ECONOMIC EVALUATION OF DIAGNOSTIC STRATEGIES IN PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE (CAD) IN THE UK
Ratliffe A1, Barwell T1, Chambers MG2
1Abacus International, BICESTER, OXON, UK, 2GE Healthcare, Buckinghamshire, UK

OJECTIVE: The early identification of coronary artery disease CAD is important in preventing subsequent premature mortality and disability, and potentially reducing the health care burden associated with advanced disease. The objective of this study was to evaluate the cost-effectiveness of myocardial perfusion scintigraphy (MPS) for patients with suspected chronic CAD in the UK.

METHOD: A decision-analytic model was developed to represent the diagnosis and management of patients with suspected XCAD. A “diagnostic” module represented alternative diagnostic strategies based on combinations of exercise ECG (ExECG), MPS and coronary angiography (CA). A ‘treatment’ module represented initial patient management, based on diagnostic results. Finally, subsequent patient experience (mortality, future MI and revascularisation procedures) according to severity of disease and therapy at outset was represented as a Markov process. Event risks, therapy effectiveness (risk reductions), diagnostic accuracy and risks were obtained from published studies. Test and intervention costs were based on NHs reference values. Long-term costs of patient management for patients with CAD in the UK, and health state utilities were based on published values. The model was used to test parameter assumptions, including duration of therapy effectiveness (base case: 5–10 years) and delay to diagnosis of false negatives (those missed in initial work-up: base case 1 year).

RESULTS: Compared with ExECG, MPS was cost-effective when the underlying risk of CAD was <50% (cost saving at <30%). Compared with a strategy of no testing MPS was cost-effective at an underlying risk of ≥80%. At ≥80% risk direct CA was cost saving and more effective than alternative diagnostic strategies. Adding MPS as a second-line test for patients positive or indeterminate on ExECG, was cost-effective for intermediate risk patients. CONCLUSION: MPS is likely to be an economically attractive first-line or second-line test in the diagnostic work-up of symptomatic patients with intermediate risk of chronic CAD.

EPROSARTAN COMPARSED TO ENALAPRIL AND RAMIPRIL IN THE TREATMENT OF MODERATE TO SEVERE HYPERTENSION IN SWEDEN
Lindgren P1, Schwander B2, Zollner Y1, Jonsson B1
1Stockholm Health Economics, Stockholm, Sweden, 2Analytica International, Loerrach, Germany, Solvay Pharmaceuticals GmbH, Hannover, Germany, 3Stockholm School of Economics, Stockholm, Sweden

OBJECTIVES: To assess the cost-utility of Eprosartan (Teveten) compared to the two most commonly used ACE-inhibitors in Sweden. METHODS: Cost-effectiveness from the societal and health-care payer perspective was evaluated using Monte Carlo-simulation within a Markov framework. The risk of cardiovascular and cerebrovascular events was based on the Framingham study. Costs (2005 Swedish Kronor, SEK, 1€ = 9,22 SEK) and utilities were based on published sources. The effects of systolic blood pressure (SBP) was taken from randomized clinical trials and the risk reduction due to lower SBP was based on metaanalysis. Treatment lasted for 5 years and patients were followed for the remainder of their life. 3% discounting of costs and effects was applied. RESULTS: From the health-care payer perspective, the cost-effectiveness compared to Enalapril ranged from 226,098 SEK/QALY for a 40 year-old non-diabetic cohort with 50% males (corresponding to a 5-year risk of 4.4%) to 35,253 SEK/QALY for 80-year olds with diabetes (corresponding to a 5-year risk of 41.7%). The corresponding figures compared to Ramipril were 143,857 SEK/QALY—10,263 SEK/QALY. From a societal perspective (including cost in added years of life) the figures were 176,237 SEK/QALY—283,882 SEK/QALY and 93,996 SEK/QALY—258,891 SEK/QALY. CONCLUSIONS: The incremental cost-effectiveness ratios all fall below the commonly used threshold value of 500,000 SEK per QALY, even if in costs in added years of life are included which gives higher ratios for treatments that extend life in older age groups. Eprosartan thus appears to be a cost-effective strategy compared to Enalapril or Ramipril.

LOSARTAN-BASED VERSUS ATENOLOL-BASED THERAPY IN PATIENTS WITH HYPERTENSION AND LEFT VENTRICULAR HYPERTROPHY: AN ECONOMIC EVALUATION OF THE LOSARTAN INTERVENTION FOR ENDPOINT REDUCTION IN HYPERTENSION (LIFE) STUDY FOR GERMANY
Krobot K1, Carides GW2, Wagner A1, Burke TA3
1MSD Sharp & Dohme GmbH, Haar, Germany, 2Merck & Co., Inc, Upper Gwynedd, PA, USA, 3Merck & Co., Inc, Whitehouse Station, NJ, USA

OBJECTIVE: The Losartan Intervention For Endpoint Reduction in Hypertension study (LIFE) was a double-masked, randomized trial of losartan versus atenolol in 9193 patients with essential hypertension and left ventricular hypertrophy ascertained by electrocardiography. Losartan reduced the primary composite end point of cardiovascular death, myocardial infarction, or stroke by 13% (p = 0.021) and reduced the risk of stroke by 25% (p = 0.001), despite a comparable degree of blood pressure control. We aimed to evaluate the cost-effectiveness of losartan compared with atenolol in LIFE from a German health care system’s perspective. METHODS: Discounted life expectancy with stroke, study medication use and quality of life by stroke status were estimated directly from the LIFE trial. The trial data were supplemented with data from Germany on discounted direct lifetime costs of stroke (€43,129) and discounted life expectancy in individuals without stroke. Quality-adjusted life years were estimated by weighting life years by health-related quality of life as measured by visual analogue scale data collected in the LIFE trial. RESULTS: The lower cumulative incidence of stroke for losartan at 5.5 years (4.9%) as compared with atenolol (6.5%) (p = 0.003) was estimated to reduce stroke-related direct costs by €691 per patient and thus to offset 52% of the incremental medication cost in patients receiving losartan. The cost per quality-adjusted life year gained was €2,3630 (95% CI: −1276 to 95,115) for losartan-based versus atenolol-based treatment. CONCLUSION: The clinical benefit of losartan in Germany is achieved at a cost well within accepted thresholds for cost-effectiveness. A substantial proportion of the incremental cost for losartan is offset due to strokes prevented.
OBJECTIVES: To assess the cost-effectiveness, from the UK NHS perspective, of magnetic resonance angiography (MRA), duplex ultrasound (DUS) and computed tomography (CT) compared with contrast angiography (CA) in assessing the extent and location of stenosis and subsequently formulating a treatment plan for patients with peripheral arterial disease (PAD).

METHODS: A probabilistic decision tree was developed in order to estimate the cost per QALY (in £2004) associated with each diagnostic method for assessment of the whole leg, and the arteries above and below the knee. Input parameters were obtained from a systematic review, other published sources and expert opinion. Lack of data to extrapolate the results to a longer period led to consideration of a 1-year time horizon, therefore discounting was not performed. RESULTS: DUS was the dominant strategy for the assessment of the whole leg, with a cost per QALY of £13,646. MRA appeared to be more cost-effective for assessment of the arteries above the knee, with a cost per-QALY equal to £6828 with 2D-TOF MRA, and an incremental cost per additional QALY equal to £37,024 when 2D-TOF MRA was compared to DUS. For below the knee comparisons, results were uncertain, with DUS being more likely to be cost-effective at commonly accepted cost-per-QALY threshold values. CONCLUSIONS: The cost-effectiveness of the diagnostic tests was dependent on the area of the leg being assessed, with DUS being dominant for comparisons of the whole leg and cost-effective for below the knee assessments.

PCV55

ECONOMIC EVALUATION OF DRUG ELUTING STENTS:
COST UTILITY ANALYSIS
Bischof M, Briel M, Bucher HC, Nordmann A
University Hospital Basel, Basel, BS, Switzerland

OBJECTIVES: Drug eluting stents (DES) are more effective than bare metal stents (BMS) in preventing angiographic and clinical restenosis. Within this study the cost-effectiveness of sirolimus (SES) and paclitaxel eluting stents (PES) compared to BMS was estimated for a UK setting with data from a meta-analysis.

METHODS: A probabilistic Markov model was constructed. The model includes events observed in clinical trials (MI, revascularisation, CABG) and the health states heart failure and stroke. The meta-analysis data comprised 3-year follow-up data from randomized controlled trials. Probability distributions were fitted to all transition probability, cost and quality of life (QoL) parameters. Univariate sensitivity analysis was performed on several parameters. Effects and costs were discounted at 3%, the time horizon was 3 years and the number of stents was 1.27 per patient. A health care perspective was adopted. QoL data was obtained from published studies. RESULTS: The incremental costs for SES patients are €712 (95% CI: −2431 to 1713) and €1101 (95% CI: 150–1493) for PES patients. DES yield less QALYs than BMS with −0.0156 incremental QALYs (95% CI: −0.2652 to −0.2300) per PES patient and −0.0077 incremental QALYs (95% CI: −0.0777 to −0.0664) per PES patient compared to BMS patients. At a threshold level of Euros 50’000 per QALY the incremental net monetary benefit for SES patient is €6–1492 (95% CI: −14213–10766) and €1484 (95% CI: −5004–2273) per PES patient. At the same threshold level SES have a 35% probability of being cost-effective, PES have a probability of 17% of being cost-effective. CONCLUSIONS: Three-year follow up data show that DES are less effective than BMS when mortality is taken into account. Given the higher costs per DES patient, DES are dominated by BMS. Although DES show favourable results over BMS concerning revascularisation rates, they are not cost-effective.