

Approaches for the economic evaluation of pharmaceutical care services

Report from Workshop 2

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Aim of the workshop

- To establish a framework for the economic evaluation of pharmaceutical care services and define best practices in the development of respective economic models

Introduction to Pharmacoeconomics

- Why do we need health economics
- Application of economic analyses
- Different perspectives (Society, payer, provider, patient)
- Costs (Direct medical costs, direct non-medical costs, indirect costs, intangible costs)
- Steps in economic evaluation
- Cost-minimization analysis, Cost-benefit analysis, Cost-effectiveness analysis, Cost-utility analysis
- Time horizon
- Trial based or modelling costs (decision-tree)
- Discounting
- Sensitivity analysis

Outcomes of PC-services and use in economic analyses

- Outcomes in health care
- ECHO-model
- Quality of life (SF-36, Euro-5D)
- Utility and Quality Adjusted Life Years
- Value and Willingness to pay
- Economic evaluation of the Danish Asthma TOM project

Development of two studies

- Disease-specific service
 - Obesity
 - One year study
 - 500 patients
 - Primary care – community pharmacy
- Generic service
 - Acute care patients
 - One year study
 - 100 patients
 - Hospital

Disease-specific Service

- RCT: patients recruited in pharmacy
 - Level of randomization: patients
- 3-month intervention
 - Shopping, Cooking classes, exercise and patient education: 6 sessions
- Target: diabetes patients with obesity
 - Identified in pharmacies based on prescriptions for antihyperglycemic agents and visual screening for obesity (BMI>25 - 35kg/m²)
- 1-year follow-up to assess weight loss

Disease-specific Service

- Model-based economic evaluation
 - Adapted from orlistat study (published based on Swedish and British cost data)
 - Orlistat showed reduction in weight and HbA1c: Patients with >5% weight loss had average of 1.16% crude reduction in HbA1c
 - Incidence rates of micro- and macrovascular complications were obtained from UKPDS
 - Association between HbA1c and micro- and macrovascular complications was modelled based on UKPDS results
 - Association between onset of complication and decrease on QALY was obtained from various sources

Disease-specific Service

- Estimated cost savings based on estimated impact of cooking classes: 20% of patients in the intervention group and 2% in the control group achieve weight loss >5%
- Reduction in HbA1c results in ~2 saved AMI, 1 saved stroke, 0.65 QALYs
- 15,000 cost savings over 10 years follow-up
- Cost for the intervention was estimated at 30,000
- Net benefit: - 15,000
- Cost-Benefit Ratio: 2:1
- ROI: - 100%
- Cost-effectiveness ratio: 15,000 per 0.65 QALY or 23,000 per QALY

Generic Service

- All admissions to hospital general medicine unit were screened for readmissions the previous year
- Inclusion criteria: > 65 years, High risk patients (3 admissions within last 12 months)
- Exclusion criteria: Terminal ill, Parasuicidal
- 3 months enrolment period or until estimated number of patients
- Medication review during stay and discharge counselling. Follow-up after 1 month, 3 month and 12 months

Generic Service

- Trial based economic evaluation
 - 1-year follow-up via phone to obtain data on admission history
 - Before / After Study comparing readmission rates and total cost accrued from readmissions
 - Other cost caused by or saved with the intervention not considered
 - Patients lost to follow-up: cost imputed based on average cost in retained patients
- Assumptions
 - Readmission rate >65 years = 35% in 6 months
 - 5% of the admissions are preventable drug related admissions
- 800 bed hospital
 - 50 admissions per day, 3900 admissions in 3 month
 - 1300 readmissions first 6 months, 1750 readmissions during first year

Generic Service

- Outcome
 - 5% of the admissions are drug related = 195 admissions
 - Adjusted for exclusion criteria: Total 120 drug related admissions
 - 20% can be prevented by the discharge service = 25 admissions

Generic Service

- Investment Costs
 - Screening of the patients: 3 minutes x 50 patients/day = 2.5 hours
 - Medication review and Patient interview 5.5 hours
 - Total 8 hours per day x 75 Euro x 5 days x 13 weeks = 39.000 Euro
- Follow-up
 - Phone calls: 1-2 weeks, 6 months, 12 months: 15 minutes x 120 patients x 3 times = 11.250 Euro
- Total costs = 50.250 Euro

Generic Service

- Cost savings
 - Cost of admission (2500 – 4500 Euro)
 - Prevented admission (2500 – 4500 Euro) x 25
= 62.500 Euro – 112.500 Euro
- Net cost benefit = 12.500 – 61.250 Euro

Study Plan Evaluation

- Both proposals were reviewed based on ISPOR guidelines for the conduct of model-based / trial-based economic evaluations
- Various technical steps and quality checks need to be added
- Planning of economic design and a priori cost calculations were considered valuable in designing / selecting the intervention and study outcomes