OBJECTIVES: To examine the disability and resource utilisation associated with osteo- and rheumatoid arthritis in five European countries.

METHODS: A large international database was examined to evaluate the disability and resource use in patients with rheumatoid and osteo-arthritis. The database included the Health Assessment Questionnaire (HAQ) Disability Index, questions on satisfaction and questions on resource utilisation and lost work time.

RESULTS: The Arthritis Disease Specific Programme, held by Adelphi Ltd, was used as the database for this study. It contains 4580 patient records, 4203 of which have self-reported HAQ data. HAQ data are reported for France (n = 609), Germany (n = 1079), Italy (n = 796), Spain (n = 1229), and the UK (n = 490). Patients with rheumatoid arthritis (n = 2022) consistently demonstrate more disability than those with osteoarthritis (n = 1836) (HAQ DI: 1.03 vs 1.01, respectively). Patients in the UK had the most RA and OA disability (HAQ DI 1.60 and 1.20, respectively). Within disease diagnoses, females had greater disability (1.08 vs 0.90 RA; 1.05 vs 0.95 OA). Patients with RA tend to have more GP and specialist visits over six months compared to those with OA (3.30 and 1.79 vs 3.26 and 1.41), although OA patients tend to have more ED visits (0.14 vs 0.07). Self-reported days off work over six months were also greater for RA patients (25.44 vs 20.24). The greatest work absences were seen in Italy (RA: 45.00; OA: 41.10) and the least days off work were seen in Italy (RA: 7.09; OA: 4.24).

CONCLUSIONS: OA and RA have large impacts on disability and resource utilization in the European countries we examined. Although debilitating, the extent to which resources are consumed and work lost varies greatly from country to country. From this cross-sectional international database, RA patients have greater disability compared to OA. This is reflected by higher disability, greater resource utilisation, and more days off work.

PSYCHOMETRIC VALIDATION OF THE ARTHRITIS TREATMENT SATISFACTION QUESTIONNAIRE (ARTS)

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OBJECTIVE: To examine the reliability and validity of a new French questionnaire assessing patient satisfaction with their osteoarthritis (OA) treatment.

METHODS: Item generation: Semi-structured interviews were performed among 20 osteoarthritis (OA) patients and 10 clinicians. Interviews were recorded, transcribed and analyzed. Content validity and cognitive debriefing of the first version of the Arthritis Treatment Satisfaction (ARTS) questionnaire was evaluated by 10 OA patients. Validation study: Principal component analysis, multi-trait analysis, internal consistency (Cronbach’s alpha) and known-group validity were performed on a cross-sectional sample of 797 OA patients. Test-retest was assessed on 133 clinically stable OA patients. Test-retest reliability was estimated with the Intraclass Correlation Coefficient (ICC).

RESULTS: Patients were on average 67.5 years old (SD = 10.4), 64.5% were women, 26% had OA of the hip, 58% had OA of the knee, and all patients had suffered from OA for an average of 7 years (SD = 6.4). The resulting ARTS questionnaire comprised 18 items consisting of a clear four dimensional structure measuring advantages of treatment, treatment convenience, apprehensions about treatment and satisfaction with medical care. Scores were calculated using the mean of items in each dimension. Cronbach’s alpha ranged from 0.63 for treatment convenience to 0.86 for advantages of treatment. ICC ranged from 0.61 for advantages of treatment to 0.75 for treatment convenience. ARTS significantly differentiated patients according to the presence of side effects, regular practice of physical activity, perceived pain and indices of severity.

CONCLUSION: Results provide evidence for the good psychometric properties of this first treatment-satisfaction questionnaire specific to osteoarthritis. The responsiveness of the ARTS questionnaire over time is still to be documented.

ECONOMIC ANALYSIS OF THE GUIDELINES FOR THE MANAGEMENT OF CORTICOSTEROID-INDUCED OSTEOPOROSIS IN RESPIRATORY PATIENTS

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OBJECTIVE: To evaluate the economic efficiency of management guidelines for corticosteroid-induced osteoporosis and establish whether it is more economically efficient to modify the guidelines when targeting respiratory patients.

METHODS: Data were collected from GP medical records related to osteoporosis risk factors and corticosteroid use in the previous year. Sample data were used for economic modelling based on population data and costs from literature. Three strategies were evaluated: the existing guidelines; modified guidelines; treatment without reference to guidelines. Main outcome measures were net discounted cost per fracture averted and net discounted cost per quality adjusted life year (QALY) saved.

RESULTS: A cohort of 110 (71 women) adult patients prescribed oral and/or inhaled corticosteroids was identified. Following existing guidelines averted 0.5 fractures and saved 0.1 QALYs at a net total cost of £5,943. The resultant cost per fracture averted is £12,506 and cost per QALY saved is £40,356. When modified, to include intermittent oral and inhaled corticosteroid use as risk factors, the net total costs increased to £30,190, with 3.6 fractures averted and 1.1 QALYs saved resulting in a cost per fracture averted of £8,419 and cost per QALY saved of £27,854, representing greater economic efficiency. Fur-
ther reductions in costs with no detriment to benefits were seen when modified risk criteria were in the guidelines were not followed and bone mass density measurements and diagnostic testing were excluded. Sensitivity analysis of the results identified sex as a major influence on cost effectiveness. When men were excluded, favourable reductions were seen in the cost per fracture averted and cost per QALY saved.

CONCLUSION: When managing corticosteroid-induced osteoporosis in respiratory patients, this study showed that it was more cost-effective to use modified guidelines than existing guidelines. The modifications proposed are to include risk assessment criteria for sex, and use of intermittent oral and inhaled corticosteroids.

**PAO12**

**DIRECT MEDICAL COST OF OSTEOPOOROSIS IN THE UNITED STATES: PROJECTIONS FOR 2000–2025**

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The prevalence of osteoporosis is expected to increase from 10.1 million in 1996 to 14.7 million in 2015 (NOF, 1997). Medical cost was estimated to be $13.8 billion in 1995, but growth has not been predicted.

OBJECTIVE: To estimate the direct medical cost of osteoporotic fractures in the US in 2000-2025.

METHODS: Cost of osteoporosis for women aged 50 to 99 was predicted using a Markov model, which tracked cohort movements across fracture-outcome states. We ran 50 consecutive cohorts from age 50 to 99, each with a 25-year follow-up. Average cost at each patient age was adjusted by osteoporosis attribution rates. Then the population of women aged 50 to 99 was multiplied by the age-specific average cost to determine total cost by age within each year (2000–2025). Because fracture incidence rates were unavailable for men and for “other” fracture types in women, these costs were estimated by multiplying base year costs by the respective population increases over time. Unit costs for hospital inpatient care were estimated by fracture type from the Nationwide Inpatient Sample, applying high-cost outlier edits and a 20% payer discount. For non-hip fractures, we multiplied mean hospital charges by 0.10 to 0.159 to reflect the low proportion of fractures resulting in hospitalization. Primary and long-term care costs were obtained from published national estimates.

RESULTS: In 2000, we estimate that osteoporosis caused 1.2 million fractures in the U.S. at a direct medical cost of $16.2 billion. Three-fourths of fractures occurred in individuals age 75 and older, and over one third (35%) occurred in nursing facilities. Annual cost is projected to grow by 58% to $25.6 billion in 2025.

CONCLUSION: Without change in medical practice, this preventable disease will impose a substantial burden on the US health-care system as the population ages.

**PAO13**

**UNITED STATES COMMUNITY PHARMACISTS’ INTERVENTIONS WITH FEMALE PATIENTS REGARDING OSTEOPOOROSIS**

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OBJECTIVE: After community pharmacists in five states attended a Women’s Health Pharmaceutical Care certification program, we evaluated pharmacists’ interventions provided to osteoporosis patients.

METHODS: Pharmacists participated in a six-topic Women’s Health Educational program including self-study modules and live continuing education. Pharmacists faxed intervention-report forms to researchers reporting patient’s problems, pharmacist interventions, and intervention outcomes for patients. This report focuses on interventions for osteoporosis.

RESULTS: Female patients (n = 140) identified with medication issues related to osteoporosis were provided pharmaceutical care. The mean age of these patients was 51.29, SD 9.85. The most common drug-related problems were untreated indications or the need for an additional drug (42.9%), and side effects from a medication (17.9%). The highest adherence problem was that patients discontinued their medications (51.4%). In 90% of the cases, the pharmacists provided interventions directly to the patients by giving patient education about medications, disease management, and alternative therapy. Pharmacists suggested the patients talk with their physician about prescription products in 37.1% of the cases. In another 17.9% of cases they contacted physicians for recommended medications or to schedule an appointment for the patient. About 25% of the patients were scheduled to see their physician or received a new drug from the physicians. Pharmacists recommended over-the-counter (OTC) drugs or vitamins and minerals to 35.7% of patients. In 32.9% of the cases, the patient added OTC drugs or vitamins and minerals. Pharmacists spent an average of 14 minutes with each patient to identify and provide interventions for specific problems. In 85.1% of the interventions the pharmacist felt confident to provide pharmaceutical care for the osteoporosis patients.

CONCLUSIONS: Community pharmacists are in a prime location to identify patients at risk for medication problems related to osteoporosis. These data suggest that when pharmacists identify problems with drug therapy, positive outcomes occur.

**PAO14**

**THE COST-EFFECTIVENESS OF CALCIUM AND VITAMIN D3 SUPPLEMENTATION FOR THE PREVENTION OF OSTEOPOOROTIC HIP FRACTURES IN SWEDEN**

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