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characteristics were obtained from WHO estimates or local sources, adjusted to local conditions. PCV13 direct and indirect effectiveness was extrapolated from PCV7 trials and surveillance records, adjusted to local serotype distribution. Cost of vaccine was USD 16.34. A discount rate for cost and life-years was 3%. The payer and societal perspectives were considered. **RESULTS:** The budget impact in a single year with PCV13-based NIP in place would amount to USD 1.82 million, or USD 7.93 million without indirect vaccine protection considered. From this investment, 141 971 illnesses (1071 IPDs, 12477 CAPs and 128423 OMs) and 347 deaths could be avoided annually. Without indirect vaccine protection, 58 524 illnesses (601 IPD, 4721 CAP, 53202 OM) and 184 deaths could be avoided. The cost-effectiveness analysis produced ICER of USD 340/LYG or USD 367/QALY from the payer's perspective. From the societal perspective, the NIP is dominant. Not considering indirect protection, the ICER would be USD 140/LYG or USD 152/QALY from a societal perspective and USD 1157/LYG or USD 1254/QALY from a payer perspective. **CONCLUSIONS:** PCV13-based NIP delivers benefits and cost savings that greatly offset the investment into vaccine. WHO strongly encourages investment in interventions that deliver an additional year of life in full quality for less than one GDP per capita (USD 4237); hence, a PCV13-based NIP with the above ICER presents an attractive option.

PSS25

RANIBIZUMAB FOR THE TREATMENT OF VISUAL IMPAIRMENT DUE TO MYOPIC CHOROIDAL NEOVASCULARIZATION: COST-EFFECTIVENESS VERSUS AFLIBERCEPT

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OBJECTIVES: Ranibizumab has demonstrated efficacy in patients with myopic choroidal neovascularization (mCNV) and is the first anti-VEGF licensed in this indication. Aflibercept is being evaluated for use in mCNV. An existing model demonstrating the cost-effectiveness of ranibizumab versus verteporfin photodynamic therapy was adapted to provide an initial evaluation of ranibizumab versus aflibercept. **METHODS:** A Markov model in mCNV with a lifetime horizon and visual acuity health states was adapted to evaluate the cost-effectiveness of ranibizumab and aflibercept from a UK health care perspective. Baseline characteristics, injection frequency and ranibizumab efficacy were based on the disease activity treatment arm from the RADIANCE study (n=116, Caucasian, Indian and East Asian patients). Data for aflibercept were derived from initial results for the aflibercept treatment arm from the MYRROR study (n=90, East Asian patients only). Relative efficacy was assessed by indirect comparison. An evaluation using the East Asian subgroup of the ranibizumab disease activity treatment arm in RADIANCE (n=35) was also conducted. **RESULTS:** Ranibizumab dominated aflibercept in both evaluations. Based on the disease activity arm from RADIANCE, ranibizumab was associated with a lower lifetime cost (incremental cost -£1770) and higher lifetime quality-adjusted life-years (QALYs) (incremental gain 0.02) than aflibercept. Results were similar for the evaluation based on the East Asian subgroup. Ranibizumab was associated with a lower lifetime cost (incremental cost -£2856) and higher lifetime QALYs (incremental gain 0.06) than aflibercept. These results were driven by the greater number of injections, higher treatment and recurrence costs, and smaller proportion of patients gaining ≥20 letters visual acuity for aflibercept compared with ranibizumab. **CONCLUSIONS:** This initial analysis suggests that ranibizumab is less costly and is associated with a gain in QALYs relative to aflibercept based on the disease activity arm and the East Asian subgroup from RADIANCE, as well as initial data from MYRROR.

PSS26

COST-EFFECTIVENESS OF AFLIBERCEPT IN THE TREATMENT OF MACULAR OEDEMA SECONDARY TO CENTRAL RETINAL VEIN OCCLUSION IN SWEDEN

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OBJECTIVES: Central retinal vein occlusion (CRVO) is caused by a blood clot in the central retinal vein, which slows or stops blood from leaving the retina. As a result, blood and fluids can accumulate, causing retinal injury and vision loss. Thus, a major complication in eyes with CRVO is macular oedema (ME) and is the primary factor for poor visual acuity and visual fields in non-ischemic CRVO. A global cost-effectiveness model was developed and adopted to estimate effects and associated costs, in Sweden, for treatment of ME secondary to CRVO with aflibercept compared to ranibizumab. **METHODS:** A Markov model was developed, including health states that reflect the clinical treatment and disease progression/regression of the ME. The simulated patient population consisted of adults treated for ME secondary to CRVO with an average starting-age of 64 years. Patients were treated and monitored for two years and followed for 15 years in the base case. Treatment regimens were taken from clinical trials with aflibercept (GALILEO & COPERNICUS) and ranibizumab (CRUISE & HORIZON), with 8.2 vs. 8.8 injections the first year and 2.9 vs. 3.5 injections the second year, respectively. **RESULTS:** Aflibercept can be regarded as a cost-effective, i. e. dominating, treatment-alternative compared to ranibizumab as aflibercept is both less costly (total incremental cost of more than -35,000 SEK) and more effective (total incremental QALYs of 0.061) than ranibizumab. Due to the more treatments, ranibizumab had higher drug (incremental cost: -8,537 SEK) and administration (incremental cost: -5,793 SEK) costs compared to aflibercept. Probabilistic sensitivity analysis showed that aflibercept was dominating over ranibizumab in 70% of the simulations. **CONCLUSIONS:** Aflibercept is more cost-effective than ranibizumab for the treatment of ME secondary to CRVO in Sweden.

PSS27

COST-EFFECTIVENESS OF LASER DOPPLER IMAGING IN BURN CARE IN THE NETHERLANDS; A RANDOMISED CONTROLLED TRIAL

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OBJECTIVES: In patients with burns an early accurate diagnosis of burn depth is essential to determine optimal treatment. The combination of Laser Doppler imaging (LDI) and clinical assessment leads to an accurate estimate of burn depth. However, the actual effects of the introduction of LDI on therapeutic decisions, clinical outcomes and costs are unknown. The aim of our study was to analyse the effectiveness and cost-effectiveness of LDI in burn care. The effects of LDI on decision-making, clinical outcomes, costs, and cost-effectiveness were assessed. **METHODS:** A randomised controlled trial was conducted in all three Dutch burn centres, including subsequent patients with burns of indeterminate depth. In the standard care (SC) group, burn depth and treatment choices were based on clinical assessment only, in the other group (LDI) clinical assessment and LDI results were combined. Primary outcome was the effect of the introduction of LDI on wound healing time. The economic evaluation was performed from a societal perspective with a bottom up approach, following the micro-costing method. **RESULTS:** Mean time to wound healing from randomisation was 14.3 days in the LDI group and 15.5 days in the SC group (p=0.258). In the subgroup of clinical patients requiring surgery earlier decision for surgery and a shorter wound healing time were observed in the LDI group (16.0 versus 19.9 days, p=0.029). Mean total costs per patient were €18 549 versus €18 896 (p=0.837). **CONCLUSIONS:** LDI proved to provide guidance for therapeutic decisions with a significantly shorter wound healing time in the subgroup of clinical patients requiring surgery. When time to surgery can be reduced by 2.4 days, similar to the time to decision for surgery in our study, cost savings of €794 per scanned patient can be achieved.

PSS28

COST-EFFECTIVENESS ANALYSIS OF INGENOLO MEBUTATO VERSUS MIQUIMOD IN THE TREATMENT OF ACTINIC KERATOSES IN THE PERSPECTIVE OF THE ITALIAN HEALTH SYSTEM

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OBJECTIVES: Actinic Keratosis (AK) is the most common neoplastic lesion of the skin, its prevalence in Italy is 1.4% in the adult population, over the age of 45 years. The objective of this study is to evaluate through the development of a decision-tree model, the impact in terms of cost-effectiveness of treatment of patients with actinic keratosis (on the face), of ingenolo mebutato gel vs. imiquimod cream. **METHODS:** The effectiveness was expressed in terms of utility; the ratio of cost effectiveness was expressed in terms of cost per Quality Adjusted Life Years (QALYs). The time horizon of the simulation was 12 months. For ingenolo mebutato was considered the price to the public starting from the ex-factory price currently lower in Europe (Spain price), while for imiquimod has been adopted the reference price, because of the drug generication. It was also considered the adherence rate of patients to the two treatment alternatives, due to the different duration of treatment (2-3 days Vs. 4-8 weeks) and adverse events, which in the case of imiquimod may persist for all the therapy lenght. **RESULTS:** Based on these assumptions, ingenolo mebutato therapy is found to be less expensive and more effective, and so dominant, compared to imiquimod. The cost-effectiveness analysis has been tested with univariate sensitivity analysis, which confirmed the validity of the base case. **CONCLUSIONS:** Based on these statement, it seems clear that ingenolo mebutato, due to its way of administration combined with its expected cost, represents a rational investment for the treatment of AK in the landscape of our national health system.

PSS29

COST-EFFECTIVENESS OF 13-VALENT VERSUS 10-VALENT PNEUMOCOCCAL CONJUGATE VACCINE USE IN CROATIA NATIONAL VACCINATION PROGRAM

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OBJECTIVES: The national immunization program (NIP) on a voluntary basis started in 2010 in Croatia, including the 10-valent PCV10 and the 13-valent PCV13. We compare the cost-effectiveness of PCV10 and PCV13 use in the NIP. **METHODS:** A Markov model was developed to examine cost-effectiveness of PCV13 versus PCV10 from the payer's perspective in 10 years. The simulated diseases were invasive pneumococcal disease (bacteremia and meningitis), all-cause community acquired pneumonia (CAP), and all-cause acute otitis media (AOM). Direct effectiveness was extrapolated from PCV7 clinical trials, adjusted by local serotype. Indirect effect (IE) was extrapolated from the US surveillance data following universal PCV7 use. Vaccine prices per dose for PCV10 and PCV13 were €45.16 and €47.71, respectively. The epidemiology inputs were based on national sources or adopted from neighboring Slovenia. Costs were obtained from local reimbursement lists and the DRG system. The IE for PCV10 was separately taken at 0%, 50% and 100% level. **RESULTS:** Compared to PCV10 with presumed no IE, PCV13 could avoid additional 985 IPD cases, 15583 cases of inpatient and 26481 cases of outpatient CAP, and 53555 AOM cases, whereas for modeled 50% IE of PCV10 only 679,10568,17 641 and 35026 cases would be avoided, and for modeled 100% IE of PCV10 372,5552,8798,16498 cases would be avoided, respectively. There would be 2778 or 1958 or, 1137 deaths avoided, respectively. PCV13 compared to PCV10 with assumed no IE leads to €3.060 million more spent on vaccination and €28.585 million saved, giving thus overall saving €25.524 million in 10 years. **CONCLUSIONS:** The cost-effectiveness analysis showed PCV10 to be dominated by PCV13 by its overall lower costs and higher number of QALY as well as LYG gained, regardless of the IE level. The results were most sensitive to the cost and incidence of hospitalized pneumonia.

PSS30

COST-EFFECTIVENESS OF RANIBIZUMAB VERSUS PHOTODYNAMIC THERAPY FOR THE TREATMENT OF NEOVASCLUAR AGE-RELATED MACULAR DEGENERATION BASED IN CHINA COST SETTING

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OBJECTIVES: To compare ranibizumab with photodynamic therapy (PDT) for the treatment of predominantly classic chorodial neovascularization associated with age-related macular degeneration (AMD) by means of cost-utility analysis in China. **METHODS:** This study compared cost-effectiveness between Ranibizumab group (each delivering 0.5 mg of ranibizuamb monthly) and PDT group for the first year (short-term) using decision tree model, from third-payer perspective. During a 10-year time horizon (long-term), a Markov model was constructed to extrapolate effects of treatment beyond clinical trials from a societal perspective (discounted at 5%). Visual acuity data from the Anti-Vascular Endothelial Growth Factor Antibody for the Treatment of Predominantly Classic Choroidal Neovascularization in AMD (ANCHOR) trial were applied. Direct-vision-related medical costs were based on Clinical Pathway of AMD in China and experts consultation. We performed a literature review and meta-analysis to estimate the costs related to comorbid states, including fall and depression resulting from low vision after suffer from AMD, which were rarely inclusive in most previous studies. Informal care costs and utilities data were derived from published studies. All costs were adjusted according to 2012 price index in China. Probabilistic sensitivity analyses (PSA) were performed to test the robustness in structural assumptions and parameter inputs. Cost-effective acceptability curves were performed after a 1000-sample Monte Carlo simulation. **RESULTS:** In short-term model, the incremental cost-effectiveness ratio (ICER) was $81,029/QALY for ranibizumab compared with PDT. The ICER was reduced to $13,206/QALY for a 10-year time frame, when follow-up costs were included. From a societal perspective, PSA revealed a 97.75% probability of ranibizuamb being more cost-effective than PDT at a threshold of $18,278 per QALY gained (3 times Chinese GDP per capita in 2012) in China. **CONCLUSIONS:** Ranibizumab can be a long-term cost-effective option for the treatment of AMD compared with PDT from a societal perspective.

PSS31

COST-UTILITY ANALYSIS OF RECOMMENDED RANIBIZUMAB REGIMEN FOR AGE-RELATED MACULAR DEGENERATION IN CHINA

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OBJECTIVES: To conduct the cost-utility analysis (CUA) of treatment strategy with ranibizumab recommended by the Chinese Clinical Pathway of age-related macular degeneration (AMD) in China. **METHODS:** Visual acuity data for the as-needed dosing regimen with ranibizumab (RBZ-PRN, administrated every month for three doses, additional reinjections were determined by physicians' need) were derived from pivotal trials, based on ranibizumab dose of 0.5 mg. Decision tree model and Markov model were developed to estimate RBZ-PRN compared with best supportive care (BSC) for short and long term. The first year decision tree model from a third-payer perspective was performed to estimate CUA in short-term. Then a 10-year Markov model from a societal perspective were constructed (discounted at 5%) in long-term CUA estimation. Resource utilization was obtained from official recommendations in China. The costs of low-vision related disease were extrapolated from meta-analysis. Informal care costs and utility values were estimated by published studies. The uncertainty was identified in a one-way sensitivity analysis and probabilistic sensitivity analysis (PSA). Cost-effective acceptability curves were obtained by a Monte Carlo approach with 1000 repetitions. **RESULTS:** For RBZ-PRN compared with BSC, the incremental cost-effectiveness ratios (ICER) ranged from $90,546/QALY for the 1-year time frame to $9,787/QALY for the 10-year time horizon. As indicated in the PSA, RBZ-PRN was the optimal strategy in 100% of cases below the willingness to pay threshold of $18,278 per QALY gained (3 times Chinese GDP per capita in 2012) for the 10-year model. **CONCLUSIONS:** When administered as needed, ranibizumab is cost-effective compared with BSC from a societal perspective. In China's current clinical practice, this can be a useful tip for decision-makers who should consider cost-effective issues for the treatment of wet-AMD.

PSS32

NON-PROLIFERATIVE DIABETIC RETINOPATHY: IS IT COST-EFFECTIVE TO TREAT EARLY?

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OBJECTIVES: Diabetic retinopathy (DR) is a leading cause of sight loss in people of working age. There have been recent developments in laser photocoagulation techniques, along with anti-vascular endothelial growth factor drugs for the treatment of severe non-proliferative and proliferative DR. The aim of the study was to evaluate the cost-effectiveness of panretinal photocoagulation administered at the severe non-proliferative diabetic retinopathy (NPDR) stage (early treatment), compared with waiting until high-risk proliferative (HR-PDR) characteristics (deferred treatment) developed. **METHODS:** A Markov model with a 30-year time horizon was developed, with clinical pathway options for patients presenting with moderate NPDR through to irreversible-severe vision loss and blindness (and to death). Once patients entered a post-treatment health state they can progress to more severe health states, regress back to earlier stages of the disease, persist where they are, or die. NHS and personal social services perspective was adopted. Transition probabilities were based mainly on data derived from the Early Treatment Diabetic Retinopathy Study. Health state utilities, costs and complications were based on information from the literature, supplemented by expert opinion. Costs and outcomes were discounted at 3.5%. Both deterministic and probabilistic sensitivity analyses were conducted. **RESULTS:** Administering panretinal photocoagulation at the severe NPDR stage was more effective and less costly than waiting until HR-PDR developed. Sensitivity analyses gave similar results, with early treatment continuing to dominate deferred treatment. The probabilistic sensitivity analysis suggests that at willingness-to-pay threshold of £20-£30,000 per quality-adjusted life year, the probability of early treatment being cost-effective is 60%. **CONCLUSIONS:** Panretinal photocoagulation administered at the severe NPDR stage is likely to be cost-effective. However, given the limitations of the evidence on current treatments, these results to be interpreted with caution. A trial of early versus deferred laser therapy is needed to provide better data based on modern treatments.

PSS33

COST-UTILITY ANALYSIS (CUA) OF FIRST-LINE ACTINIC KERATOSIS (AK) TREATMENTS IN FINLAND

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OBJECTIVES: CUA of cryosurgery, topical treatments (diclofenac 3% 12 weeks, imiquimod 3.75% 6 weeks or 5% 4/8 weeks, ingenol mebutate gel (IMG) 0.015%/head 3 days or 0.05%/body 2 days), and methyl aminolevulinate + photodynamic therapy (MAL+PDT) in the treatment of 25cm^2 AK-plague affecting any body part. **METHODS:** A sequential probabilistic decision-tree with 2-year time-horizon was used to assess the cost-utility (incremental cost-effectiveness ratio, ICER) of AK-treatments, and to determine the cost-effectiveness acceptability frontier (CEAF) and expected value of perfect information per patient (EVPI) from health care payer perspective. In the model, the first-line AK-treatment resulted in complete clearance (CC) with or without adverse events (AE), non-CC or AK-recurrence. Non-CC AK was retreated with PDT and AK-recurrence was retreated with the previous treatment. Incident AK-patients (year 2009, n=3409, organ transplant patients excluded) were identified from the Finnish hospital discharge register to assess AK-related 2-year secondary health care costs for patients initiating different treatment regimens. Other costs included general practitioner, AE-management, and outpatient drugs (5/2014 without VAT; other costs in 2013 value). Quality-adjusted life-years (QALY) were based on EQ-5D. Results were discounted with 3% annually. **RESULTS:** The mean per patient 2-year QALYs (costs) were 1.519 (€727) for IMG 0.015%, 1.518 (€887) for MAL+PDT, 1.516 (€802) for IMG 0.05%, 1.514 (€995) for diclofenac, 1.512 (€815) for imiquimod 3.75%, 1.511 (€707) for imiquimod 5%, and 1.507 (€1010) for cryosurgery. IMG 0.015% had €2806/QALY gained ICER against imiquimod 5%, and dominated other AK-treatments. IMG 0.05% dominated diclofenac, imiquimod 3.75% and cryosurgery, and had €21,550/QALY gained ICER against imiquimod 5%. MAL+PDT had €32,848/QALY gained ICER against IMG 0.05%. Based on the CEAF, IMG 0.015% was the optimal treatment when willingness-to-pay/QALY gained exceeded €2806. The EVPI was €25/€81/€211 with the willingness-to-pay of €0/€15,000/€30,000 per QALY gained. **CONCLUSIONS:** IMG 0.015% was the most cost-effective first-line AK-treatment.

PSS34

COST-EFFECTIVENESS OF RANIBIZUMAB VERSUS AFLIBERCEPT IN TREATMENT OF TREATMENT OF VISUAL IMPAIRMENT DUE TO DIABETIC MACULAR OEDEMA (DMO)

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OBJECTIVES: To estimate the cost-effectiveness of ranibizumab 0.5mg *pro re nata* (PRN) compared with aflibercept 2mg bi-monthly in the treatment of visual impairment (VI) due to diabetic macular oedema (DMO) taking a UK health care perspective. **METHODS:** A Markov model previously reviewed by the National Institute for Health and Care Excellence (NICE) was used to simulate the long-term outcomes and costs (at 2012 price level) of treating DMO. The health states were defined by increments of 10 letters in best-corrected visual acuity (BCVA) with a 3-month cycle length. Patients could gain (or lose), at most, 2 health states between two cycles. A lifetime time horizon was implemented. Future costs and health outcomes were discounted at 3.5% per annum. Baseline characteristics, ranibizumab effectiveness and adverse events were estimated with data from the RESTORE trial (36 months). A published network meta-analysis was used to assess the relative effectiveness of ranibizumab to aflibercept. Aflibercept injection frequency was calculated with VIVID/VISTA phase III trials. Different utilities were used if the treated eye was the better or the worse-seeing eye. **RESULTS:** Ranibizumab monotherapy leads to an incremental gain of 0.05 quality-adjusted life-years (QALY) (0.04 from the better-seeing eye and 0.01 from the worse-seeing eye) with a cost savings of £5,841 relative to aflibercept. Therefore, ranibizumab provides greater health gains with lower overall costs than aflibercept. Probabilistic sensitivity analysis shows that ranibizumab has a 58% probability of being dominant and 79% probability of being cost effective compared with aflibercept at a willingness-to-pay threshold of £20 000/QALY. **CONCLUSIONS:** Ranibizumab is dominant over aflibercept in the treatment of VI due to DMO.

PSS35

THE FUTURE HEALTH ECONOMIC POTENTIAL OF NEXT GENERATION ARTIFICIAL VISION DEVICES FOR TREATING BLINDNESS IN GERMANY: AN EARLY COST-UTILITY ASSESSMENT

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OBJECTIVES: The next generation of artificial vision devices (AVDs), which is currently tested in clinical trials, has the potential to improve the vision of blind patients with retinitis pigmentosa (RP) in a manner that they will be categorized as visual impaired but no longer as blind. This unprecedented vision improvement will result in a mentionable quality of life gain which poses the question at which costs the next generation AVDs are to be regarded as cost-effective. **METHODS:** In order to answer this research question a Markov model, with the health states blind, visual impaired and death, was developed to simulate and to compare the costs and effects of next generation AVDs versus best supportive care (BSC) over a lifetime horizon. Health care costs and health utilities for the Markov health