trolled with ≥ 3 different classes of antihypertensive therapy). Catheter-based renal denervation (RDN) is a novel, minimally invasive therapy for treatment-resistant hypertension. The aim of this study was to assess the cost-utility of RDN as compared to current standard of care (SoC) for refractory hypertension in Belgium. **METHODS:** A lifetime state-transition, Markov model was used, with health-states encompassing possible long-term consequences of hypertension: stroke, myocardial infarction, angina, heart failure, end-stage renal disease. Risk equations were used to calculate the risk of events with changing systolic blood pressure (SBP). Reductions in SBP following RDN vs. SoC pertain to the results of the Symplicity HTN-2 randomized controlled trial. The underlying modeled cohort was defined similar to the same trial: mean baseline SBP 178 mmHg, mean age 58 years, 34% with diabetes mellitus. Costs pertained to published economic evaluations or public tariffs and reflected the Belgian payer perspective. Costs and health outcomes were discounted at a rate of 3%, and 1.5% respectively. **RESULTS:** Projected lifetime costs were 21,743€ and 24,558€ in the SoC and RDN arms respectively, while total projected life years were 16.43 and 17.23. RDN increased patients' quality of life with 0.93 quality-adjusted life years (QALYs) vs. SoC. This resulted in an incremental cost-utility ratio (ICUR) of 3,020€/QALY. Results were most sensitive to changes in SBP reductions, and the cost of RDN procedure, but remained under a willingness to pay (WTP) threshold of 20,000€/QALY. Probabilistic sensitivity analyses showed acceptable cost-effectiveness in 100% of cases, under a WTP threshold of 20,000€/QALY. **CONCLUSIONS:** Results of these analyses suggest that, under the current model settings, catheter-based RDN procedure could be a cost-effective strategy for resistant hypertension in Belgium.

PCV93

COST-EFFECTIVENESS ANALYSIS OF ATORVASTATIN COMPARED TO SIMVASTATIN IN THE PREVENTION OF CARDIOVASCULAR DISEASES IN THE CZECH REPUBLIC

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OBJECTIVES: To assess the impact of atorvastatin compared to simvastatin use in the Czech Republic on cardiovascular diseases (CVD), Life-Years Gained (LYG) and Quality-Adjusted Life Years (QALY), based on the real proportional consumption of both statins in particular strengths (10 mg, 20 mg, 40 mg). **METHODS:** Life-time cost-effectiveness Markov cohort model was developed with 1 year cycle length and 5 health sates, i.e. Alive without CVD, Alive with experience of CVD, Non-fatal CVD, Fatal CVD and Death. The probability of transition among health states were derived from Framingham equations or from SCORE equations (probability of the first non/fatal CVD), Czech life-tables (background mortality) and international cohort studies (probability of subsequent CVD). Patients enter the model with base-line risk characteristics: age, proportions of males, diabetics, smokers, level of systolic blood pressure and cholesterol (total and HDL) level. The efficacy data for particular statin and its strength were derived from latest meta-analyses. Drug acquisition costs of atorvastatin 10 mg and 20 mg were 10% higher compared to simvastatin 20 mg and 40 mg. The costs of fatal, non-fatal CVD and one-year follow-up after CVD were 1,410 EUR, 1,460 EUR and 580 EUR. Probabilistic sensitivity analysis (PSA) using a willingness to pay (WTP) threshold equal to 1 times GDP per capita (14,300 EUR) was applied. **RESULTS:** Over a life-time horizon, atorvastatin compared to simvastatin provides 8.14 QALYs vs. 8.07 QALYs, 11.33 LYG vs. 11,24 LYG, 44.8% vs. 46.3% of non-fatal CVD and 28.2% vs. 29.4% of fatal CVD. The increment of total costs was 330 EUR for atorvastatin, ICER for atorvastatin vs. simvastatin was then 4,720 EUR/ QALY. **CONCLUSIONS:** The use of atorvastatin generates 0.07 QALYs more compared to simvastatin per patient in the Czech Republic. There is a 98.5% probability of atorvastatin being cost-effective at the selected WTP.

PCV94

NOVEL ORAL ANTICOAGULANTS VERSUS WARFARIN – A BUSINESS CASE ANALYSIS

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OBJECTIVES: The decision on whether to use more expensive novel oral anticoagulants (NOACs) or invest resources for quality improvement of warfarin therapy requires inputs of both clinical and economic outcome analyses. Outcomes of NOACs comparing to warfarin therapy at various levels of patient-time in therapeutic range (TTR) in patients with atrial fibrillation were examined from health care provider's perspective. **METHODS:** A Markov model was designed to compare life-long economic and treatment outcomes of warfarin and NOACs in a hypothetical cohort of 65-year-old atrial fibrillation patients with $CHADS_2$score 2 or above. Model inputs were derived from clinical trials published in literature. Outcome measure was incremental cost per quality-adjusted life-year (QALY) gained (ICER). **RESULTS:** Expected cost and QALYs of NOACs were USD96,602 and 9.957, correspondingly, in base-case analysis. Using USD50,000 as the threshold of willingness-to-pay per QALY, NOACs therapy was cost-effective when TTR of warfarin therapy was 60%, or monthly cost of warfarin management increased by 1.5-fold or above to achieve 70% TTR. Warfarin therapy was cost-effective when TTR of warfarin was 70% with no increment in monthly cost of care, or when TTR reached 75% with monthly cost of warfarin care increased up to 2.5-fold. At TTR 60%, 70% and 75%, NOACs was cost-effective when monthly drug cost was <USD208, <USD135-200 and <USD96-160, respectively. 10,000 Monte Carlo simulations showed NOACs to be cost-effective in 77.2%, 52.7% and 31.7% of time at TTR of 60%, 70% and 75%, respectively. **CONCLUSIONS:** Acceptance of NOACs as cost-effective was highly depended upon drug cost, anticoagulation control for warfarin, and anticoagulation service cost.

PCV95

SCREEN OR NOT TO SCREEN FOR PERIPHERAL ARTERIAL DISEASE: GUIDANCE FROM A DECISION MODEL

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OBJECTIVES: Asymptomatic Peripheral Arterial Disease (PAD) is associated with greater risk of acute cardiovascular events. American heart association and American college of cardiology clinical practice guidelines recommend low dose aspirin to reduce the cardiovascular events and mortality in PAD patients. As asymptomatic PAD often remains undiagnosed, opportunities for secondary prevention are missed in primary care. Therefore, there is a clinical need of early detection of asymptomatic PAD and to initiate the appropriate preventive treatment. United States preventive services task force's recommendation against screening is heavily criticized and expansion of the evidence base for PAD screening is recommended in 2011 in a focussed update of the guidelines. This study aims to determine the value of PAD screening using ankle brachial index test in high risk individuals using decision analytic modelling. **METHODS:** A Markov model was developed to evaluate the cost effectiveness of selective PAD screening in high risk individuals followed by preventive treatment compared to no screening and no preventive treatment. The analysis was conducted from the societal perspective using a lifetime time horizon. To address the parameter uncertainty, probabilistic sensitivity analysis was performed. **RESULTS:** Screening and preventive treatment of identified PAD patients with low dose aspirin is a dominant strategy producing higher mean quality adjusted life years per patient for a lower lifetime cost. The cost effectiveness acceptability curves show that 100% simulations favour screening followed by preventive treatment at a willingness to pay threshold of 400 Euros. **CONCLUSIONS:** This decision analysis suggests that the targeted screening and secondary prevention of cardiovascular events in the identified patients, is a highly cost effective public health intervention. This study results may provide one of the building blocks of evidence expansion for advocating PAD screening and to promote its more widespread use to detect and treat PAD patients.

PCV96

COST-EFFECTIVENESS OF INCREASING STATIN ADHERENCE FOR PRIMARY AND SECONDARY PREVENTION IN COMMUNITY PHARMACIES

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OBJECTIVES: Therapy persistence is important to achieve optimal clinical benefits of statin therapy. The aim of this study was to determine the cost-effectiveness of pharmaceutical care in community pharmacies, aimed to increase persistence with statin therapy for both primary and secondary prevention of cardiovascular events (CVEs). **METHODS:** The effectiveness of the Dutch pharmaceutical care program MeMO on improving statin therapy persistence was measured in 500 patients and compared to 502 control patients. Time-investments of the program were also collected. Markov models with lifelong time-horizons were developed to estimate the influence of the program on CVEs: stroke, myocardial infarction (MI), revascularization and mortality. The efficacy of statins, taken from large clinical trials in primary and secondary prevention, were adjusted for therapy persistence. A Dutch health care provider's perspective was adopted for the analysis and probabilistic sensitivity analyses were performed. **RESULTS:** Patients in the MeMO program had a lower risk for non-persistence, RR = 0.50 (0.40-0.63), the effect was similar in primary and secondary prevention. In a cohort of 1,000 patients, 60% of whom had a history of CVE, the MeMO program resulted in a reduction of 8 non-fatal strokes, 2 fatal strokes, 16 non-fatal MIs, 7 fatal MIs and 14 revascularizations. Additional medication, disease management and intervention costs in the MeMO program were €375,000; the cost-savings due to reduced CVEs were €450,000. Thus, the MeMO program resulted in 83 quality-adjusted life-years (QALYs) gained and cost-savings of €75,000. Clinical benefits and cost-savings were highest in the secondary prevention population. **CONCLUSIONS:** Pharmaceutical care in community pharmacies can improve statin therapy persistence, resulting in more optimal prevention of CVEs. The MeMO program resulted in considerable clinical benefits and overall cost-savings. Persistence and adherence improving programs in community pharmacies may provide good value for money and health care insurers should consider reimbursing these activities in The Netherlands.

PCV97

COST-EFFECTIVENESS ANALYSIS OF IVABRADINE IN CHRONIC HEART FAILURE IN THE POLISH SETTING

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OBJECTIVES: To estimate cost-effectiveness of ivabradine used in treatment of chronic heart failure in Poland, using model based on individual patient data from pivotal SHIFT trial adapted using contemporary real-life epidemiology, treatment pattern and cost country-specific data. **METHODS:** Economic model based on SHIFT trial was originally developed for the UK setting and published. Based on the model, in November 2012 NICE gave its positive guidance for the analysed technology in line with EMA registered indication, acknowledging a range of conservative assumptions. Current study utilizes the NICE model populated with most recently published local data. General mortality was estimated from Polish life tables for the year 2010. Unit cost and expected rate of hospitalizations on standard treatment was based on publication in Polish Heart Journal. Standard treatment cost was based on official listing of reimbursed drugs. Average cost of ivabradine (5mg and 7.5mg, 56 tabs) was based on popular drug database (Kamsoft, April 2013). Exchange rate of National Bank of Poland 1 EUR=4.1759 PLN was applied (May 2013). **RESULTS:** At current pharmacy price (55.60 EUR / 56 tabs), incremental cost-utility ratio for ivabradine on top of standard treatment vs standard treatment alone is estimated at 10 230 EUR / QALY, well below the official cost-effectiveness threshold defined at 3*DGP *per capita* (25 336 EUR). Sensitivity analysis revealed that in order to exceed the cost-effectiveness threshold, price would have to be increased to 113.60 EUR (+104%). **CONCLUSIONS:** Conservative analysis shows that ivabradine used on top of standard treatment (ACE inhibitor, beta-blocker, MR antagonist, ±diuretics) in

patients suffering from chronic heart failure is a highly cost-effective health technology in the Polish setting, according to the criterion defined in Reimbursement Law. Robustness of this finding is demonstrated by the fact that cost-effectiveness is retained even at a price double vs base-case.

PCV98

STATIN COST-EFFECTIVENESS IN PATIENTS WITH PREVIOUS CORONARY HEART DISEASE: A SYSTEMATIC REVIEW OF THE COST-EFFECTIVENESS ANALYSIS DERIVED FROM SINGLE RANDOMISED CLINICAL TRIALS

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OBJECTIVES: Large randomized clinical trials (RCT) evidenced the benefits of statins in reducing major cardiovascular events in patients with established coronary heart disease (CHD). These multinational trials are likely to provide internally valid evidence. Cost-effectiveness analysis based on single trials costs and effects are common and represent the potential net benefit of an intervention in a well-controlled environment. The aim of this study is to systematically review the cost-effectiveness studies based on statins single trials in patients with previous CHD. **METHODS:** We searched to identify all literature relating to the cost-effectiveness of statins in the secondary prevention in patients with established CHD. Only studies with the effectiveness data extracted from a single RCT and clinical outcomes such as quality assessment, mortality or cardiovascular events rate were included. The cost per QALY was classified according to the WHO, following three categories of cost-effectiveness, Highly cost-effective, Cost-effective and Not cost-effective, adjusted with GDP per capita based on purchasing power parity (constant 2005 international USD). **RESULTS:** Twenty-one studies were included in the final analysis, covering a period range from 1996 to 2009. 7 large RCTs represented the origin of efficacy data. Most of studies assumed a full compliance, the Markov models were used in 11 out 21 studies. Time horizon ranged from 5 years to time life, with 10 years being the predominant choice. 9 studies performed a cost-utility analysis and showed the average cost per QALY, 8 of them classified as highly cost-effective and 1 cost-effective. Cost per QALY was sensitive for drug price, time horizon and event rates, 6 of this models models worked with composite endpoints. **CONCLUSIONS:** Statins are highly cost-effective in patients with CHD when effect size came from single well designed RCTs. Models heterogeneity and composite endpoints can decrease the robustness of the results.

PCV99

THE COST-EFFECTIVENESS OF CATHETER ABLATION AS FIRST-LINE TREATMENT

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OBJECTIVES: It has been suggested that radiofrequency catheter ablation could take priority over antiarrhythmic drugs as first-line treatment of paroxysmal AF, due to better efficiency, and fewer serious side effects. The objective of this study was to evaluate the cost-effectiveness of treating paroxysmal atrial fibrillation with radiofrequency catheter ablation as first-line treatment. **METHODS:** A decision-analytic Markov model was developed to study long-term effects and costs of catheter ablation compared to antiarrhythmic drugs as first-line treatment. **RESULTS:** Small, positive clinical effects were found in the overall population, a gain of an average 0.06 quality-adjusted life years (QALYs) to an incremental cost of €3033, resulting in an incremental cost-effectiveness ratio of €50 570/QALY. However, the incremental cost-effectiveness ratio of a 45-year-old patient was approximately €3434/QALY, while a 65-year-old costs €108 937 per QALY. **CONCLUSIONS:** Radio-frequency catheter ablation as first-line treatment is a cost-effective strategy for younger patients with paroxysmal atrial fibrillation. However, the cost-effectiveness of using catheter ablation as first-line therapy in older patients is uncertain, and in most of these cases antiarrhythmic drug therapy should be attempted before catheter ablation.

PCV100

ACTIVE-IMPLANTABLE CARDIAC DEVICES: IS THERE ROOM FOR COST SAVINGS IN PORTUGUESE HOSPITALS?

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OBJECTIVES: Portugal is facing an economic crisis that demands a tight control over all hospitals' expenditures, namely with medical devices, whose market price is not yet regulated or documented. This study aims to describe the number and value of the Active-Implantable Cardiac Devices (AICD) bought by Portuguese hospitals in 2011, as well as to quantify potential savings that can be obtained shifting utilisation from higher to lower prices. **METHODS:** In February 2012, 42 hospitals were asked by INFARMED – National Authority of Medicines and Health Products, IP, about the number, type and value of the AICD acquired, using an ad-hoc developed software. Potential savings analysis was performed at two levels: AICD sub-groups (according to Portuguese Medical Device Nomenclature) and individual device reference. Within each level, three cost-minimization scenarios were conceptualized based on the minimum price reported (scenario 1), the average between the average price and the minimum one (scenario 2) and the average price (scenario 3). **RESULTS:** During 2011, 73.8% of the hospitals enrolled (n=31) bought AICD, comprising 16,815 devices, at a cost of 40,217,411 euros. In numbers, the most common AICD were pacemakers (44.8%), whereas cardioverter-defibrillators were related to a higher expenditure ratio (51.5% of total cost). Based on the AICD sub-groups analysis, the potential savings were 14.5 million euros in scenario 1 (44.1% of total cost), 7.4 million euros in scenario 2 (22.5%) and 1.8 million euros in scenario 3 (5.3%). Following this scenario order, the device reference approach estimated savings of 6.2 million euros (18.8%), 3.4 million euros (10.3%) and 1.1 million euros (3.3%), respectively. **CONCLUSIONS:** Significant potential savings were found, being greater when analysing AICD subgroups, assuming equal efficiency and safety for all devices within these clusters. Despite scenario 1 higher savings, scenario 2 seems the most realistic and feasible, when trying to accomplish a sustainable health care system.

PCV101

COST ANALYSIS OF ALPROSTADIL (PROSTAVASIN®) AS TREATMENT FOR PATIENTS WITH PERIPHERAL ARTERIAL DISEASE STAGES III AND IV COMPARED WITH LUMBAR SYMPATHECTOMY IN MEXICO

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OBJECTIVES: Peripheral arterial disease is associated with significant adverse outcomes, especially in patients with critical limb ischemia (CLI; stages III and IV). At 6 months, the risk of amputation is 35%, and mortality 20%. In patients unsuitable for interventional therapy, treatment with prostanoids may help reduce the risk of adverse outcomes. We aimed to assess the average cost of alprostadil (prostaglandin E_1) as treatment for patients with CLI compared with lumbar sympathectomy from the perspective of The Mexican Social Security Institute (IMSS). **METHODS:** In a clinical trial, alprostadil and lumbar sympathectomy showed similar response rates (Petronella P, et al. Nutr Metab Cardiovasc Dis 2004;14:186–92).Therefore, we conducted a cost minimization analysis based on the direct medical costs of alprostadil (40 µg twice-daily or 60 µg once-daily) administered over 28 days versus lumbar sympathectomy. Relevant costs included acquisition and infusion for alprostadil, and surgical procedure besides hospitalization (9 days) for lumbar sympathectomy. Unit cost for infusion was assumed to be equivalent to an emergency visit at first level of care at IMSS; unit cost of the surgical procedure and standard hospital stay (per day) correspond to the official values for these items at the second level of care at IMSS. UCB Pharma provided the cost for alprostadil. All costs are in 2013 Mexican pesos (MXN; 12.88 MXN = 1 USD, 17.23 MXN = 1 Euro). **RESULTS:** Costs per patient would be lower with both alprostadil 40 µg twice-daily ($59,640) and alprostadil 60 µg once-daily ($37,884) than with lumbar sympathectomy ($66,084), leading to savings of $6,444 (9.8%) and $28,200 (42.7%), respectively. Alprostadil use remained cost-saving versus lumbar sympathectomy in most of the scenarios evaluated through sensitivity analysis. **CONCLUSIONS:** These results suggest alprostadil is a cost saving intervention when compared with lumbar sympathectomy for patients with CLI from the Mexican public health care perspective.

PCV102

THE COST-EFFECTIVENESS OF APIXABAN COMPARED TO WARFARIN, ASPIRIN, RIVAROXABAN AND DABIGATRAN IN IRELAND

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OBJECTIVES: The objective of this pharmacoeconomic evaluation was to determine whether apixaban, compared to warfarin, dabigatran and rivaroxaban in patients suitable for vitamin K antagonists (VKA), or to aspirin in VKA-unsuitable patients, is a cost-effective treatment for the prevention of stroke or systemic embolism (SE) in adult patients with non-valvular atrial fibrillation (AF) with one or more risk factors. **METHODS:** A Markov model was constructed consisting of 18 health states, using a 6-week cycle length and a lifetime time horizon. Baseline characteristics were taken from a 2011 GPRD study. Clinical inputs were derived from a network meta-analysis of the efficacy and bleeding outcomes from the three warfarin-controlled trials ARISTOTLE, RE-LY and ROCKET-AF, and the single aspirin-controlled trial AVERROES. Local unit costs and utility data were assigned to the appropriate model health states to calculate total Quality-Adjusted Life Years (QALYs) and costs. Univariate and probabilistic sensitivity analyses (PSA) were conducted. **RESULTS:** Apixaban was associated with an ICER vs warfarin of €11,087. Against the less-commonly used anti-coagulants, apixaban was cost-effective against each at the €45,000 willingness-to-pay threshold. Apixaban provided more QALYs than all other therapies. Compared to warfarin, apixaban produced savings in avoided cost of stroke, intracranial haemorrhage, INR monitoring, and bleeding. Apixaban was cost-effective across all patient subgroups of INR control (centre Time in Therapeutic Range) and $CHADS_2$stroke risk categories 1 and 2. One-way sensitivity analyses, scenario analyses, and probabilistic sensitivity analyses confirmed that the findings were robust to changes in key parameters. The probability that apixaban was the most cost-effective therapy at a willingness-to-pay threshold of €45,000 per QALY was 93% and 100% in the VKA-suitable and VKA-unsuitable populations, respectively. **CONCLUSIONS:** Apixaban can be considered cost-effective for the prevention of stroke and SE in people with non-valvular AF, at a threshold of €45,000/QALY, under standard decision rules.

PCV103

ECONOMIC EVALUATION OF APIXABAN FOR THE PREVENTION OF STROKE IN ATRIAL FIBRILLATION IN THE NETHERLANDS

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OBJECTIVES: Stroke prevention is the main goal in treating patients with atrial fibrillation (AF). Treatment with anticoagulants, such as vitamin-K antagonists (VKAs; e.g. warfarin and cumarines), was demonstrated to be an effective strategy. However, even though VKAs are the current standard therapy recommended by different guidelines, the significant risk of bleeding and the requirement for a regular monitoring are limiting its use. Apixaban is a novel oral anticoagulant (NOAC) associated with significantly lower hazard rates for stroke/systemic embolism, major hemorrhage and discontinuations, compared to VKAs. This study evaluated the cost-effectiveness (CE) of apixaban compared to VKAs in the base-case analysis and alternatively to other NOACs for stroke prevention in non-valvular AF patients in The Netherlands. **METHODS:** A global Markov model developed by United BioSource Corporation was modified to reflect the use of oral anticoagulants in The Netherlands. The model used efficacy data from a published indirect treatment comparison of NOACs and cost data from Dutch costing studies as inputs. Following health states were included in the model: non-valvular AF, primary and recurrent ischemic and hemorrhagic stroke, systemic embolism, myocardial infarction, intracranial hemorrhage, other major and non-major bleedings, treatment