### A180 VALUE IN HEALTH 18 (2015) A1-A307

to provide an insight regarding interrelationship between the psychological stress as one of the contributing factor towards acne among final year pharmacy students at International Islamic University Malaysia. METHODS: This cross sectional study was conducted by distributing questionnaire among 98 final year students. Information on severity of acne and level of stress was collected by using the Global Acne Severity Scale (GEA) and the Perceived Stress Scale (PSS) which is a psychological test for assessing stress. RESULTS: The results obtained shows that there is positive correlation between acne vulgaris and stress, however it is not significant. The severity of the acne such as the open and close comedones, into papules, pustules, and nodules and even cysts are also related with several factors which may exacerbate the acne conditions. Among those factors are gender and family history, exposure to sunlight, diet, lifestyle such as sleep and exercise, skin condition, and also intervention in solving acne problem. **CONCLUSIONS:** In conclusion, there is a positive relation between acne vulgaris and stress. The acne condition exacerbates in more stressful conditions.

# USE OF CONSUMER MARKET RESEARCH PANELS TO GENERATE PREVALENCE AND DISEASE BURDEN ESTIMATES IN DATA-SPARSE DISEASES: A CASE STUDY IN SEVERE CHRONIC HAND ECZEMA

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OBJECTIVES: Incidence and burden data for severe Chronic Hand Eczema (sCHE) is limited. In the absence of other means of gathering this data, the study's primary objective was to generate estimates for global 1-year period prevalence for sCHE. Secondary objectives included an estimate of sufferers whose condition is inadequately managed with topical steroids. METHODS: An online survey, aiming for nationally representative samples, to 34,765 respondents in USA, UK, France, Germany, Japan, India, Brazil, China, recruited via consumer panels. Respondents were classified sufferers of sCHE via questions on length of time experiencing symptoms, frequency and duration of flares, affected hand surface area, and on severity, using the photographic scale developed by Coenraads et al (2005). 147 sufferers meeting the qualifying criteria for sCHE completed questions on diagnosis, treatment and disease burden. RESULTS: We present our results in the form of descriptive statistics. An estimated global1-year period prevalence for sCHE of 0.54% was found, after data adjustment to reflect the population of 18-75 year olds by geographical region, and projection to total population. This is consistent with the range reported by Diepgen et al. (2007) (0.5%-0.7%). Of those classified as sCHE sufferers, 53% reported having received a medical diagnosis of sCHE; of these 80.2% had received treatment during the study period. 47% of those treated were classified as potentially refractory to topical steroids. The impact of the disease on the total sufferer population was greatest in social activities. CONCLUSIONS: Our results indicate a lower than expected diagnosis level of sCHE, given its prevalence and impact on sufferers. We also found that topical  $\,$ steroid treatment is unlikely to adequately control symptoms in significant numbers of cases of sCHE. We believe our methodology is an innovative alternative, consistent with a scientific approach, allowing sizing and understanding of sufferer populations, particularly in under-diagnosed conditions.

# THE PREVALENCE OF AGE-RELATED MACULAR DEGENERATION IN INDIAN POPULATION: A SYSTEMATIC REVIEW

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OBJECTIVES: Age-related macular degeneration (AMD) is the leading cause of visual

impairment and blindness in India. A clear understanding of the AMD burden in India is essential to meet future demands for eye health care. The current analysis aims to evaluate the prevalence of AMD in India through a systematic review of published peer-reviewed studies.  $\mbox{\bf METHODS:}$  Observational studies reporting the prevalence of AMD patients in India were retrieved from an electronic literature search in PubMed, Cochrane and EMBASE using the terms age-related macular degeneration, prevalence, and India. Search limits applied included articles in English, in human adults, and published since the year 2004. Two researchers independently extracted the data along with critical appraisal of the studies. Descriptive statistics was performed for comparable outcomes. RESULTS: A total of seven studies met the inclusion criteria. The overall prevalence of AMD in India ranges from 1.4% to 3.1%. The prevalence was lowest in West India (1.4%) and highest in South India (3.1%). We found a higher prevalence of early AMD than late AMD (2.3% vs. 0.6%). AMD was more prevalent in rural areas than in urban (2.3% vs.2.1%) and in females than males (2.5% vs. 1.9%). The most important demographic factor affecting the prevalence of AMD in India appears to be the age (>65 years). **CONCLUSIONS:** The prevalence of AMD in India has been increasing over the years. It is an emerging challenge for eye care and public health professionals in India. Further studies in Indian population are warranted to investigate the epidemiological patterns of specific AMD subtypes.

# SENSORY SYSTEMS DISORDERS - Cost Studies

# A FIRST STUDY TO DETERMINE THE ECONOMIC IMPACT OF DENTAL CAVITIES IN COLOMBIA FOR 2011

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OBJECTIVES: According to the burden disease calculated by Ramirez et. al. (2005), in Colombia dental cavities represented the third disease with most DALYs for both genders in all age groups. Also, the Ministry of Health and Social Protection (2012) reported that dental cavities were a leading cause of morbidity in 2011 with 1.360.619 occurrences in the health system. Because of this, we decided to determine the economic cost of dental cavities in Colombia from the third-payer and patient perspectives for year 2011. METHODS: We used the official SISPRO data to get information regarding the number of visits per patient who had dental cavities. To calculate the monetary

costs, we assumed that a treatment was provided to every patient who visited the dentist according to the national dental cavities guideline, all related costs were obtained from the SOAT fare manual 2011 reported by the government. We multiplied the treatment cost for each patient by the total number of dental visits to obtain the third-payer cost. We calculated from the patient's perspective the lost output as a result of a reduction of productivity due to dental cavities, using DALYs, multiplied by the 2011 current GDP divided by the working-age population. RESULTS: The Economic impact for 2011 was USD 67.018.016. This is the result of adding the third-payer cost of USD 56.234.161 plus the patient cost of USD 10.783.855. CONCLUSIONS: With this first approximation to the economic impact of dental cavities the government can design cost-effective oral health policies to reduce its prevalence for Colombia's population. The cost of dental cavities represents 0.02% of 2011 current GDP, this means that on average there is an expenditure of USD 1.46 for each Colombian citizen to treat dental cavities. Those numbers shows the importance to generate permanent public policies to improve the Colombians' oral health.

### PSS11

# RECENT COST TRENDS IN PATIENTS USING BIOLOGIC THERAPIES FOR THE TREATMENT OF PSORIASIS

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OBJECTIVES: Psoriasis (PSO) is an immune-mediated systemic inflammatory disease. The therapeutic classes available to treat PSO include biologic drugs. Despite rising wholesale acquisition costs of biologics in recent years, little documented evidence is available on cost trends from the US managed care perspective. This analysis determines the change in healthcare costs for PSO patients to managed care organizations. METHODS: Continuously enrolled adult patients with ≥2 outpatient diagnoses for PSO (ICD-9: 696.1) were selected from the MarketScan Commercial and Medicare Supplemental databases if their first biologic prescription date (index date) occurred July 2008 through July 2013 and they were biologic naive ≥6 months preindex. Healthcare costs were based on annual reimbursements for 6 patient cohorts initiating biologic therapy from 2008 to 2013. Results were stratified by all-cause vs. PSO-related costs and further subdivided into medical inpatient, medical outpatient, emergency room, and pharmacy costs. **RESULTS:** 13,045 patients met the inclusion criteria and composed the 6 cohorts. All-cause annual healthcare costs for the years 2008-2013 were \$27,973, \$31,507, \$35,006, \$38,533, \$42,289, and \$43,431, showing increases of 55.3% overall and averaging 11.1% or \$3,092 annually. Respective PSOrelated estimated annual costs were \$19,991, \$21,976, \$25,059, \$27,853, \$31,575, and \$32,739, showing increases of 63.8% overall and averaging 12.8% or \$2,550 annually. Although costs increased over time in all categories assessed, the major driver of this trend was PSO-related pharmacy costs, predominantly the cost of biologic therapies. These costs were estimated for the years 2008-2013 at \$15,871, \$18,032, \$21,403, \$22,880, \$27,899, and \$29,240, showing increases of 84.2% overall and averaging 16.8% or \$2,674 annually. CONCLUSIONS: For US managed care payers, total healthcare cost incurred for patients initiated on biologic therapy for PSO has increased substantially in recent years, primarily driven by changes in PSO-related pharmacy costs

# INJECTION FREQUENCY AND COSTS OF ANTI-VEGF TREATMENTS FOR NEOVASCULAR AGE-RELATED MACULAR DEGENERATION, RETINAL VEIN OCCLUSION, AND DIABETIC MACULAR EDEMA

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<sup>1</sup>Genentech, Inc., South San Francisco, CA, USA, <sup>2</sup>Truven Health Analytics, Bethesda, MD, USA OBJECTIVES: Injection frequency and costs were examined for aflibercept 2.0 mg and ranibizumab 0.5 mg intravitreal injections in patients with neovascular age-related macular degeneration (AMD) or central retinal vein occlusion (RVO), and for ranibizumab 0.3 mg injections in patients with diabetic macular edema (DME). METHODS: This retrospective US claims study analyzed patients who started first-line treatment with ranibizumab or aflibercept (index date [ID]) between 11/18/2011-1/31/2014 for AMD, 9/21/2013-7/31/2014 for RVO, and 8/10/2012-1/31/2014 for DME, and met the following criteria: aged ≥18y on ID; no bilateral disease; ≥12 months continuous coverage before ID (baseline period); AMD, RVO or DME diagnosis (ICD-9-CM 362.52, 362.35, or 362.07) during baseline period or on ID; and 12 months of post-ID follow-up coverage without switching therapies. Twelve-month outcomes were number of injections and their respective costs. Injection frequency and costs were compared for aflibercept vs ranibizumab in multivariate regression models that adjusted for possible confounding variables (reference=ranibizumab, all comparisons). RESULTS: In AMD and RVO analyses, aflibercept (AMD:N=316, RVO:N=55) and ranibizumab (AMD:N=875; RVO:N=154) recipients had similar unadjusted mean number of injections (AMD:5.6 vs 5.3, respectively; RVO:4.5 vs 5.0, respectively) and related costs (AMD:\$11,372 vs \$10,856, respectively; RVO:\$8219 vs \$9733, respectively) at 12 months. In AMD regressions sion analyses, number and costs of injections were not significantly different between aflibercept and ranibizumab (Incidence Rate Ratio [IRR]=1.05, 95% confidence interval [CI]=0.98-1.13, P=0.17; Cost Ratio [CR]=1.04, 95%CI=0.96-1.14, P=0.34). Similar results were seen for RVO (IRR=0.91, 95%CI=0.76-1.10, P= 0.35; CR=0.89, 95%CI=0.72-1.11, P=0.31). In DME patients (N=92), at 12 months, the mean (SD) number of ranibizumab 0.3 mg injections was 4.4 (2.9) and mean costs were \$5289 (\$3524). CONCLUSIONS: In AMD and RVO patients, injection frequency and costs for aflibercept and ranibizumab treatments were similar at 12 months. Mean annual costs of treating DME patients with ranibizumab were lower than for AMD and RVO patients.

# PSS13

# ESTIMATING THE PREVALENCE OF EQUINE RECURRENT UVEITIS AND THE ASSOCIATED LOSS OF VALUE FROM VISUAL IMPAIRMENT IN HORSES IN THE

Poulsen Nautrup B<sup>1</sup>, Van Vlaenderen I<sup>2</sup>, Holland R<sup>3</sup>, <u>Donecker JM</u><sup>3</sup> <sup>1</sup>EAH-Consulting, Aachen, Germany, <sup>2</sup>CHESS BVBA, Ternat, Belgium, <sup>3</sup>Zoetis, Florham Park, NJ, OBJECTIVES: Equine recurrent uveitis (ERU) is the most common cause of blindness in  $horses\ world-wide.\ Several\ organisms\ have\ been\ associated\ with\ ERU,\ with\ leptospires$ being the most commonly reported agent. Irrespective of substantial treatment costs, the value of affected horses is progressively reduced as ocular involvements (unilateral or bilateral visual impairment or blindness) increase. This study aimed to estimate the number of horses affected by ERU in the U.S, and approximate the associated depreciation due to vision impairment. METHODS: The U.S. horse population size was estimated by market research. Published sources allowed the estimation of (1) the risk of ERU, (2) the associated visual impairments, accounting for breed differences, and (3) the loss of value in function of different ocular involvements and variable uses of a horse. Considering U.S. horse breeds and use distributions, the number of horses allocated to different levels of vision impairment and associated relative depreciations were calculated. Average value of horses was derived from official sources, conservatively excluding very high-priced competition/race horses. RESULTS: It was estimated that 576,000 horses are currently affected by ERU in the U.S. Based on retrospective studies, 198,513 and 104,269 of these horses are or are expected to become blind in one or both eyes during the next 11 years, respectively. From those horses being impaired but maintaining vision, 151,046 horses are unilaterally and 122,172 bilaterally affected. Depreciation in horses currently affected by ERU was conservatively calculated to \$802,482,773. It was estimated that 70% of those losses are caused by leptospires. CONCLUSIONS: Approximately 576,000 horses are currently affected by ERU in the U.S., from which more than 300,000 horses will become blind in one or both eyes. ERU represents a substantial economic burden which conservatively calculates to more than \$800 MM due to the loss of horse value, not considering treatment costs.

### PSS14

# COST OF ILLNESS, DIAGNOSIS AND TREATMENT PATTERNS FOR DIABETIC MACULAR EDEMA ACROSS 13 COUNTRIES

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OBJECTIVES: To estimate the cost of illness associated with diabetic macular edema (DME) in 13 countries, with a focus on diagnosis, treatment and cost of advanced disease. METHODS: A structured literature review to assess prevalence and cost of DME was conducted including Embase, Medline, government and professional association websites. Structured face-to-face or online interviews were conducted with 378 ophthalmologists experienced in managing DME to determine rates of diagnosis, use of drug and laser treatments and frequency of follow-up and monitoring visits. Countries were Belgium, Czech Republic, Finland, France, Germany, Ireland, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland and China. An excel model synthesizing data and estimated overall cost of illness was built; costs were converted to Euros at 2014 market rates. RESULTS: Across the 13 countries an estimated 5.3 million people have DME; physicians estimated 32-68% (range between countries) of DME patients are undiagnosed, a total of 3.1m people. Annual medical cost of DME was estimated to be €1.2bn, median medical cost per patient was €918, range from €46 (China) to €4,858 (Switzerland). Productivity loss due to poor vision in DME patients costs €4.7bn, 71% of the total cost of illness. Other cost components were laser and drug treatments (mean across countries 17.9%, range 1.4-38.9%), follow-up visits (5.8%, 2.6-33.9%) and monitoring visits (2.9%, 0.3-15.9%). Diagnosis accounted for 0.3% of the total cost (range 0.1-0.9%). Some cost components could not be reliably estimated for all countries. **CONCLUSIONS:** Considerable variation was identified in screening, diagnosis and treatment between countries. Despite the availability of effective therapies, physicians reported that current practice fails to identify a substantial proportion of patients with DME. Poor vision due to DME results in economic loss that is much larger than current spending on therapy. Limitations include use of expert opinion and incomplete data; results may not be generalizable outside the countries studied.

# PSS15

# COMPARING TOTAL AND DISEASE SPECIFIC HEALTHCARE COSTS FOR GLAUCOMA PATIENTS BEFORE AND AFTER THEIR INDEX DIAGNOSIS: A RETROSPECTIVE CLAIMS DATABASE ANALYSIS

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OBJECTIVES: Describing the cost of care for glaucoma patients will lead to a better understanding of the disease impact on the healthcare system. Few studies have determined healthcare costs associated with glaucoma patients, and even fewer examined a commercially insured population. This study sought to characterize and compare the glaucoma specific costs and overall healthcare costs before and after diagnosis. METHODS: We analyzed a large US commercial claims database to identify patients 18 years and older with an initial diagnosis of open-angle glaucoma occurring in 2011. Patients with two separate occurrences of open-angle glaucoma codes (ICD-9 365.10 or 365.11) were included. Patients were excluded for presence of a glaucoma code in the 12 months before their initial diagnosis, other types of glaucoma (i.e. angle-closure glaucoma), or other possible causes of vision loss (i.e.: cataracts). Outcomes of interest were glaucoma specific and overall healthcare costs for the 12-months before (baseline) and 12-months after (follow-up) initial diagnosis. Costs consisted of inpatient stays, emergency department visits, general and vision related office visits, glaucoma diagnostic tests, glaucoma surgeries, and medications. Paired t-tests were used to compare baseline and follow-up costs. RESULTS: 8,575 patients were identified as having newly diagnosed glaucoma in 2011. Mean glaucoma specific baseline costs were \$107 (95% CI: \$102, \$112) and follow-up costs were \$487 (95% CI: \$475, \$498); resulting in a 4.6-fold increase from baseline (p ≤0.001). 41% of follow-up glaucoma costs were due to glaucoma medications. Mean overall healthcare costs at baseline were \$5,405 (95% CI: \$5,122, \$5,688) and at follow-up were \$7,106 (95% CI: \$6,677, \$7,534); resulting in a 1.3-fold increase from baseline (p  $\leq$ 0.001). 23.2% of follow-up total healthcare costs were due to medications. CONCLUSIONS: Glaucoma specific and overall healthcare costs significantly increase after glaucoma diagnosis for patients who are commercially insured.

### PSS16

# ESTIMATING THE TREATMENT COSTS FOR PATIENTS WITH CHRONIC SPONTANEOUS/IDIOPATHIC URTICARIA IN TAIWAN

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OBJECTIVES: Chronic spontaneous (or idiopathic) urticaria (CSU/CIU) affects approximately 0.6% of Taiwanese population. However, little is known about its economic impacts in the healthcare system. This study aims to examine the costs of CSU/CIU-related treatment in National Health Insurance (NHI) program of Taiwan. METHODS: Patients who had at least two outpatient visits (primary/secondary ICD-9-CM diagnosis code of 708.1, 708.8 or 708.9) with antihistamine prescription and occurred at least 42 days apart during 2011 were considered as the CSU/CIU cases from the NHI Research database(NHIRD). The cases were matched with controls in a 1:4 ratio by age, gender and residential areas from the 2011 NHI claims data files for 1-million beneficiaries who were representative of the population of Taiwan in 2005. Differences in costs associated with outpatient care, inpatient care, emergency care, medical tests and drugs between CSU/CIU cases and their comparison groups were predicted by the two-part models and the generalized linear models. All analysis was stratified by the severity level of CSU/CIU and all costs were reported in 2012 New Taiwan dollars (US\$1 = NT\$30). RESULTS: There were 145,700 CSU/CIU patients identified as the study cases based on above algorithm, of which 83.96% were mild CSU/CIU (dCSU), 15.79% were moderate CSU/CIU (mCSU) and 0.25% were severe CSU/CIU (sCSU). The case-comparison analysis showed that the NHI costs for patients with dCSU, mCSU and sCSU was 1.23 times, 1.43 times, and 1.93 times the costs of the matched controls, respectively. The annual total costs attributed to dCSU, mCSU and sCSU were NT\$5,730, NT\$9,168 and NT\$20,522, respectively. Costs associated with outpatient care comprised the largest proportion  $% \left( 1\right) =\left( 1\right) \left( 1\right) \left($ of total costs for dCSU patients (60.0%) and for mCSU patients (57.5%). As for sCSU patients, the largest components of costs were medical tests (35.0%) and drugs (39.4%). CONCLUSIONS: CSU/CIU has substantially impact on direct medical costs in Taiwan. The costs increase remarkably with the severity of disease.

## PSS17

# COST OF CANALICULAR LACERATION REPAIR IN DIFFERENT HOSPITAL SETTINGS: A DECISION ANALYSIS

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<sup>1</sup>Thomas Jefferson University, Philadelphia, PA, USA, <sup>2</sup>Wills Eye Hospital, Philadelphia, PA, USA OBJECTIVES: To calculate the costs of canalicular laceration (CL) repair at a tertiary academic eye care center based on setting and surgeon type. METHODS: A retrospective review of hospital records over a 10-year span of all primary CL repairs performed at a tertiary eye institution. Input variables included repair setting (minor procedure room; MPR vs. operating room; OR), surgeon type (oculoplastic surgeon, ophthalmologist, fellow, or resident), stent type (mini-Monoka vs. Crawford), and success rate (no epiphora/tearing down face, even with environmental stressors, at >3 months after stent removal). Procedure-level data were used to inform probabilities in a decision analytic model (TreeAge Pro). Costs inputs included supplies (institution acquisition prices for drugs and disposable equipment) and personnel (institution wages + 30% fringe benefits for surgeon, nurse, nurse anesthetist, anesthesiologist, and scheduler). Output of the model was cost per successful repair. Univariate sensitivity analyses were performed to test the impact of modifying base case inputs ± SD. RESULTS: The estimated cost per procedure was \$US323 in the MPR and \$US589 in the OR. The overall success rate in the MPR was 37%, vs. 88% in the OR (p<0.0001). The ICER revealed the incremental cost of performing CL repair in the OR per success to be \$521.56. Within each setting, cost effectiveness of oculoplastic surgeons dominated vs. the other surgeon types. Sensitivity analyses revealed OR costs to be most sensitive to nurse anesthetist and nurse time, whereas MPR costs were most sensitive to ophthalmologist and nurse time. CONCLUSIONS: While it was more costly to perform CL repair in the OR, success rates were much higher. In addition, success rates were optimal when performed by oculoplastic surgeons, suggesting that sub-specialty training maximizes patient outcome. Findings are limited to a single institution but call to question whether this procedure should be performed in a MPR.

# PSS18

# COST-EFFECTIVENESS OF AFLIBERCEPT IN THE TREATMENT OF CENTRAL RETINAL VEIN OCCLUSION IN TURKEY

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OBJECTIVES: The objective of this study is to evaluate the cost-effectiveness of aflibercept compared to ranibizumab and dexamethasone in the treatment of central retinal vein occlusion (CRVO) in Turkey. METHODS: A Markov model consisting of health states based on the number of letters read in 15 letter increments from legal blindness (<35 letters) to 80+ letters with 30-year timeframe, was adapted to the Turkish local setting. Clinical inputs as transitions probabilities and incidences of adverse effects were mainly derived from the results of Phase III COPERNICUS and GALILEO trials. Economic inputs were based on the expert opinion addressing local treatment, monitoring and adverse event management algorithms. The primary endpoint was QALYs. Analyses were conducted from the Turkish Payer Social Security Institution perspective. All costs were calculated in Turkish Liras (TL) and converted to USD using TL/USD currency rate as 2,1 (mid-2014). RESULTS: The total number of QALYs associated with aflibercept, ranibizumab and dexamethasone were 17.926, 17.194 and 16.928 QALYs respectively; resulting in total of 0,101 and 0,368 more QALYs for the treatment with aflibercept