RESPIRATORY-RELATED DISORDERS – Cost Studies

PRS8

OPTIMA MODEL-BASED COST-UTILITY ANALYSIS OF FIXED COMBINATIONS SALMETEROL/FLUTICASONE VS. BUDESONIDE/FORMOTEROL IN TREATMENT OF ASTHMA IN RUSSIA

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OBJECTIVES: To compare cost and utility of asthma treatment with fixed combinations ICS+LABA Salmeterol + Fluticasone (SAL/FP maintainance treatment) vs. Budesonide+Formoterol (BUD/FOR in both maintenance and rescue treatment). **METHODS:** OPTIMA model includes 4 steps-by-step sub-analyses of 1- drugs cost, 2- cost and utility (quality of life; QoL) with controlled and uncontrolled asthma, 3- proportion of controlled and uncontrolled asthma achieved by using comparators, 4- total cost, saving and utility. In this analysis we used: average drugs prices and drugs dosage proportion sold in reimbursement in 2008 from Farmexpert market monitoring; number of inhalations per day data was derived from instruction and published study (Johansson G. et al. 2006) for SAL/FP and Budesonide+Formoterol, respectively; QoL and number of resources with controlled and uncontrolled asthma was derived from doctoral dissertation of **Demko I.V. 2007; resources unit-cost from** government regulation on 2009 health care insurance program; work-off day cost included tax deficiency, GDP underproduction and sick pay; frequency of controlled asthma from clinical trials (assumption: for Budesonide+Formoterol we used maximal published % of asthma-control days because of no data on % of asthma-control). Core formula of analysis is: cost of drug + % controlled * cost of controlled + % uncontrolled * cost of uncontrolled. **RESULTS:** Average monthly cost of drugs were 1672 Rub and 1458 Rub (~ €40 EUR and €35) for SAL/FP and BUD/FOR, respectively. Cost and QoL and were 320 Rub (~ €8) and 0.75 in controlled and 62,753 Rub (€1400) and 0.49 in uncontrolled asthma. Drugs allow to achieve asthma-control in 75% (GOAL study) and 47.4% (see assumption), respectively. Total cost were 35,991 Rub and 50,654 Rub; utility were 0.69 and 0.613 for SAL/FP and BUD/FOR, respectively. **CONCLUSIONS:** Total cost in SAL/FP arm is lower than in BUD/FOR, but utility is higher. Therefore, SAL/FP is the dominating alternative.

PRS9

THE IMPACT AND COSTS OF REIMBURSED SMOKING CESSATION USING VARENICLINE IN DENMARK

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OBJECTIVES: To show the economic consequences of implementing reimbursement for pharmacological smoking cessation, i.e. varenicline, in Denmark compared with future disease events avoided and corresponding savings in the health care sector and the society due to reduced smoking prevalence. **METHODS:** A costing template developed by the National Institute for Health and Clinical Excellence in UK for the implementation of varenicline in smoking cessation in the UK (http://guidance.nice.org.uk/TA123/CostTemplate/xls/English) was adjusted and applied for Denmark using Danish data on smokers, costs of pharmacological smoking cessation, costs of disease events, etc. and Danish reimbursement rules. **RESULTS:** The public health insurance costs in Denmark for reimbursing a quit-motivated smoker 12 weeks of prescribed varenicline will amount to 949–1,920 DKK (1 Euro = 7.45 DKK) with co-payment being lower for chronically ill persons. Assuming reimbursing 40,000 smokers will then be at a cost for the national health insurance between 38–77 million DKK. However, the benefit will be 9,000 abstinent persons, thus preventing respectively 2110, 3383 and 5214 disease events (50% COPD) after 2, 10 and 20 years, respectively. Accordingly after 2 years, the health care sector savings due to an avoided first acute hospital contact (DRG-charges for each disease) amount to 47 mill. DKK or 281 mill. DKK for the society, when health care savings after the first acute contact and production lost are included. At 20 years health care sector savings rise to 141 million DKK (or 846 million DKK in societal savings) due to 9000 abstinent persons. **CONCLUSIONS:** The study shows that break-even between higher health insurance costs (reimbursement of prescribed varenicline) and costs saved due to avoidance of the first acute hospital contact will for persons with a low reimbursement rate appear less than 2 years after initiation of smoking cessation. Varenicline is reimbursed in Sweden, UK, Ireland and Belgium, but not in Denmark.

PRS10

THE ECONOMIC IMPLICATION OF EARLY DETECTION OF COPD IN GENERAL PRACTICE IN DENMARK

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Nearly 300,000 Danes have undetected chronic obstructive lung disease (COPD) with reduced quality of life (QoL) and high societal costs. The earlier COPD can be detected the higher is the chance that progression of COPD severity stages can be curbed. **OBJECTIVES:** Following the recommendations by the Danish National Board of Health to analyse the economic consequences for the health care sector and society of an early detection of COPD in patients visiting their general practitioner (GP). **METHODS:** In the project covering 10% of the Danish GPs (n = 335) patients fulfilling a number of criteria (>35 years, smoking/tobacco exposure, no previous COPD, ≥1 lung symptom, i.e. cough, dyspnea, wheezing, phlegm) were offered spirometry. Airway obstruction was defined as FEV1/FVC <70% with COPD severity levels according to GOLD. A literature review in Medline identified annual costs of COPD severity stages. Saved costs of early detection were calculated as the cost difference between COPD stages. The results were extrapolated to a Danish setting. **RESULTS:** Of the 3,099 patients (mean age 57 years) included 35% were screened as being airway obstructive (29% mild, 51% moderate, 18% severe, 2% very severe). In terms of COPD costs all published studies reviewed showed increasing costs with increased disease severity. Screening 25% of the undetected COPD patients in Denmark—assuming the same distribution on severity stages as found in the study—€77–213 million can potentially be saved annually in the health care sector, if progression to more severe COPD stages is avoided. With a 100% screening success annual savings increase to €309–894 million. Adding production lost will increase this further. **CONCLUSIONS:** Early detection of COPD at the GP-level is cost-effective, even when the screening costs are subtracted. Furthermore, the patients QoL will increase. Early detection of COPD ought to be a responsibility for every GP in the future.

PRS11

ANALYSIS OF ASTHMA-RELATED OUTCOMES AND COSTS FOR PERSISTENT ASTHMA PATIENTS TREATED WITH BECLOMETHASONE DIPROPIONATE HFA OR BUDESONIDE INHALATION POWDER

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OBJECTIVES: Examine outcomes and costs for persistent asthma patients who initiated therapy with beclomethasone dipropionate HFA (BDP-HFA—e.g., QVAR®) or budesonide inhalation powder (BUD—e.g., Pulmicort®). **METHODS:** MedStat's Commercial Claims and Encounter Database (July 1, 2002—June 30, 2007) was utilized. Patient who initiated therapy with BDP-HFA or BUD (first use = index date) and met the following criteria: a) no receipt of other study medication in the 1 year post-period; b) persistent asthma in the 1 year pre—period; c) age 5–64; d) no diagnosis of COPD; and e) continuous insurance coverage from 1 year pre through 1 year post-period were included (N = 8,418). Logisitc regressions examined the probability of an asthma-related ER visit or hospitalization while general linear modesl with a log link were used to examine the association between receipt of BDP-HFA or BUD on asthma-related annual total costs and cost components. **RESULTS:** Receipt of BDP-HFA, compared to BUD, was associated with a 37% reduction in the odds of an asthma-related ER visit (OR = 0.628; 95% CI 0.506–0.780) and a 35% reduction in the odds of an asthma-related hospitalization (OR = 0.646; 95% CI 0.501–0.832). Asthma related total annual costs were significantly lower for the BDP-HFA cohort compared to the BUD cohort ($1142 vs. $2078; $P < 0.0001$) as were asthma related component costs of inpatient costs ($228 vs. $615; $P < 0.0001$), outpatient costs ($264 vs. $427; $P < 0.0001$), ER costs ($61 vs. $142; $P < 0.0001$), and drug costs ($648 vs. $1167, $P < 0.0001$). **CONCLUSIONS:** Results indicate that for persistent asthma patients receipt of BDP-HFA, compared to receipt of BUD is associated with a decreased probability of asthma-related hospitalization or ER visits and lower asthma-related costs.

PRS12

THE CZECH BURDEN STUDY: BURDEN AND QUALITY OF LIFE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE EXACERBATION

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OBJECTIVES: To estimate direct and indirect costs and quality of life (QoL) of patients with COPD exacerbation in comparison with costs and QoL of patients with similar COPD severity (GOLD criteria) but without exacerbation. **METHODS:** A total of 90 in- and outpatients with COPD (grade II–IV) exacerbation (EXA-group) were assessed retrospectively (3 month prior to exacerbation) and prospectively (3 month after exacerbation). A control (CO-group) of 90 patients with the same grade distribution but in stable health during past 3 months was assessed retrospectively (past 3 months). Direct costs were hospitalization, outpatient visits, laboratory tests, imaging, medication and rehabilitation. Indirect costs included short and long term disability payments. All costs were converted to a period of 180 days; health care costs used 2008 prices from the payer's perspective. At inclusion day (in both groups) and at final visit in the EXA-group a validated Czech translation of the EQ5D was completed. **RESULTS:** Both groups were comparable at baseline in terms of age, gender, duration of COPD. Mean 6-months costs were significantly higher, €3796 vs. €1540(1€ = 26CZK), in the EXA-group ($p < 0.001$). Direct costs accounted for 86 % in the EXA-group and 78 % in the CO-group. Costs for exacerbation management (hospitalization and/or outpatient treatment) and medication represented major cost-drivers in the EXA-group. In the CO-group medication represented 52 % of direct costs. EQ5D utilities in the CO-group and in the EXA-group at final visit were comparable (0.566 EXA-group vs. 0.582 CO-group; NS). EXA-group utilities at inclusion were significantly lower compared to final measurement (0.377 EXA-entry v.s. 0.566 EXA-final; $p < 0.001$), reflecting the quality of life impairment during COPD exacerbation. **CONCLUSIONS:** The BURDEN study confirmed for the Czech Republic a considerable economic burden of COPD exacerbations. It also showed severe impairment of QoL. Results are in accordance with international literature.