based on a societal perspective, was assessed for women with menopausal symptoms. **METHODS:** An individual state transition model populated Swedish data was used to estimate the cost-effectiveness of women with menopausal symptoms. The model consists of the following disease states: Coronary Heart Disease (CHD), Stroke, Venous thromboembolic events (VTE), breast cancer, colorectal cancer, hip fracture, vertebral fracture and wrist fracture. HRT therapy was modelled by its impact on the disease risks during therapy and possible effects after the cessation of therapy. The model calculates costs and health effects or quality adjusted life years (QALYs) with and without intervention. The resulting cost per gained QALY was compared to the value of a gained QALY, which was set to 65,000€. **RESULTS:** The cost per QALY gained for Swedish women with intact uterus and menopausal symptoms were estimated to 1404€, 1188€, and 1004€ when the therapy started at the age of 50, 55, and 60, respectively. The cost per QALY gained was found to be below the set value of a QALY at very low symptom related reductions in the quality of life. **CONCLUSIONS:** The results indicate that there is high probability that HRT is cost-effective for the treatment of women with menopausal symptoms.

PCV23

ACUTE COSTS OF STROKE IN THE UK NATIONAL HEALTH SERVICE IN 2002–2004

Luengo-Fernandez R[1], Gray A[1], Mehta Z[2], Rothwell P[2]
[1]Oxford University, Oxford, Oxfordshire, UK; [2]Oxford University, UK

OBJECTIVE: Stroke is a major cause of morbidity, health service use, and death in the UK. Previous studies report substantial associated costs, particularly related to hospitalisation. However, no previous UK analysis has used data from a population-based incidence study with full case ascertainment, without which major inclusion bias is likely. Using data from such a study, we estimate the acute costs per patient over the first year from initial stroke, by severity of stroke and prior atrial fibrillation. **METHODS:** Event and hospitalisation (inpatient or outpatient) data were obtained from the Oxford Vascular Study, a prospective cohort study of all individuals in 9 general practices in Oxfordshire, UK, which identified 346 patients experiencing a stroke from April 1, 2002–March 31, 2004. Transient ischaemic attacks were excluded. Mean costs per patient were calculated, adjusting for censoring. **RESULTS:** In all, 212 (62%) patients were admitted, the remainder being managed in the outpatient clinic. The mean censoring-adjusted cost per patient was GBP6508, 69% of which was incurred within 60 days after the index event. Patients with stroke recurrence in the study period incurred costs of £7881 compared to GBP6089 in those without. Costs in patients with prior atrial fibrillation were £9757, compared with £5687 in those without ($p = 0.028$). Patient costs by stroke severity (28-day Rankin score 0/1 = mild, 2/3 = moderate, 4/5 = severe, 6 = dead) were £1138, £7471, £18181, and £1602. **CONCLUSIONS:** We derived reliable and up-to-date estimates of acute care costs associated with stroke over the first 12 months, using data from an "ideal" population-based incidence study. The impact of severity of initial stroke and of prior atrial fibrillation on subsequent costs. Our estimates, which will be extended as follow-up continues, should be of value to analysts interested in assessing the burden of stroke and the cost-effectiveness of interventions.

PCV24

PHARMACOECONOMIC EVALUATION OF THE CIBIS-II TRIAL

Di Stasi F, Scalone L, Mantovani LG
University of Milan, Milan, Italy

OBJECTIVES: Beta-blockers have provided evidence of improving survival in chronic heart failure (CHF) patients. Specifically, the Cardiac Insufficiency Bisoprolol Study II (CIBIS-II) has demonstrated a significant reduction in mortality and morbidity among patients with moderate to severe CHF treated with bisoprolol. Our aim was to investigate the economic consequence of bisoprolol therapy in CHF patients in Italy. **METHODS:** Data were derived from the CIBIS-II trial. We conducted a cost-effectiveness analysis, comparing standard care + bisoprolol vs standard care + placebo in the perspective of the Italian National Health Service (NHS). We identified and quantified medical costs: drug costs according to the Italian market price; specialist visits for initiation and up-titration of bisoprolol therapy and hospitalizations were quantified on the basis of the NHS tariffs (2004). Effects were measured in terms of mortality and morbidity reduction (number of deaths, life years saved and frequency of hospitalizations). We considered an observational period of 1.3 years that was the average follow-up recorded in the trial. Discounting was not performed because of the relatively short follow-up of patients. We conducted one-way sensitivity analyses on unit cost and effectiveness. **RESULTS:** The overall cost of care per 1000 patients treated for 1.3 years was estimated in 2,043,700€ in the bisoprolol group and in 2,366,168€ in the placebo group, resulting in a net saving of 322,468€. The number of additional patients alive with bisoprolol was 55 per 1000 patients, the number of LYS was 36 at 1.3 year. **CONCLUSION:** Bisoprolol therapy is dominant since it is both less costly and more effective than standard care. Results of sensitivity analysis showed that bisoprolol therapy remains dominant even to changes in unit cost of drug, hospitalizations and frequency of hospital admissions.

PCV25

SMOKING CESSATION FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE: A COST-EFFECTIVENESS ANALYSIS

Der Kinderen AJ, Franco OH, De Laet C
Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, The Netherlands

OBJECTIVES: The effectiveness of smoking cessation (SC) in the reduction of cardiovascular disease (CVD) risk is demonstrated. However, different options exist with variable levels of costs and effects and which one to choose for primary prevention of CVD is unclear. We evaluated the cost-effectiveness of different strategies of SC. **METHODS:** Using data from the Framingham Heart Study and the Framingham Offspring Study we built multistate life tables to model the cost-effectiveness of different SC therapies (Nurse or GP advice, nicotine substitutes (with or without GP guidance), buproprion and a combination of buproprion and nicotine substitutes) in male smokers free of CVD at baseline and aged between 45 and 65. Participants were categorized in terms of 10 years absolute risk of coronary heart disease (based on the Anderson Formulae) and age. Cessation rates, risk reduction rates for CVD and relapse rates were taken from the literature. We calculated the cost-effectiveness in terms of costs per year of life saved (LYS) using a time horizon of 5 and 10 years. A third-party payer perspective was used and cost and effects were discounted at 4%. Costs were estimated either by tariffs or market prices and costs of prevented events were taken from the literature. Finally, we compared the strategies in an (incremental) cost-effectiveness analysis. **RESULTS:** Costs per LYS for all strategies were negative at all levels of risk and age groups. SC with GP advice was most favourable, ranging from –4919€ to –3187€ and SC with buproprion the least (–3460€, –1215€). In the incremental analysis SC with nicotine substitutes alone is to be

preferred (for all groups) followed by buproprion. **CONCLUSIONS:** Smoking cessation is a very cost-effective intervention for primary prevention of CVD and should be offered first to the smoking populations, before other interventions are considered.

PCV26

THE COST-EFFECTIVENESS OF EXTENDED ANTITHROMBOTIC PROPHYLAXIS FOLLOWING TOTAL HIP ARTHROPLASTY

Skedgel CD[1], Goeree R[2], Anderson DR[1]
[1]Dalhousie University, Halifax, NS, Canada; [2]McMaster University, Hamilton, ON, Canada

OBJECTIVES: To compare the cost-effectiveness of extended antithrombotic prophylaxis using low-molecular-weight heparin (LMWH), warfarin or aspirin with no extended prophylaxis following total hip arthroplasty in terms of incremental cost per life year gained. **METHODS:** Health benefits of extended antithrombotic prophylaxis, measured as the reduction in symptomatic venous thromboembolic (VTE) events and deaths for each treatment alternative, were determined through a meta-analysis of the literature. Potential years of life lost per VTE death was based on mean life years remaining for the age distribution of all patients undergoing total hip arthroplasty in Canada in 2003. Costs included retail drug costs, administration and monitoring costs of extended prophylaxis and costs of diagnosing and managing VTE or bleeding events developing within three months of surgery. The economic analysis used probabilistic modeling structured around a decision tree characterizing extended prophylaxis choices following total hip arthroplasty. **RESULTS:** No studies reported a statistically significant effect for aspirin so it was excluded from the reference scenario. The reference scenario assumes 50 percent of LMWH and warfarin patients require home visits for injections or INR monitoring. Probabilistic simulations found positive life years (LY) gained in the LMWH and warfarin cohorts relative to no extended prophylaxis (LMWH = 6.9 LY gained per 1000 treated; warfarin = 5.5/1000). Net treatment costs were highest in the LMWH cohort at US$742,983 per 1000. LMWH costs were extremely sensitive to the proportion of the cohort receiving home care. Net costs with warfarin were US$70,540 per 1000 and were much less sensitive to home visit proportions. The incremental cost-effectiveness ratio (ICER) of warfarin relative to no further prophylaxis is US$12,778 per LY gained, while LMWH relative to warfarin is US$475,159. **CONCLUSIONS:** The cost-effectiveness of warfarin is quite favourable relative to generally accepted thresholds. LMWH is beyond what would be considered cost-effective, even at the lowest home care proportions.

PCV27

COST-EFFECTIVENESS OF BUPROPION IN SMOKING CESSATION IN FINLAND

Hahl J, Jormanainen V
GlaxoSmithKline Oy, Espoo, Finland

OBJECTIVES: To evaluate short (12 months) and long term cost-effectiveness (CE) of smoking cessation therapies (willpower, physician advice, nicotine replacement therapies [NRT/inhaler/patch/gum/tablets/spray] and bupropion [BUP]) in Finland. **METHODS:** A decision analytic model was constructed and analysed from societal viewpoint. Costs included direct costs. Drug prices were retail prices excluding taxes. Drug dosing followed recommendations. Prescription medicine treatments (Rx; NRT/spray, BUP) included the cost of 2 physician visits. Adverse event incidence was assumed 1% in pharmacotherapies. Short term effectiveness (probability to quit) was estimated from those studies included in Cochrane reviews of smoking cessation that fulfilled the inclusion criteria (12 months of continuous abstinence; OTC: level of support low; Rx: level of support low or high, no group therapy) using Mantel-Haenszel weights. Long-term effectiveness (life years saved, LYS) was estimated from age specific differences in life expectancies between smokers and quitters. **RESULTS:** In the short-term BUP dominated all pharmacotherapies (NRTs), and its cost/quitter was the lowest (1167€), disregarding willpower. The incremental cost/quitter was 1060–1220€ compared to non-pharmacotherapies. In the long term, BUP cost/LYS was the lowest (365€). After 3% discounting of health benefits (LYS) BUP cost/LYS was 898€. The BUP incremental cost/LYS as compared to non-pharmacotherapies was 330–380€ (discounted 820–940€). Sensitivity analyses (effectiveness, adverse events) did not produce changes in BUP's positioning among cessation therapies. **CONCLUSIONS:** In Finland, BUP is a cost-effective alternative in smoking cessation in short and long-term compared to many other health care interventions.

PCV28

COST-EFFECTIVENESS OF RAMIPRIL IN PATIENTS AT HIGH RISK FOR CARDIOVASCULAR EVENTS: A SWISS PERSPECTIVE

Sendi P[1], Russ W[2], Battegay E[3], Bucher H[1]
[1]Institute for Clinical Epidemiology, Basel, Switzerland; [2]Aventis Pharma AG, Zurich, Switzerland; [3]Outpatient Department of Internal Medicine, Basel, Switzerland

OBJECTIVES: Ramipril may prevent cardiovascular death, myocardial infarction, and stroke in patients without evidence of left ventricular dysfunction or heart failure who are at high risk for cardiovascular events. In the present study, we assessed the cost-effectiveness of ramipril in patients with an increased risk of cardiovascular events from a third-party payer's perspective in Switzerland. In addition, the cost-effectiveness of ramipril in the subgroup of diabetic patients was assessed. **METHODS:** We developed a decision analytic cost-effectiveness model to estimate the incremental costs (in 2001 Swiss Francs [CHF]), incremental effects (in terms of life-years gained [LYG]) and incremental cost-effectiveness (CHF/LYG) of ramipril versus placebo. Clinical input parameters were derived from the Heart Outcomes Prevention Evaluation (HOPE) study. Cost data were extracted from the literature. Deterministic sensitivity analysis was used to assess the impact of varying the input parameters on the cost-effectiveness of the intervention. In addition, first-order Monte Carlo simulation was used to capture patient-to-patient variability, presented as cost-effectiveness acceptability curves. **RESULTS:** The incremental cost-effectiveness ratio of ramipril versus placebo was CHF 6005 per life-year gained in the base case analysis. In diabetic patients the cost-effectiveness ratio was CHF 3790 per life-year gained. Varying the price of ramipril in a deterministic sensitivity analysis only had a moderate impact on the cost-effectiveness ratio in the overall population (range: CHF 3652–15,418/LYG) as well as in diabetic patients (range: CHF 2370–9468/LYG). **CONCLUSIONS:** Ramipril in patients at high risk for cardiovascular events represents an efficient use of scarce health care resources in Switzerland and is cost-effective under reasonable assumptions. Ramipril is even more cost-effective in the subgroup of diabetic patients.