OBJECTIVES: To determine factors that are responsible for the cost differential between private and public health facilities through the assessment of the cost per day of managing six diseases in selected health facilities in Bayelsa State, Nigeria. **METHODS:** Prescriptions generated in three tertiary / public hospitals and three private hospitals for management of Malaria, Typhoid Fever, Essential Hypertension, Diarrhea, Pneumonia, and Rheumatoid Arthritis over a specified period were evaluated to determine direct cost of drugs. Questionnaires were used to obtain relevant data on staff wage bills, and utility bills. Data were analyzed to obtain the cost per day for each diagnosis, number of days pay required to pay for the treatment using the newly approved N18, 000.00 minimum wage by the Federal Government of Nigeria. **RESULTS:** Public facilities pay much higher wage bill; all facilities rely heavily on alternative power source; public facilities utilized lesser number of drugs and shorter duration; polypharmacy, co-morbidities, treatment duration and number of drug prescribed determine cost of treatment; treatment cost for all six disease conditions was generally higher in the private facilities; Hypertension was the most costly to treat at a total cost of N20,570 for 30days requiring 36.28 days pay to afford; malaria was cheapest to treat for N227 requiring 0.4 day pay; the cost of treatment of the selected diseases are high and unaffordable. **CONCLUSIONS:** Generally, costs of prescribed drugs were expensive in the private facilities. The costs of treatment were also generally not affordable when viewed from the point of globally accepted affordability standard. Therefore the need to make the cost of drugs cheaper for health care to be more affordable becomes imperative.

PMS13
COST-EFFECTIVENESS OF BIOLOGICAL TREATMENTS IN PATIENTS WITH RHEUMATOID ARTHRITIS IN TAIWAN

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OBJECTIVES: Patients with rheumatoid arthritis in Taiwan might receive lifelong reimbursement for biologics from the Bureau of National Health Insurance (BNHI) if they satisfied required criteria, which might have a significant impact on the annual budgets of the BNHI. The objective of this study was to analyze and compare the cost-effectiveness among existing reimbursed eleven possible combinations of biological treatment strategies, while under limited and lifelong treatment duration assumptions. **METHODS:** Under limited and lifelong treatment duration assumptions, Monte-Carlo simulation was used to compare the cost-effectiveness of eleven possible combinations of biological treatment (Adalimumab, Etanercept, and Rituximab) strategies in patients with active RA. Treatment duration assumptions, effectiveness and utility parameters for different biological treatment strategies were obtained from published papers. Direct medical and drug costs were estimated according to Taiwan's National Health Insurance fee schedule for 2011 and the National Health Insurance payment standard. Probability sensitivity analysis was applied after Monte-Carlo simulation. Incremental costs per quality-adjusted life-year (QALY) between the strategies were calculated. Both cost and effectiveness were discounted at the rate of 3.5%. **RESULTS:** There were differences between the results for limited and lifelong treatment duration assumptions. For limited treatment duration, stratagies with Adalimumab as the first line biologic (including Adalimumab only; Adalimumab followed by Rituximab; Adalimumab, Rituximab and Etanercept; Adalimumab, Etanercept and Rituximab; Etanercept, Adalimumab and Rituximab) were more cost-effective. For lifelong treatment duration, however, strategies with Etanercept as the first line biologic (including Etanercept only; Etanercept followed by Rituximab; Etanercept, Rituximab and Adalimumab; Etanercept, Adalimumab and Rituximab) were more cost-effective. **CONCLUSIONS:** From the Bureau of National Health Insurance point of view, there seems to be a difference in defining the more cost-effective strategy under the assumptions, however, the strategy using Etanercept as the first line biologic followed by Adalimumab and Rituximab was cost-effective under both assumptions.

PMS14
COST-EFFECTIVENESS ANALYSIS OF ETANERCEPT IN THE TREATMENT OF RHEUMATOID ARTHRITIS IN CHINA

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OBJECTIVES: Rheumatoid arthritis (RA) critically impair the quality of life of patients. Biologic treatments represent a therapeutic alternative for patients who failed non-biological disease-modifying antirheumatic drugs (DMARDs). Their high cost, however, is a challenge for clinicians and decision makers. The aim of this study was to assess the cost-effectiveness of biologic alternatives to treat RA currently available in China, from a societal perspective. **METHODS:** A decision analysis model was developed to simulate the clinical course of patients treated with Infliximab+methotrexate (MTX), Etanercept, Etanercept+MTX, Adalimumab and Adalimumab+MTX as first-line therapies, as well as associated costs over one-year period. Patients were treated for 1-year without discontinuation or switch due to the lack of efficacy or a major adverse event (AE). Effectiveness measures were proportion of patients achieving 20%, 50%, 70% improvement following the American College of Rheumatology (ACR20, ACR50 and ACR70) criteria. Costs included biologics, concomitant drugs, medical follow-up and side effects management. Clinical response of alternatives and administration costs were extracted from published literature, while drug costs were collected from National Development and Reform Commission databases of China. **RESULTS:** When compared with Infliximab+MTX, Adalimumab and Adalimumab+MTX, Etanercept is effective over other biologic treatments except in ACR70 2% less effectiveness compared with Infliximab+MTX. Etanercept is 56,179US$ less than Infliximab+MTX (the most costly alternative) and 30% more patients meet the ACR20 criteria regarding Adalimumab (the least effective alternative). When compared with Infliximab+MTX, Adalimumab and Adalimumab+MTX, Etanercept+MTX is dominant over other biologic in either ACR20, ACR50 and ACR70. **CONCLUSIONS:** Due to their lower costs and favorable effectiveness profile, Etanercept or Etanercept+MTX are both less costly and the most effective over other biologic treatments in the management of RA in China.

PMS15
AN ECONOMIC EVALUATION OF DENOSUMAB IN THE TREATMENT OF POSTMENOPAUSAL OSTEOPOROSIS IN A TAIWANESE SETTING

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OBJECTIVES: Denosumab has recently been adopted in the National Health Insurance (NHI) program as a therapy in treating and preventing osteoporosis and the reimbursed price for denosumab is NT$12,688. It is important to assess if denosumab represents good value of money. The aim of this study was to evaluate the potential cost-effectiveness of denosumab in the treatment of osteoporosis among postmonopausal women in Taiwan. **METHODS:** A Markov cohort model was adapted to estimate and costs per quality-adjusted life-year (QALY) gained of a 3-year denosumab treatment compared with no treatment and the current treatments, alendronate, ibandronate, raloxifene or zoledronate used in Taiwan. The model was populated with costs and epidemiological data for Taiwan and the patients fitted the model were corresponding to the patients in the "Fracture Reduction Evaluation of Denosumab in Osteoporosis every 6 Months" (FREEDOM) trial. One-way and probabilistic sensitivity analyses were conducted to assess parameter uncertainty. **RESULTS:** In the base-case analysis, denosumab was shown to be "cost saving" compared to alendronate, ibandronate, as well as raloxifene. The results remain robust regardless of whether GI event was presence or the annual drug cost of denosumab was set higher. In the base-case when denosumab was compared to zoledronate, the ICER was NT$1,248,366 per QALY gained. **CONCLUSIONS:** Based upon currently available data, denosumab is considered cost-saving compared with alendronate, ibandronate and raloxifene and was found to be cost-effective when compared with zoledronate.

PMS16
ECONOMIC EVIDENCE OF BIOLOGICS IN RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW FOR SUPPORTING INFORMED DECISION OF BNHI

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OBJECTIVES: In November 2011, Center for Drug Evaluation completed the project which aimed to re-evaluate the currently reimbursed biologics for rheumatoid arthritis (RA), and to establish the evidence-based revision rules of reimbursed items covered by National Health Insurance (NHI). As part of the project, this study reviewed the cost-effectiveness of reimbursed biologics (etanercept, adalimumab and rituximab) and other non-reimbursed biologics for adult patients. **METHODS:** Electronic databases including PubMed, CEPS (Chinese Electronic Periodical Services) and CETD (Chinese Electronic Theses and Dissertation Service) were searched up to October 2011. A total of 130 articles were reviewed and 37 were identified. The SIGN 50 instrument was subsequently applied to assess the quality of evidence. To present the differences among studies, we summarized the cost-effectiveness of biologics for DMARD-IR (inadequate response to disease-modifying anti-rheumatic drugs) and TNF-IR patients (inadequate response to tumor necrosis factor-alpha inhibitors), respectively. **RESULTS:** For DMARD-IR patients, twenty cost-effectiveness analyses (CEAs), most of high quality, were included. In summary, two reimbursed biologics including etanercept and adalimumab were considered as cost-effective alternatives in most foreign insurers comparing with DMARDs. Combination therapies of biologics and methotrexate were cost-effective comparing with monotherapy of biologics. However, the findings were still inconsistent when comparing etanercept with adalimumab, For TNF-IR patients, 10 CEAs, most of high quality, were included. Overall, rituximab was considered cost-effective in most foreign insurers. **CONCLUSIONS:** Existing studies suggested that the reimbursed biologics were cost-effective alternatives in most foreign countries. Nevertheless the cost-effectiveness of technologies might vary across countries, because the health care setting, clinical pattern, characteristics of patients, and relative prices are difference in nature. A localized decision analytic model is still needed for more relevant and precise assessment. This review, however, limited by the research resource, provided only the preliminary evidence to inform the decision making.

MUSCULAR-SKELETAL DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PMS17
BURDEN OF ANKYLOSING SPONDYLITIS IN URBAN CHINA

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OBJECTIVES: To assess co-morbidity, quality of life (QOL), work/productivity loss, and medical resource utilization (MRU) in patients with Ankylosing Spondylitis (AS) in urban China. **METHODS:** Patients' self-reported data were collected from 2010 National Health and Wellness Survey (NHWS). This survey represents urban population 18 years and older. QOL was measured by the physical component score (PCS) and mental component score (MCS) of the Short Form-12 (SF-12). Loss of

work/productivity was measured by the validated Work Productivity and Activity Impairment (WPAI) instrument. MRU was measured by traditional health care provider, emergency room (ER) visits and hospitalization in the past 6 months. Comparisons were made between respondents who reported as diagnosed with AS (excluding other auto-immune diseases) vs. respondents without AS (non-AS group). **RESULTS:** Of 19,954 survey respondents, 52 (0.26%) were diagnosed with AS. The average age was 43.0 (SD 13.5) years with 57.7% of males. AS group reported higher Charlson comorbidity index score than in non-AS group (1.4 vs. 0.2). The most common comorbidities (>25% of patients) were headache, insomnia, gingivitis, body pain, sleep difficulties, arrhythmia, anxiety and arthritis. AS group had lower mean scores of PCS (42.9 vs. 49.6) and MCS (44.1 vs. 46.2), more patients visited health care providers (71.2% vs. 49.7%), ER (30.8% vs. 17.6%) and hospitalized (19.2% vs. 5.7%) in the past 6 months vs. non-AS group. Also, AS group reported more work productivity loss (absenteeism/presenteeism) with 40.1% vs. 23.3% and impairment in daily activity with 36.7% vs. 20.3% in non-AS group. All comparisons between AS and non-AS groups were statistically significant at $P< 0.05$, except MCS. **CONCLUSIONS:** From the China NHWS results, AS patients suffer from impairment in quality of life, work/productivity loss, more co-morbidities and use of medical services. The findings indicate there is still an unmet medical need in AS patients in China.

PMS18

IMPACT OF ETANERCEPT-METHOTREXATE THERAPY ON PATIENT-REPORTED OUTCOMES IN MODERATELY ACTIVE RHEUMATOID ARTHRITIS (RA) PATIENTS OF EUROPE, LATIN AMERICA, AND ASIA

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OBJECTIVES: To compare patient-reported outcomes (PROs) achieved with sustained, reduced, or suspended etanercept (ETN) in combination with methotrexate (MTX) over 52 weeks after induction of sustained response with combination ETN/MTX therapy in a sub-analysis of the developing countries from the multinational PRESERVE trial. **METHODS:** Data from 9 developing countries of Asia, Latin America and Europe were included in this sub-analysis. Patients with moderately active RA (DAS28 of >3.2 and ≤5.1) who achieved DAS28 low disease activity (LDA; DAS28 ≤3.2; average Weeks12–36 and at Week 36) during the 36-week open-label induction phase with ETN 50mg QW plus MTX (E50/M) were randomized to double-blind treatment with E50/M, ETN 25mg QW plus MTX (E25/M), or placebo plus MTX (P/M) for an additional 52 weeks. PROs included Health Assessment Questionnaire (HAQ), EuroQol-5D (EQ-5D), Functional Assessment of Chronic Illness Therapy (FACIT), Medical Outcomes Study sleep problem index II (MOS), and Brief Pain Inventory (BPI). **RESULTS:** Of 491 patients enrolled, 388 were randomized blindly at Week 36: E50/M (n=127), E25/M (n=134), or P/M (n=127). Significant improvement from baseline ($P<0.0001$) in all PROs was observed with E50/M at Week 36. Adjusted mean changes in HAQ, EQ-5D, BPI and MOS from Weeks 36–88 were statistically significantly smaller with E50/M and E25/M versus P/M ($P<0.05$), indicating less deterioration. Adjusted mean change in FACIT was significantly smaller for E50/M but not E25/M versus P/M ($P<0.05$). A higher percentage of patients in the E50/M (57.5%) and E25/M (56.0%) groups had a HAQ ≤0.5 compared to those in the P/M group (43.3%) at Week 88 ($P<0.05$). **CONCLUSIONS:** In patients with moderate RA, after induction and maintenance of LDA, ETN full- and reduced-dose regimens were superior to step-down treatment with MTX alone in their effects on functional and quality of life endpoints. Minimal differences in PROs were observed between the full- and reduced-dose treatment groups.

PMS19

INVESTIGATION OF COMPARATIVE CLINICAL OUTCOMES PROFILES AND COST EFFECTIVENESS OF FOUR CLASSES OF ANTI ARTHRITIC DRUGS USING HAQ DI, DAS -28 AND EQ5D3L IN A TERTIARY CARE HOSPITAL IN WESTERN INDIA

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OBJECTIVES: The objective of the present investigation was investigation of comparative clinical outcome profile and cost effectiveness of DMARDs, NSAIDs, steroid steroids, herbal drugs. **METHODS:** It was prospective, longitudinal, open label, parallel group study consisting of four groups with 40 patients in each cohort. The patients were grouped according to the treatment received (DMARDs, NSAIDs, steroid steroids, IL-1β inhibitors). The data regarding health outcome and costs was assessed before and after the three month regimen using HAQ DI, DAS -28, VAS and EQ5D3L and case report form. **RESULTS:** The mean change in scores of patients subjected to HAQ DI was 0.54 in DMARD; 0.46 in NSAID; 0.50 in steroid drug treated and 0.63 in IL-1β inhibitor treated cohorts. The mean change in scores of patients subjected to DAS-28 was 0.54 in DMARD; 0.52 in NSAID; 0.79 in steroid drug treated and 1.39 in IL-1β inhibitor treated cohorts. The mean change in scores of patients subjected to VAS was 15 in DMARD; 11 in NSAID; 2.4 in steroid drug treated and 39 in IL-1β inhibitor treated cohorts. The mean change in scores of patients subjected to EQ5D3L was 0.26 in DMARD; 0.41 in NSAID; 0.39 in steroid drug treated and 0.72 in IL-1β inhibitor treated cohorts. The mean values varied significantly among all the groups ($p<0.01$). The average cost effectiveness was 331.48 for DMARD; 206.52 for NSAID; 224.32 for steroid drug treated and 188.41 for IL-1β inhibitor treated cohorts. The QALDs in each treatment group which was 18 in DMARD; 15 in NSAID; 12 in steroid drug treated and 25.5 in IL-1β inhibitor treated cohorts. The incremental cost effectiveness ratio was determined between IL-1β and DMARD and was found to be equal to 0.15. **CONCLUSIONS:** IL-1β inhibitor therapy is the most cost effective for rheumatoid arthritis in western Indian population.

PMS20

PATIENTS REPORTED OUTCOMES IN PATIENTS WITH RHEUMATOID ARTHRITIS AND ANKYLOSING SPONDYLITIS TREATED WITH GOLIMUMAB: SUB-ANALYSIS OF ASIA POPULATION ENROLLED IN MULTICENTRE PHASE III CLINICAL TRIALS

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OBJECTIVES: Examine improvement in physical function, HRQOL & work productivity in a subset of Asian patients from the golimumab (GLM) RA & AS trials. **METHODS:** RA patients with inadequate response to MTX in GO-FORWARD (N=444) & AS patients despite NSAID/DMARDs in GO-RAISE (N=356) were randomized to SC GLM (50or100mg) or placebo q4wks. At wk16, RA patients with <20% improvement in tender & swollen joint count or AS patients with <20% improvement in both total back pain & morning stiffness entered early escape (i.e.,placebo received GLM 50mg & GLM 50 mg received GLM 100mg).Physical function was assessed using HAQ (0-3) in RA & BASFI (0-10) in AS. HRQOL was assessed using SF-36 PCS (0-100) & SF-36 MCS (0-100). Impact of disease on work productivity was assessed using a productivity VAS (0-10). Clinically meaningful improvement was defined as improvement of ≥0.25 point in HAQ, ≥2 points in BASFI or ≥5 points in SF-36 PCS & MCS. **RESULTS:** At baseline, RA patients (N=48) had a mean HAQ score of 1.35, & AS patients (N=83) had a mean BASFI score of 3.25; PCS & MCS were 31.5 & 42.5, respectively, in RA, & 33.2 & 41.3 in AS; productivity VAS was 5.6 in RA & AS. Compared to placebo+MTX-treated RA patients (N=22), GLM+MTX-treated patients (N=26) had greater mean improvement in HAQ (0.54 vs -0.01, $p<0.01$), PCS (7.9 vs -0.40, $p<0.01$) & work productivity (-2.4 vs -0.4, $p<0.05$), the change in MCS was not statistically significant (3.0 vs 2.1, $p>0.05$). Compared to placebo-treated AS patients (N=17), GLM-treated patients (N=66) had greater mean improvements in BASFI (1.51 vs 0.28, $p=0.05$), MCS (5.3 vs -1.1, $p<0.05$) & work productivity (-2.9 vs -0.9, $p<0.05$); change in PCS was not statistically significant (9.0 vs 5.7,$p>0.05$). Greater proportions of RA patients in GLM group than placebo achieved clinically meaningful improvement in HAQ (73.1% vs 30%, $p<0.01$), PCS (61.5% vs 25%, $p=0.01$) & MCS (50% vs 35%,$p=0.31$); in AS, similar trends in clinically meaningful improvement in BASFI, PCS & MCS observed between groups. Improvements in HAQ, BASFI, SF-36 & work productivity in GLM-treated patients were sustained over wk52 and 104, & were consistent across populations (Asia vs non-Asia). **CONCLUSIONS:** Patients from Asia with RA or AS treated with GLM demonstrated improved physical function & HRQOL.

PMS21

FUNCTIONAL IMPAIRMENT, DISEASE ACTIVITY, AND DURATION OF DISEASE INDEPENDENTLY AFFECT THE QUALITY OF LIFE IN PATIENTS WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: Rheumatoid arthritis (RA) has an extensive impact on quality of life (QOL) in RA patients. The aim of this study was to determine the effects of functional impairment, disease activity and duration of disease on QOL after controlling other risk factors. **METHODS:** This was a cross-sectional study comprised of 230 consecutive patients with RA from a rheumatology clinic. Quality of life was measured using Taiwan version of short form of World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. Disease activity was assessed by the Disease Activity Score 28 (DAS28), functional disability by the Health Assessment Questionnaire (HAQ). Data on demographics, duration of disease, and income level were also collected. The QOL of the RA patients was compared with 229 age-, sex-, marriage-, and education-matched healthy control patients taken from a national survey in Taiwan. Multiple regression analyses were conducted to study predictors for impairment of QOL. **RESULTS:** RA patients have significantly lower score in physical and psychological domain compared with healthy population, but they showed a higher score in the environment domain of WHOQOL-BREF. After adjustment of HAQ, age, and other factors, we found DAS28 score and duration of disease significantly affect the QOL on almost all four domains. **CONCLUSIONS:** Functional impairment, disease activity and duration independently affect the QOL of RA patients. Future outcome research must take account of all these factors.

PMS22

IMPROVEMENT ON QUALITY OF LIFE AND DAILY FUNCTION IN RHEUMATOID ARTHRITIS PATIENTS TREATED WITH INFLIXIMAB IN CHINA

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OBJECTIVES: Rheumatoid Arthritis (RA) is a seriously debilitating disease affecting 37 in every 1000 adult populations in China. We assessed symptoms, functionality, and quality of life in RA patients who are treated with Infliximab in China. **METHODS:** A multi-center study was conducted from June 2009 to October 2011 in RA patients at 37 urban hospitals in 21 cities in China. Symptoms were measured by morning stiffness, and pain Visual Analogue Scale (VAS) scores defined from 0 (no pain) to 100 (severe pain). The Health Assessment Questionnaire (HAQ) was used to measure functional status (scores 0-3). Quality of life was measured by the mental (MCS) and physical component summary (PCS) scores of the Short Form-12 (SF-12). Comparisons were made between patients who were treated Infliximab at