**OBJECTIVES:** Ticagrelor, co-administered with acetylsalicylic acid, is a new antiplatelet therapy for patients with acute coronary syndrome (ACS) aimed at preventing thrombotic events [i.e., cardiovascular mortality, myocardial infarction (MI) and stroke]. The goal was to determine the cost per life year gained (LYG) for ticagrelor compared to current standard therapy (clopidogrel) using a cost-effectiveness analysis framework based on the published results from the Platelet Inhibition and Patient Outcomes (PLATO). **METHODS:** A Markov model framework was developed in order to evaluate the costs and benefits of ticagrelor over a lifetime time horizon. The clinical outcomes consisted of four health states: "MI", "Stroke", "All Cause Mortality" and "Recovered", with frequencies derived from the pivotal PLATO study at one year. These health states were extrapolated into the future via "Live" and "Die" scenarios. Resources and costs (2010 Canadian $) were obtained from the literature or public domain. A 5% discount rate was applied to all the cost and clinical inputs after the first year. **RESULTS:** An incremental cost effectiveness ratio (ICER) of $1125/LYG was determined. Probabilistic sensitivity analysis presented greater than 99% of all iterations resulting in an ICER less than $50,000/LYG. The economic model was most sensitive to the probability of death within one year of ticagrelor or clopidogrel treatment. **CONCLUSIONS:** Based on outcomes in the PLATO trial, the use of ticagrelor instead of clopidogrel for treatment of ACS in Canada is associated with an ICER of $1,125/LYG.

PCV82

SIMULATION OF LONG-TERM CLINICAL BENEFITS AND COSTS OF ADD-ON THERAPY WITH ALISKIREN IN HYPERTENSIVE PATIENTS WITH DIABETIC NEPHROPATHY: A GERMAN STATUTORY HEALTH INSURANCE PERSPECTIVE

Graf von der Schulenburg JM[1], Weycker D[2], Kaiser E[3], Neidhardt K[3], Brede Y[4]
[1]*Leibniz-Universität Hannover, Hannover, Germany,* [2]*PAI, Brookline, MA, USA,* [3]*Novartis Pharma GmbH, Nürnberg, Germany,* [4]*Novartis Pharma AG, Basel, Switzerland*

**OBJECTIVES:** Diabetic nephropathy significantly increases the risk of cardiovascular disease (CVD) and end-stage renal disease (ESRD) in hypertensive patients. According to the AVOID study, the direct renin-inhibitor aliskiren, when added to losartan and optimal antihypertensive therapy in patients with hypertension, type 2 diabetes (T2DM) and diabetic nephropathy, significantly (p=0.001) reduced albuminuria by 20% over 6 months, as assessed by urinary albumin-creatinine ratio (UACR). This simulation examines the potential long-term clinical benefits and costs of add-on therapy with aliskiren in hypertensive patients with T2DM and diabetic nephropathy in Germany. **METHODS:** We developed a micro-simulation model to depict the progression to ESRD, measured by UACR levels over time. Patients at model entry were on maximal recommended doses of losartan and optimal antihypertensive therapy, and either continued this regimen or received aliskiren as an add-on therapy. In scenario analyses, different assumptions on the maintenance of the 20% UACR-reduction were made. Expected costs of pharmacotherapy and medical care were calculated based on German-specific sources over 10 years applying an annual discount rate of five percent. Sensitivity analyses were conducted to analyze the impact of different input parameters. **RESULTS:** Add-on therapy with aliskiren was projected to reduce the risk of ESRD by 1.8% and delay the onset of ESRD by 0.15 years assuming that the effects of aliskiren on UACR-reduction are maintained over 5 years. While discounted costs of pharmacotherapy were estimated to increase by 1762€ per patient with aliskiren, costs of ESRD-related care were estimated to decrease by 3804€ over this same period, yielding total cost savings. Findings were sensitive to the duration over which the benefits of add-on therapy with aliskiren were assumed to be maintained. **CONCLUSIONS:** In hypertensive patients with T2DM and diabetic nephropathy receiving losartan and optimal antihypertensive therapy, add-on therapy with aliskiren is projected to yield clinical benefits and cost savings.

PCV83

A COST-EFFECTIVENESS ANALYSIS OF TICAGRELOR IN PATIENTS WITH ACUTE CORONARY SYNDROME IN GREECE

Kritikou P, Yfantopoulos J
*University of Athens, Athens, Greece*

**OBJECTIVES:** To evaluate the cost-effectiveness of a one-year treatment period with 90 mg twice daily Ticagrelor compared to 75 mg/day Clopidogrel in acute coronary syndrome (ACS) patients with or without ST-segment elevation from the third-party-payer perspective in Greece. **METHODS:** An existing model consisting of a one-year decision tree based on the PLATO trial data and a long-term extrapolation Markov model was adapted to the Greek health-care setting. Utility values obtained from the PLATO trial were used to estimate quality-adjusted life years (QALY) for both the decision tree and the Markov model. Local unit costs in combination with resource use data collected within the PLATO trial were used to estimate the costs incorporated in the analysis. These costs included treatment and medication costs, cost for the management of adverse events, hospitalization, outpatient visits, rehabilitation and nursing costs. Cost-effectiveness and cost-utility was expressed as the incremental cost per life year gained (LYG) and QALY gained (ICER), respectively. **RESULTS:** Implementing a lifetime horizon, the analysis predicts a discounted survival of 11.63 years in the Ticagrelor treatment group and 11.48 years in the Clopidogrel treatment group. The corresponding discounted QALYs were 9.78 and 9.65, respectively. The cumulative lifetime costs per patient were €24,967 and €24,170, for Ticagrelor and Clopidogrel treatment arm, respectively. The ICER was €5239 for each LYG and €6079 for each QALY saved. Implementing a 5-year horizon analysis, results in a discounted survival of 4.36 and 4.31 years for Ticagrelor and Clopidogrel treatment respectively. The QALYs and costs per patient were 3.77 and €15,239 for Ticagrelor and 3.73 and €14,604 for Clopidogrel. The ICER in this case was €12,631 for each LYG and €14,176 for each QALY saved. **CONCLUSIONS:** One-year treatment with Ticagrelor in addition to aspirin is a cost-effective treatment option vs Clopidogrel plus aspirin in patients with ACS in Greece.

PCV84

RESOURCE UTILIZATION AND COSTS FOR CANDESARTAN IN HEART FAILURE: ASSESSMENT OF REDUCTION IN MORTALITY AND MORBIDITY (CHARM) PROGRAMME FOR THE AUSTRIAN SETTING

Fruhwald FM[1], Vavrovsky AD[2]
[1]*Medical University Graz, Austria, Graz, Steiermark, Austria,* [2]*Academy for Value in Health GmbH, Vienna, Vienna, Austria*

**OBJECTIVES:** Chronic heart failure (HF) is a major cause of morbidity and mortality and a growing burden to the healthcare system. The objective was to assess the cost-effectiveness of candesartan cilexetil, an angiotensin II type 1 receptor blocker (ARB) for the treatment of HF in the Austrian setting. **METHODS:** A pre-specified economic evaluation was conducted on resource utilization prospectively collected alongside the CHARM programme. We examined the effect of adding candesartan in all 7599 patients randomized. All patients were considered to have been managed in Austria. Our analysis takes the perspective of a third party payer. CHARM consisted of a series of parallel randomized clinical trials comparing candesartan with placebo (standard therapy) in patients with NYHA Class II-IV HF: - CHARM-Alternative (LVEF≤ 40% patients not receiving ACE inhibitors because of previous intolerance); - CHARM-Added (LVEF≤ 40% patients currently receiving ACE inhibitors); - or CHARM-Preserved (LVEF ≥ 40% patients). Primary outcome of the overall programme: all-cause mortality; for the component trials: composite of cardiovascular death and hospital admission for HF. Resource use was collected prospectively on drug treatment, patients admitted to hospital, admissions for cardiovascular reasons, and procedures/operations. These data were used to determine the additional direct costs incurred, and potential savings made with candesartan. Unit costs were elicited from published Austrian sources in accordance with local guidelines. 2008 was chosen as the price year. **RESULTS:** Adjunctive treatment with candesartan in CHARMAlternative and CHARM-Added led to clinical benefits and, depending on the trial, to either cost savings or low additional costs. **CONCLUSIONS:** Not only does candesartan improve all important clinical outcomes in HF but also offers these benefits at little or no additional cost to the health care system; indeed, its use in patients with HF and reduced LV systolic function may lead to an actual reduction in the direct costs of healthcare in Austria.

PCV85

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

Oosterhof P[1], Van Boven JFM[1], Visser ST[1], Hiddink EG[2], Stuurman-bieze AGG[2], Postma MJ[3], Vegter S[1]
[1]*University of Groningen, Groningen, The Netherlands,* [2]*Health Base Foundation, Houten, The Netherlands,* [3]*University of Groningen, Groningen, The Netherlands, The Netherlands*

**OBJECTIVES:** Increasing real-life adherence to statin therapy is important to achieve the clinical benefits of reducing cardiovascular events (CVEs) reported in randomized clinical trials (RCTs). The aim of this pilot study was to determine the cost-effectiveness of a pharmaceutical care intervention program in community pharmacies, aimed to increase statin adherence for the secondary prevention of CVEs. **METHODS:** Meta-analyses of five RCTs were performed to determine the clinical efficacy of statins for secondary prevention, adjusted for different levels of therapy adherence. A Markov model with a lifelong time horizon was developed to estimate the influence of statin adherence on CVEs: stroke, myocardial infarction (MI), revascularization and mortality. Baseline adherence was calculated in a large Dutch prescription database, using the proportion of days covered (PDC) method. The effect of pharmacists' interventions on statin adherence was derived from literature. A Dutch health care provider's perspective was adopted; costs and effects were discounted at 4.0% and 1.5% per annum, respectively. **RESULTS:** Adherence to statin therapy for secondary prevention in The Netherlands was 73.0%. In a cohort of 1000 patients, a 7% increase in adherence resulted in a reduction of 1.9 non-fatal strokes, 0.5 fatal strokes, 7.9 non-fatal MIs, 3.7 fatal MIs and 9.1 revascularizations. Additional medication and intervention costs in the intervention group were €56,000; the cost-savings due to reduced CVEs were €109,000. Overall, the pharmaceutical care program resulted in 53 quality-adjusted life years (QALYs) gained and cost-savings of €53,000. **CONCLUSIONS:** Pharmaceutical care programs in community pharmacies can improve statin adherence for secondary prevention of CVEs. At a reasonable level of intervention effectiveness, the programs resulted in both clinical benefits and cost-savings. The model developed in this pilot study will be used to estimate the cost-effectiveness of a pharmaceutical care program (the MeMO intervention) in the The Netherlands that is currently under clinical evaluation.

PCV86

LONG-TERM COST-EFFECTIVENESS ANALYSIS OF TICAGRELOR IN PATIENTS WITH ACUTE CORONARY SYNDROME (ACS) FROM A MEXICAN PUBLIC AND PRIVATE HEALTH CARE PERSPECTIVE BASED ON DATA FROM THE PLATO TRIAL

Garcia-Castillo A[1], De-los-Rios M[2], Polanco AC[3], Ramirez MA[4], Nikolic E[5], Mellström C[6]
[1]*Hospital de Cardiologia, UMAE 34 IMSS, Monterrey, Nuevo Leon, Mexico,* [2]*Centro para el Desarrollo de la Medicina y de Asistencia Médica Especializada, Culiacan, Sinaloa, Mexico,* [3]*AstraZeneca, México, D. F., México, D. F., Mexico,* [4]*AstraZeneca, Ciudad del Mexico, Mexico DF, Mexico,* [5]*Linköping University, Linköping, Sweden,* [6]*AstraZeneca R&D, Mölndal, Sweden*

**OBJECTIVES:** The multicentre, double-blind, randomized PLATO trial showed that treatment with ticagrelor + aspirin reduced the risk of myocardial infarction, stroke or death from vascular causes without a significant increase in major bleeding compared to clopidogrel + aspirin treatment in patients with ACS. The long-

term cost-effectiveness is evaluated using a 12-month treatment period with ticagrelor versus clopidogrel in patients with ACS based on PLATO trial data from the Mexican public and private perspective. **METHODS:** The cost-effectiveness model is divided into two parts: a short-term decision tree based on data from the PLATO trial to estimate rates of cardiovascular events, healthcare costs, and health-related quality of life for the 12 months of therapy and a long-term Markov model to estimate quality-adjusted survival and costs conditional on whether a non-fatal MI, a non-fatal stroke or no MI or stroke occurred during the 12 months of therapy. Costs were calculated by applying 2010 Mexican unit costs. The daily drug price used was $2.05 and $4.91 for clopidogrel and ticagrelor, respectively. The estimated mean costs and QALYs are calculated over a lifetime time horizon and presented as incremental cost per QALY. Probabilistic sensitivity analyses were performed. **RESULTS:** Ticagrelor was associated with a QALY gain of 0.10; this was primarily driven by lower mortality and fewer non fatal MI's resulting in an incremental cost per QALY gained of $7670 and $7073 for the public and private healthcare sector, respectively. Probabilistic sensitivity analysis indicated that ticagrelor has more than 99% probability of being more cost-effective than clopidogrel at a willingness to pay of $30,000 per QALY. The results were consistent in all ACS subgroups. **CONCLUSIONS:** Ticagrelor + aspirin is a cost effective treatment compared to clopidogrel + aspirin for one year treatment in ACS patients based on the PLATO trial and Mexican unit costs.

PCV87

**TICAGRELOR FOR THE TREATMENT OF ACUTE CORONARY SYNDROMES (ACS): A DUTCH ANALYSIS BASED ON THE PLATO TRIAL**

Thurston S[1], Heeg B[2], Hofsté C[3]
[1]*Pharmerit Ltd, York, UK,* [2]*Pharmerit International, Rotterdam, The Netherlands,* [3]*Astrazeneca, zoetermeer, The Netherlands*

Recently, ticagrelor showed a statistically significant absolute reduction (1.1%/year) in cardiovascular (CV) mortality and in myocardial infarction (MI) (1.1%/year) compared to clopidogrel in acute coronary syndrome (ACS) patients (from published results of the PLATO trial). The majority of earlier ACS trials (including CURE - placebo vs. clopidogrel and TRITON - clopidogrel vs. prasugrel) have not shown this significant reduction in CV mortality. **OBJECTIVES:** To estimate the cost-effectiveness of 1-year add-on therapy to aspirin with ticagrelor versus clopidogrel in patients with ACS in the Dutch setting, based on the published results from PLATO. **METHODS:** A published Markov cost-effectiveness model with MI, stroke, death and subsequent events as health states is used to assess the cost-effectiveness of ticagrelor in comparison to clopidogrel. In the model relevant utilities and costs are linked to the health states. Short-term probabilities are based on the published PLATO trial, while probabilities for subsequent events are assumed to change with time and occurring events. Several sources were used for these extrapolations. The cost-effectiveness was tested over daily acquisition cost of ticagrelor varying between €1 and €7 higher than clopidogrel. Relevant discount rates were applied and probabilistic sensitivity analyses were conducted. **RESULTS:** Considering direct medical costs only, the incremental cost-effectiveness ratios (ICERS) when the cost of ticagrelor is assumed to be €1, €3, €5, and €7 higher than clopidogrel per day are estimated at €3,742/QALY, €12,058/QALY, €20,374/QALY, and €28,691/QALY respectively. Probabilistic sensitivity analyses show that ticagrelor is expected to be cost-effective at a willingness to pay of €30,000 in 100.0%, 98.2%, 89.4%, and 58.0% of cases when the price is assumed to be €1, €3, €5, or €7 higher than clopidogrel per day, respectively. **CONCLUSIONS:** The reduction in mortality seen in the PLATO trial translates to favorable cost-effectiveness results for ticagrelor, assuming the price difference over clopidogrel does not exceed €7.50 per day.

PCV88

**LONG TERM COST-EFFECTIVENESS ANALYSIS OF TICAGRELOR IN PATIENTS WITH ACUTE CORONARY SYNDROMES FROM A BRAZILIAN PUBLIC HEALTHCARE PERSPECTIVE BASED ON DATA FROM THE PLATO TRIAL**

Nicolau JC[1], Piha T[2], Nikolic E[3], Rikner K[4], Mellström C[4]
[1]*University of São Paulo Medical School, São Paulo , Brazil,* [2]*AstraZeneca, Cotia, São Paulo, Brazil,* [3]*Linköping University, Linköping, Sweden,* [4]*AstraZeneca R&D, Mölndal, Sweden*

**OBJECTIVES:** The PLATO trial was a multicentre, double-blind, randomized trial comparing clopidogrel + aspirin and ticagrelor + aspirin for treatment of patients with ST-elevation and non-ST-elevation acute coronary syndromes (ACS). The results showed a significant reduction for ticagrelor in the primary composite endpoint – cardiovascular deaths, myocardial infarction, or stroke - without a significant increase in major bleeding. Based on PLATO trial data long-term cost-effectiveness was evaluated for 12-month treatment with ticagrelor versus clopidogrel in patients with ACS, from the Brazilian public health care perspective. **METHODS:** For the analysis of cost-effectiveness a two-part cost-effectiveness model was used. The first part was a 12-month decision tree using PLATO trial data to estimate rates of cardiovascular events, healthcare costs, and health-related quality of life for the 12 months of therapy. The second part was a long-term Markov model estimating quality-adjusted survival and costs conditional on whether a non-fatal MI, a non-fatal stroke, or no MI or stroke occurred during the 12 months treatment. The model applied a lifetime horizon to calculate mean costs and QALYs. The results are presented as incremental cost-effectiveness ratios (ICER's). Daily costs of $1.62 for generic clopidogrel and $4.58 for ticagrelor were applied. Other costs were calculated by applying Brazilian year 2010 unit costs. Probabilistic sensitivity analysis was performed. **RESULTS:** Ticagrelor was associated with a QALY gain of 0.10, primarily driven by lower cardiovascular mortality. The resulting incremental cost per QALY gained was $8966 in the public sector. Probabilistic sensitivity analysis indicated that ticagrelor had more than 99% probability of being cost-effective at a willingness to pay of $30,000 per QALY. The results were consistent in all analyzed subgroups. **CONCLUSIONS:** Based on the PLATO trial data one year treatment with ticagrelor + aspirin versus clopidogrel + aspirin in ACS patients is cost-effective from a Brazilian public health care perspective.

PCV89

**COST-EFFECTIVENESS ANALYSIS OF ROSUVASTATIN VERSUS GENERIC ATORVASTATIN IN PATIENTS AT HIGH CARDIOVASCULAR RISK IN SPAIN**

Brosa M[1], Barrios V[2], Lobos JM[3], Serrano A[4], Capel M[5], Alvarez C[5]
[1]*Oblikue Consulting, Barcelona, Spain,* [2]*Hospital Ramón y Cajal, Madrid, Spain,* [3]*Centro de Salud Jazmin, Madrid, Spain,* [4]*Centro de Salud Repelega, Portugalete, Vizcaya, Spain,* [5]*AstraZeneca, Madrid, Spain*

**OBJECTIVES:** To evaluate the long term cost-effectiveness of rosuvastatin versus generic atorvastatin in the treatment of patients at high cardiovascular risk (CVR) ≥ 5% SCORE or patients with established cardiovascular disease in Spain. **METHODS:** The efficacy data from STELLAR trial (Statin Therapies for Elevated Lipid Levels compared Across doses to Rosuvastatin) was used to simulate cLDL goal attainment at different doses of rosuvastatin and generic atorvastatin during an initial period of one year. These results were combined in the long term through a Markov model which estimated the number of cardiovascular events and their impact on quality of life in patients at high CVR using the Framingham risk equations. The model estimated quality adjusted life years (QALY) and costs (drug and events costs) up to 20 years. The analysis was conducted from the Spanish National Health System perspective. 3% annual discount rate was applied to costs (€ 2010) and outcomes. Cost-effectiveness was estimated in several subgroups of patients at high CVR according to blood pressure, smoking status, age, cholesterol levels and established cardiovascular disease. **RESULTS:** In primary prevention of cardiovascular events in patients at high risk, rosuvastatin was a cost-effective option (cost/QALY less than €30,000) versus generic atorvastatin in most of the subgroups analyzed. In patients with established cardiovascular disease, rosuvastatin was a cost-effective option in all males subgroups (ICERs between €4,000 and €18,000 per QALY) and in most of the females subgroups. **CONCLUSIONS:** The treatment of patients at high cardiovascular risk with rosuvastatin was more effective than generic atorvastatin in terms of survival and quality adjusted survival. Incremental cost-effectiveness ratios were below the commonly accepted efficiency threshold in Spain (€30,000) in most of the defined subpopulations by different combination of risk factors.

PCV90

**DEVELOPMENT OF AN INSTITUTIONAL COST OF CARE MODEL FOR ANTICOAGULATION MANAGEMENT OF PATIENTS WITH WARFARIN VERSUS NOVEL ORAL AGENTS**

Pizzi LT[1], Thomson L[2], Jutkowitz E[1], Vogenberg FR[3], Swift B[2], Merli G[2]
[1]*Thomas Jefferson University, Philadelphia, PA, USA,* [2]*Thomas Jefferson University Hospitals, Philadelphia, PA, USA,* [3]*Institute for Integrated Healthcare, Sharon, MA, USA*

**OBJECTIVES:** 1) To estimate the time and cost of discharge for patients receiving the current antithrombotic standard of care, warfarin +/− a heparin product at a large US academic medical center, and 2) to estimate the system-level impact of a hypothetical new oral antithrombotic in terms of improved discharge efficiency. **METHODS:** Data were obtained from 2010 institutional metrics: patient volume, major diagnoses (e.g., orthopedic surgery, atrial fibrillation), and resource requirements (time and cost of personnel providing antithrombotic discharge counseling; time and cost of INR-related discharge delays). Metrics were coded as inputs in a MS Excel model to estimate the potential time and cost impact of changes in patient volume, personnel providing counseling, or addition of novel oral agents to the formulary. It was assumed that 80% of warfarin patients would receive the novel antithrombotic, that these drugs would reduce discharge counseling time by 70%, and would not require INR testing. The cost per day of the new agent was assumed to be $7 versus $0.82 for warfarin, and the bed of discharged patients was assumed to be refilled with a new patient 100% of the time at a reimbursement rate of $1500/day. **RESULTS:** Based on 1000 patients with a LOS of 4 days, efficiency impacts of the new agent were estimated as follows: 4000 hours through avoidance of INR-related delays, 400 hours through elimination of delayed discharge counseling, 284 hours in reduced time to administer discharge counseling. Total patient days saved by the new drug were 142 per year, translating to $213,000 in revenue opportunity by improving the efficiency of the discharge process. Additional drug costs to the facility were estimated to be $19,776 assuming drug prices and patient volume are consistent with model inputs. **CONCLUSIONS:** The model quantifies the system-level impact of new oral antithrombotics and informs formulary decision making.

PCV91

**COST-EFFECTIVENESS OF ENDOVASCULAR TREATMENT VERSUS OPEN SURGERY IN PATIENTS WITH STENO-OCCLUSIVE DISEASE OF THE FEMORAL ARTERY**

Ramos-Goñi JM[1], Mar-Medina J[2], Valcárcel-Nazco C[1], Castilla-Rodríguez I[1]
[1]*Servicio de Evaluación del Servicio Canario de Salud, Santa Cruz de Tenerife, Tenerife, Spain,* [2]*Hospital Alto Deba, Gipuzkoa, Gipuzkoa, Spain*

**OBJECTIVES:** To compare the efficiency of three strategies for the stenosis of the femoropopliteal sector treatment: bypass surgery (BP), percutaneous transluminal angioplasty with selective stent insertion (PTA/S), and percutaneous transluminal angioplasty with selective stent insertion followed by possible bypass surgical re-intervention (PTA/S/BP). **METHODS:** An economic evaluation was developed by implementing a Markov model with three main branches representing each of the strategies studied. We used a time horizon of 30 years, discounting 3% to costs and effects. The measure of effectiveness was years of quality-adjusted life (QALYs). Probabilistic and multivariate sensitivity analysis was performed by using Monte Carlo (MC) methods. Acceptability curves and the expected value of perfect infor-