



DESIGN OF A PROSPECTIVE ECONOMIC EVALUATION FOR A TRI-NATIONAL CLINICAL TRIAL IN HIV PATIENTS (OPTIMA)

Julie Munakata, John Woolcott, Aslam Anis, Mark Sculpher, Wei Yu, Gillian Sanders, Ahmed Bayoumi, Vilijai Gulbinas, Zoe Philips, Douglas Owens for the OPTIMA Team
Health Economics Resource Center, Department of Veterans Affairs Cooperative Studies Program, Palo Alto CA



ABSTRACT

OPTIMA (Options in Management with Antiretrovirals) is a tri-national, multicenter, randomized trial with a 2X2 factorial design to evaluate whether the use of ≥5 highly active antiretroviral drugs (mega-ART) versus ≤4 (standard-ART) in salvage therapy, in the presence or absence of an antiretroviral drug free period (ARDFP) (before salvage therapy) will delay the occurrence of death or AIDS in HIV+ patients for whom standard antiretroviral therapies have previously failed. The aims of this prospective economic analysis are to evaluate the clinical benefits, costs, and incremental cost-effectiveness of these treatment strategies. We are evaluating the effect of therapy regimen on quality of life (QOL) by assessing longitudinal patient utilities using 3 preference-based instruments (HUI/2/3, Euroqol, and a computer-based global utility assessment tool), and using the MOS-HIV. The computer-based tool assesses current health by both the standard gamble and the time-tradeoff method. We plan to compare the utility-based assessments of QOL with clinical status, among the three countries, over time, and across assessment methods. Our assessments will provide QOL estimates based on both patient and community preferences, and will be one of the largest prospective longitudinal assessments of QOL completed for the HIV+ population. To date, we have collected 2083 QOL assessments in 143 patients. We will incorporate QOL assessments into a probabilistic model to estimate cost-effectiveness (and cost-effectiveness acceptability curves) in dollars per quality-adjusted life year gained, over the lifetime of the patients. We will perform joint and country-specific analyses of healthcare utilization, costs, and cost-effectiveness.

BACKGROUND

- OPTIMA will evaluate whether mega-ART vs. standard-ART in the presence or absence of an antiretroviral drug free period (ARDFP) will delay the occurrence of death or AIDS in HIV+ patients for whom previous HAART therapies have failed
- 504 HIV+ patients will be randomized over a period of 4.5 years (with an average followup of 3.5 years) at 68 medical centers in the U.S., U.K., and Canada
- In parallel with the main study, we are performing a prospective economic analysis

OBJECTIVES

- Assess quality of life using preference-based instruments and a functional status instrument
- Evaluate differences in healthcare utilization and costs
- Evaluate the cost-effectiveness of 1) mega-ART compared to standard-ART and 2) ARDFP compared to no ARDFP

METHODS

The Cost Effectiveness Framework

- Estimate the incremental cost-effectiveness ratio (ICER), or the incremental cost of obtaining incremental benefit

Intervention **ICER (\$/QALY)**

$$\text{mega-ART vs. standard-ART} = \frac{(\text{cost mega-ART}) - (\text{cost std-ART})}{(\text{QALY mega-ART}) - (\text{QALY std-ART})}$$

$$\text{ARDFP vs. no ARDFP} = \frac{(\text{cost ARDFP}) - (\text{cost no ARDFP})}{(\text{QALY ARDFP}) - (\text{QALY no ARDFP})}$$

Data Collected for CEA

- Costs
 - Healthcare utilization (i.e., outpatient visits, hospitalizations, medications, lab tests)
 - Cost estimates
- Quality Adjusted Life Years (QALY)
 - Length of life (from trial outcomes, literature)
 - Quality of life

Calculation of QALYs

- QALY – multiply length of life in health state by quality of life
- Quality of life
 - Preference-based instruments
 - Health Utilities Index 2/3 (HUI)
 - Euroqol (EQ-5D)
 - Computer based global utility assessment (time tradeoff and standard gamble)

Costing Strategy

- Sites in all three countries collect common set of healthcare utilization data from the case report forms
- Each country will then estimate their country-specific costs of healthcare utilization

Healthcare Costs

- Costs are estimated from societal perspective including:
 - Direct healthcare costs
 - Inpatient care
 - Outpatient care
 - Medication
 - Indirect healthcare costs
 - Loss of work or leisure time for obtaining medical care
 - Travel expenses

Cost Analysis

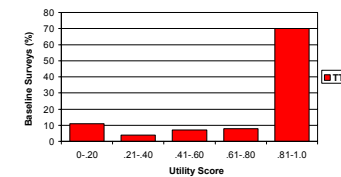
- Compare patterns of healthcare utilization across three countries
- Adjust differences in healthcare utilization across countries
- Use a modeling strategy only if a country does not have adequate data
- Costs from each country will be used for country-specific study

PRELIMINARY QOL RESULTS

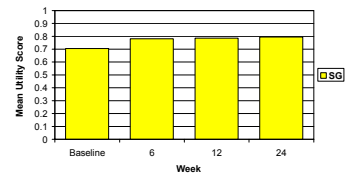
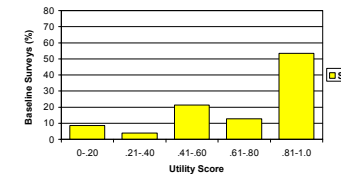
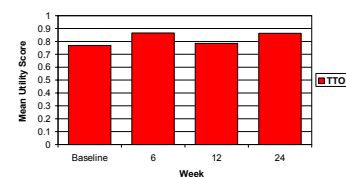
* Baseline utility scores

Baseline Utility Scores	Mean (±SD)	Median
Computer-Based Assessments		
Time Tradeoff (TTO)	0.78 (±0.31)	0.95
Standard Gamble (SG)	0.73 (±0.30)	0.87
HUI		
HUI2	0.72 (±0.23)	0.80
HUI3	0.61 (±0.32)	0.67
EQ-5D		
Domain	0.70 (±0.28)	0.73
Rating Scale	0.67 (±0.23)	0.70

* Distribution of TTO and SG scores at baseline



* Mean TTO and SG scores by visit



CONCLUSIONS

- It is feasible to collect longitudinal QOL data in HIV patients using four different measures
- Global utility data is consistent with published results in HIV patients in the literature
- We will incorporate QOL assessments into a probabilistic model to estimate cost-effectiveness
- We will perform joint and country-specific analyses of healthcare utilization, costs, and cost-effectiveness