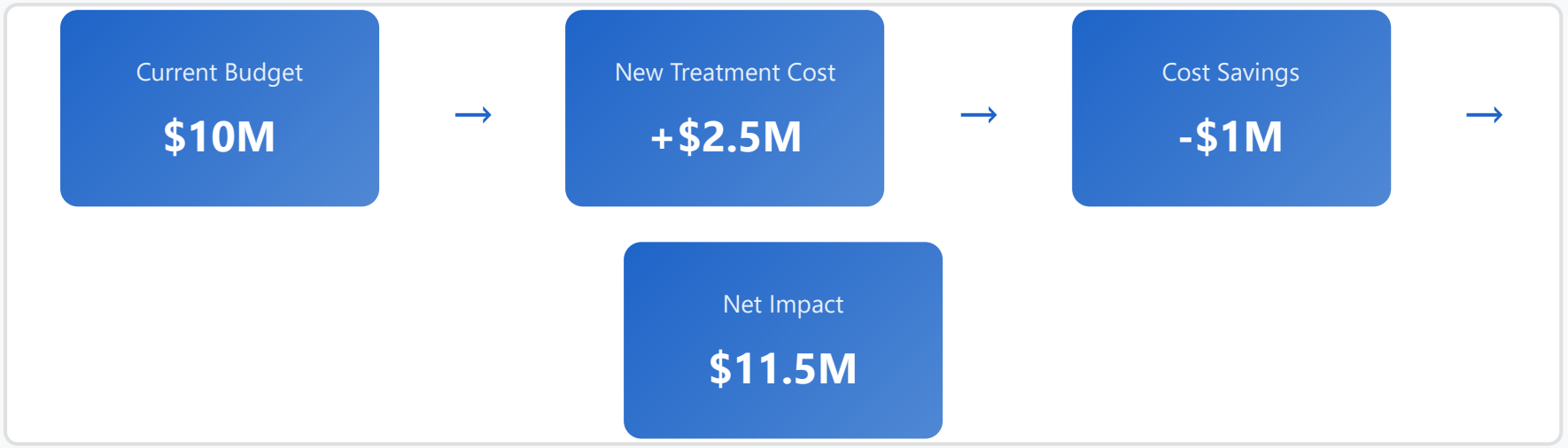

**Key Considerations:**

- Cost per QALY thresholds vary by country (e.g., $50,000-$150,000 in the US, £20,000-£30,000 in the UK)
- Incorporates both life expectancy and health-related quality of life
- Enables comparison across different diseases and interventions
- Considers patient preferences and utility values

## 2 Budget Impact Analysis

Budget Impact Analysis (BIA) estimates the financial consequences of adopting a new healthcare intervention within a specific healthcare system. Unlike cost-effectiveness analysis, BIA focuses on the total expenditure impact over a defined time period, considering factors such as patient population size, treatment costs, and displacement of existing therapies.

### Budget Impact Flow Example




**Key Components:**

- Target population size and market share projections
- Direct medical costs (drug acquisition, administration, monitoring)
- Offset costs from reduced complications or hospitalizations
- Time horizon typically 1-5 years
- Sensitivity analysis for different adoption scenarios

## 3 Value Assessment Frameworks

Value frameworks provide structured approaches to evaluate the clinical and economic value of cancer treatments. Major oncology organizations have developed these tools to help clinicians, patients, and payers make informed decisions by scoring treatments across multiple dimensions including clinical benefit, toxicity, and cost.

### Major Value Frameworks

#### ASCO Value Framework

American Society of Clinical Oncology framework evaluating clinical benefit, toxicity, and cost

#### ESMO-MCBS

European Society for Medical Oncology Magnitude of Clinical Benefit Scale

#### NCCN Evidence Blocks

National Comprehensive Cancer Network visual tool for efficacy, safety, quality, and affordability

**Framework Applications:**

- Support shared decision-making between clinicians and patients
- Inform formulary decisions and treatment pathways
- Standardize value assessment across different therapies
- Consider survival, quality of life, toxicity, and costs
- Regularly updated based on new evidence and stakeholder feedback

## 4 Reimbursement and Payment Models

Reimbursement encompasses the processes and policies through which healthcare payers cover and pay for medical treatments. This includes regulatory approval, health technology assessment, pricing negotiations, and various payment models. Understanding reimbursement is critical for ensuring patient access to new therapies while maintaining healthcare system sustainability.

### Reimbursement Process Flow

1. **Regulatory Approval**
   FDA/EMA approval based on safety and efficacy
2. **Health Technology Assessment**
   Evaluation of clinical and economic value
3. **Pricing and Negotiation**
   Price setting and payer negotiations
4. **Coverage Decision**
   Formulary inclusion and access policies
5. **Payment and Monitoring**
   Claims processing and outcomes tracking

**Payment Model Types:**

- **Fee-for-Service:** Traditional payment per service rendered
- **Value-Based:** Payment tied to quality metrics and outcomes
- **Bundled Payments:** Single payment for episode of care
- **Risk-Sharing Agreements:** Outcomes-based pricing with manufacturer

- **Managed Entry Agreements:** Conditional coverage with data collection