Annual direct costs were calculated (by third-party payer perspective) for privately-insured (n = 4,764) and Medicare (n = 48,742; medical costs only) beneficiaries. Indirect costs were calculated for privately-insured employees with disability data (n = 1148). Costs were reported in 2006 dollars. **RESULTS:** In Medicare, mean medical costs per non-vertebral, non-hip (NVNH) fracture patient were $7,463 in excess of controls ($13,720 vs. $6,258; p < 0.01).The most expensive patients had fractures of the hip, multiple sites, and femur (excess costs of $25,120; $20,049; $19,213, respectively). Aggregate annual excess medical costs of these NVNH patients (n = 35,933) were $268.1 million versus $200.9 million for hip fracture patients (n = 7,997) (excludes patients with hip and NVNH on index date). In the privately-insured population, excess mean direct costs per NVNH fracture patient were $5,381 ($11,090 vs. $5,709; p < 0.01). The most expensive patients had fractures of the hip, multiple sites, and pelvis (excess costs of $13,801; $9,642; and $8,164, respectively). Aggregate annual excess direct costs of these NVNH patients (n = 4478) were $24.1 million versus $3.5 million for hip fracture patients (n = 255). Mean excess indirect costs per NV employee were $1956 ($4,349 vs. $2393; p < 0.01). **CONCLUSIONS:** Excess direct and indirect costs of NV osteoporotic fracture patients to payers are substantial. While hip fracture patients are more costly per patient, NVNH fracture patients are associated with a larger percentage of fractures and aggregate excess costs for both these privately-insured and Medicare samples.

PMS29

GOLIMUMAB SIGNIFICANTLY REDUCES TIME LOST FROM WORK FOR PATIENTS WITH RHEUMATOID ARTHRITIS: POOLED RESULTS FROM THREE PHASE 3 STUDIES

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OBJECTIVES: To evaluate the effect of golimumab (GLM) on time lost from work in patients with rheumatoid arthritis (RA). **METHODS:** The effect of GLM on time lost from work (days) was prospectively evaluated in 3 multicenter, randomized, double-blind, placebo-controlled studies in patients with RA. Pooled data from patients receiving any injection of study agent (GLM or placebo) with or without methotrexate (MTX) in 3 RA studies (GO-BEFORE, GO-FORWARD, and GO-AFTER) were included. GLM SC injections of 50 or 100 mg were administered q4 weeks. Time lost from work for patients was collected through a questionnaire at baseline and q8 weeks through week 24 and was summarized cumulatively through week 24 with comparisons between groups using ANOVA on van der Waerden normal scores. The proportion of patients reporting no time lost from work in the GLM +/− MTX group was compared with the PBO +/− MTX group using the chi square test. **RESULTS:** Through week 24, significant differences in time lost from work were observed between the GLM +/− MTX group and the PBO +/− MTX group. At week 24, the PBO +/− MTX group lost 6.9 ± 19.7 days compared with 5.0 ± 19.4 days for the combined GLM +/− MTX group. At week 24, the 75th percentile for the combined GLM +/− MTX group was 1.000 day (range 0–180) compared with 3.000 days (range 0–120) for the PBO +/− MTX group. A significantly higher proportion of patients in the combined GLM +/− MTX group reported no time lost from work compared with the PBO +/− MTX group (73.1% vs. 60.7%; p = 0.002). **CONCLUSIONS:** GLM +/− MTX significantly reduced time lost from work for patients with RA compared with PBO +/− MTX.

PMS30

THE ECONOMIC CONSEQUENCES OF RHEUMATOID ARTHRITIS: ANALYSIS OF THE MEDICAL EXPENDITURE PANEL SURVEY (MEPS) 2005 AND 2006 DATA

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OBJECTIVES: Previous research reported the prevalence and health care and productivity cost of rheumatoid arthritis (RA) using Medical Expenditure Panel Survey (MEPS) 2004 data; this study replicates the analyses using 2005 and 2006 data. **METHODS:** MEPS, a comprehensive survey of approximately 35,000 individuals in the US, was used to identify non-institutionalized US persons with RA. Multiple linear and semi-log regressions were applied to estimate total annual health care expenditure and income (yearly wages) associated with RA. Covariates in the expenditure equations included demography, comorbidities, and overall health status. Semi-log regression for income renders the distribution of income symmetric. Covariates in the income equations included demography, comorbidities, education, occupation, and health status. **RESULTS:** A total of 150 and 148 patients with RA were identified in 2005 and 2006 versus 136 in 2004; 75% (2005) and 80% (2006) were women versus 76% (2004), and 53% (2005) and 50% (2006) of RA patients were between the ages 41–64 years versus 56% in 2004. Linear regressions demonstrated that the incremental increase in health care cost associated with RA was $2902 (P < 0.0001) in 2005 and $1882 (P = 0.003) in 2006, versus $4422 (2004). Semi-logarithmic regression explaining wages in 2005 and 2006 had adjusted R2 of 56% and 59%. RA significantly reduced wages by $2207 (−0.9237 log estimate) annually (P < 0.0001) in 2005 and $1,559 (−0.5038 log estimate; P = 0.05) in 2006; wages of RA patients in 2004 were reduced by $3526 (−1.088 log estimate). **CONCLUSIONS:** The economic impact of RA is substantial to both income loss and health

care costs. Replication and validation of outcomes research are important to establish the precision of statistical associations as well as changes across time. Further study will explore whether changes in the care of patients with RA affect changes in outcomes over time.

PMS31

CLINICAL AND ECONOMIC CHARACTERISTICS OF PATIENTS WITH FIBROMYALGIA

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OBJECTIVES: Fibromyalgia syndrome (FMS) is a chronic disorder defined by widespread musculo-skeletal pain that is often associated with a number of comorbidities including fatigue, sleep disturbance, stiffness and functional limitation. In absence of a specific diagnostic test, FMS is typically difficult to identify, and there is limited knowledge about the economic burden of FMS. The objectives of this study were to estimate prevalence of comorbidities, health care resources utilization and costs associated with FMS. **METHODS:** A retrospective cohort study was conducted using data from the Quebec provincial health plan (RAMQ) for a random sample of patients with two or more recorded diagnoses of FMS and a control cohort without FMS, matched for age and gender, for a period spanning from June 2006 to July 2007. Prevalence of comorbidities was estimated and a chronic disease score was calculated. Health care resources consumed by FMS and non-FMS patients included visits to physicians, physician's interventions, pain-related medications, non-pain-related medications and hospitalizations. **RESULTS:** A total of 16,010 FMS patients were identified, with a matched cohort of control patients. The mean age of the study population was 58.8 years and most subjects were women (67.8%). The prevalence of most comorbidities and the chronic disease score were significantly greater in the FMS patients than in control group (3.8 vs. 2.8; p < 0.001). Health resources utilization during the study period was significantly greater among FMS patients than non-FMS patients: the annual number of physician visits and interventions was 25.1 for FMS vs. 14.8 for non-FMS patients. The amount paid by the RAMQ was significantly greater for patients with FMS ($4065) compared to patients without FMS ($2766, p < 0.001). **CONCLUSIONS:** This analysis of the RAMQ database indicated that comorbidities are highly prevalent in FMS patients, and suggested that the economic burden associated with FMS is substantial.

PMS32

HIGHER OUT-OF-POCKET PHARMACY EXPENSE IS ASSOCIATED WITH HIGHER SWITCHING RATES AMONG ANTI-TUMOR NECROSIS FACTOR IN PATIENTS WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: To evaluate the relationship between out-of-pocket (OOP) pharmacy expenses and switching rates among anti-tumor necrosis factor (anti-TNF) agents in patients with rheumatoid arthritis (RA). **METHODS:** This retrospective study utilized claims for RA patients from the PharMetrics Patient Centric database. The index biologic date was defined as the first anti-TNF claim between January 1, 2000 and December 31, 2006. A minimum of 30 months of continuous plan eligibility was required: 6 months prior to and 24 months following the index biologic date. Patients were followed for 24 months after the index biologic date. Switching among anti-TNFs (infliximab, etanercept, or adalimumab) was recorded. The pharmacy OOP expense was defined as the allowed amount minus amount paid. The annual OOP of $500 was used as a cut point to define the high and low OOP groups. **RESULTS:** A total of 3,086 patients were analyzed (74.5% female; mean age = 49.9 years). Half (1597; 51.7%) had an annual pharmacy OOP >$500. The mean and median annual OOP expenses for the study population were $929 and $528, respectively. During the study period, 465 (15.1%) patients switched to a different anti-TNF agent. Compared to the lower OOP expense group, patients in the higher OOP group had a higher switching rate (18.0% versus 12.0%, p < 0.0001), and shorter time to switch (329 days versus 352 days, p = 0.230). In the logistic regression, after controlling for age, gender, co-morbidity, and disease staging, patients in the high OOP group had significantly higher switching rate (odds ratio 1.60, 95% confidence interval 1.30–1.96). **CONCLUSIONS:** Higher OOP expenses were associated with higher rates of switching among the anti-TNF agents in the RA patient population. Decision makers may consider such findings in the benefit design of this therapeutic class.

PMS33

BURDEN OF ILLNESS OF CONSERVATIVE MEDICAL MANAGEMENT OF OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURES IN JAPAN

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OBJECTIVES: The purpose of this study was to estimate the expected medical cost of a single conservative medical management (CMM) per patient with osteoporotic vertebral compression fracture (VCF) in Japan. **METHODS:** A questionnaire survey was conducted for Japanese orthopedic surgeons who mainly provide CMM for patients with VCF during their daily clinical practices, and who consented to participating in the survey. Responses to the questionnaire were summarized and the expected medical costs for each therapeutic regimen until recovery per patient

were calculated for each treatment strategy and severity level. Four types of items were surveyed: treatment strategy for VCF (A.hospitalization only, B.hospitalization to outpatient, C.outpatient visit only, D.operation, E.follow-up only, F.other), treatment period of each VCF therapy (length of stay and outpatient visit), examination items (diagnostic imaging, laboratory test) and therapeutic regimens (use of cast or hard/soft corset, rehabilitation, nerve block, medication). Severity of VCF was classified into three levels: status1(lumbar back pain;+/ADL impairment;-/neurological symptoms;-), status2(+/+/−), status3(+/+/+). **RESULTS:** The questionnaire was addressed to 83 institutions, and responses from 68 (response rate 82%) were received. Of these, 65 responses were available for estimation. When considering the proportions of treatment strategies (A to C), the expected medical costs for each status were: status1; US$1637, status2; US$4485 and status3; US$7962 (1US$ = 92JPY). The expected medical cost of CMM for a patient with osteoporotic VCF in Japan was estimated at US$4,032, and the total annual costs of CMM for VCF on a national scale were estimated to be US$1.18 billion. **CONCLUSIONS:** Japan being an aging society, the burden of illness for VCF is a significant issue. Further standardization and customization of treatment modalities are expected for optimal allocation of medical resources.

PMS34

AN EXPLORATORY EVALUATION OF THE COST-EFFECTIVENESS OF RITUXIMAB AND ABATACEPT IN THE TREATMENT OF MODERATE TO SEVERE RHEUMATOID ARTHRITIS AFTER AN INADEQUATE RESPONSE TO A TUMOUR NECROSIS FACTOR INHIBITOR IN CANADA

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OBJECTIVES: Rituximab (RTX) and abatacept (ABAT) are novel therapies to treat moderate to severe Rheumatoid Arthritis (RA). This analysis was conducted to evaluate the cost-effectiveness of these two therapies in patients with active RA who have had an inadequate response to anti-tumour necrosis factor (TNF) inhibitor therapies from the Ontario Ministry of Health perspective. **METHODS:** A cost-utility model was used to evaluate the direct costs and outcomes of a standard Canadian treatment sequence in the absence and presence of either RTX + methotrexate (MTX) or ABAT + MTX after failure of one anti-TNF. The model simulated 10,000 RA patients over a life time. RTX and ABAT were evaluated against the following standard Canadian treatment sequence after failure of one anti-TNF (etanercept): adalimumab + MTX, infliximab + MTX, leflunomide, gold, cyclosporine and palliative care. Baseline characteristics from REFLEX (Randomized Evaluation of Long-term Efficacy of Rituximab in RA) clinical trial were: mean age, 52.2 years; mean HAQ score, 1.88. ACR response rates from RCTs were placebo-adjusted to minimize bias from cross-trial comparisons. All relevant direct costs were included in the model including drug costs, administration and monitoring, and adverse events. Observational data were used to estimate long-term HAQ progression and average time on treatment for patients responding to therapy. Costs and benefits were discounted at 5% per annum. **RESULTS:** The introduction of RTX following failure of one biologic resulted in a gain of 0.443 QALYs at an additional total cost of $3710 resulting in an ICER of $8380/QALY. The introduction of ABAT following failure of one biologic resulted in a gain of 0.387 QALYs at an additional total cost of $18,588 resulting in an ICER of $48,000/QALY. **CONCLUSIONS:** Rituximab is economically attractive from a Canadian payer perspective and is a cost effective treatment option over abatacept when compared in the studied population.

MUSCULAR-SKELETAL DISORDERS – Patient-Reported Outcomes Studies

PMS36

IMPACT OF A SUPPORT PROGRAM ON THE TREATMENT COMPLIANCE IN OSTEOPOROSIS PATIENTS

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OBJECTIVES: To assess the extension in which the participation of a patient in a support program contributes with increased osteoporosis treatment compliance. Trials demonstrated that the compliance rates to oral bisphosphonates therapy present a significant drop along the first year of treatment and continue declining year after year. The objective of a support program is to provide patient's support providing information about the disease, to interchange experiences with other patients, provide high calcium content nutrition tips and proper physical activities. **METHODS:** Quantitative study conducted through personal and individual interviews using a structured questionnaire. Two hundred and twenty interviews were conducted with female patients that concluded the bisphosphonate treatment, divided in two groups: one hundred-two registered and one hundred and eighteen non-registered into a support program. **RESULTS:** The average treatment period with bisphosphonate between the patients registered in the program is of 11 months vs. 4 months for non-registered patients. The main causes of impact on the continuous use of bisphosphonate of the patients non-registered in a support program include the treatment side effects (28% vs. 11%; p < 0.002). From the total of patients interrupting the intake of bisphosphonate due to side effects the largest number are due to gastric problems. However, the patients registered in a support program reach the treatment final (34% vs. 15%; p < 0.01). **CONCLUSIONS:** The patients registered in a support program present the tendency to follow the prescription and remain for a longer time period in the therapy.

It is perceived that when the patients has access to wider information about the disease, which is one of the main objectives of a treatment support program, the therapy discontinuation rate due to side effects is lower. Because the patients are aware about the occurrence of gastric issues, they properly follow the guidelines, avoiding them and reaching the treatment final.

PMS37

QUALITY OF LIFE AND COMPLIANCE IN GIRLS WITH ADOLESCENT IDIOPATHIC SCOLIOSIS

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OBJECTIVES: The Brace Questionnaire (BrQ) is a recently-developed, condition-specific tool used to measure quality of life (QoL) in subjects treated with spinal bracing. While corrective bracing for adolescent idiopathic scoliosis (AIS) has more favourable outcomes when patients are compliant, one must appreciate that bracing itself may be a stressful and traumatic experience, and compliance with a bracing protocol is likely to be dependent upon patients' physical, emotional and social well-being. Using the BrQ we sought to explore relationships between QoL and compliance with treatment. **METHODS:** The BrQ was administered to 31 AIS patients after a minimum of 1 year of wearing a brace for 1 year. Subjects were 13–16 year-old girls with significant deformity (Cobb angles 25–40 degrees). Participants were divided into two groups according to their level of compliance with the bracing protocol. BrQ sub- and total scores were compared between the two groups using the t-test for comparison of means. **RESULTS:** Twenty participants were classified as compliant and 11 as non-compliant. Mean total BrQ scores (expressed as %) were 83.7 for the compliant group and 64.4 for the non-compliant group (p < 0.001). The compliant group scored significantly higher in six of the eight domains that make up the BrQ. Compliant patients had greater vitality and self esteem, and functioned better in those domains covering physical, emotional and social performance. **CONCLUSIONS:** Poor QoL adversely affects compliance in AIS patients requiring a brace. Non-compliant patients lack vitality and self esteem, and function poorly in the physical, emotional and social domains. Quality of life for adolescents with idiopathic scoliosis may relate more to psychosocial coping mechanisms than to physical deformity and its consequences. It is important for remedial programmes to consider personal, peer and family issues as part of improving QoL, promoting compliance and correcting deformity.

PMS38

PATIENTS SUCCESS CRITERIA AND EXPECTATIONS IN FALLS REHABILITATION

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OBJECTIVES: Performance-based instruments commonly used in clinical settings often do not capture important aspects of the patient's health experience. Therefore, the primary aim of this study was to use a patient-reported outcomes (PRO) questionnaire to investigate patient's success criteria and expectations when receiving rehabilitation services related to falls. **METHODS:** A group of patients (N = 50, age = 55+) receiving physical therapy services were enrolled. Inclusion criteria consisted of: community dwellers with a history of falling, ability to walk 20 ft, and Mini-Mental State Exam score >24. The Patient's Perspective Outcome Questionnaire (PPOQ) was administered at the initial physical therapy evaluation. PPOQ assesses current levels, success criteria and expected levels for a number of health domains including: mobility, self-care, interactions with people, community/social life, energy/drive, mental function, emotional distress, sensory function, and pain. A 100-point scale is used to assess levels of interference across domains (0 = not affected and 100 = most affected). **RESULTS:** Participants reported highest scores in the energy/drive (53), mobility (47), and pain (44) domains. Interactions with people (21) and community/social life (31) received the lowest scores, suggesting that domains with a strong social component were not as affected as domains with a strong physical component. Participants required significant improvement to consider their treatment successful. The mobility and energy/drive domains required significantly larger reductions than the community/ social life, and interactions with people domains (P < 0.006). Across all domains, participant's expectation was that the treatment would not meet their success criteria, indicating that residual levels of impairment were expected after treatment. **CONCLUSIONS:** The results of this study point out that a number of health domains are significantly affected in this population. These patients have treatment expectations that exceed the mobility problems for which they were treated. In exploring meaningful change, the patient's expectations and success criteria must be considered.

PMS39

IMPAIRMENTS IN QUALITY OF LIFE, DAILY FUNCTION, AND WORK PRODUCTIVITY AND ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS WHO USE SUBCUTANEOUS BIOLOGIC THERAPIES

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OBJECTIVES: To assess symptoms, functionality, quality of life (QoL), and work/ productivity loss in Rheumatoid Arthritis (RA) patients treated with subcutaneous (SC) biologics. **METHODS:** Patient-reported data from the 2007 Rheumatoid Arthritis Patient Study were analyzed. Symptoms were measured by morning stiffness, fatigue, and pain scores defined on a scale from 0 (no symptom) to 10 (severe