nursing homes. As this study was not representative, it cannot be used to draw reliable conclusions. Therefore, the aim of the current study was to quantify the number of drug administration errors in German nursing homes. The focus was on checking the administration of regularly scheduled solid oral medication. **METHODS:** The prospective study was carried out in three nursing homes during a period of eight weeks. The drug administration errors were divided into seven categories: wrong time of administration, wrong dosage, wrong drug, missing drug, surplus drug, incorrect pill division and damaged drug. **RESULTS:** The study included 196 residents. In total, 8798 daily doses were screened. This equals a total number of 48,512 inspected single medications. On average, every nursing home resident received 5.4 solid oral drugs per day. In 53% of the nursing home residents one or more drug administration errors were detected. Based on the 8798 screened daily doses the error rate was 7.3%. The majority of all drug supply errors (50%) occurred in the category incorrect pill division. This is followed by the category missing drug with 22%, surplus drug with 10%, wrong time of administration with 8%, damaged drug with 6%, wrong dosage with 4% and wrong drug with 0%. **CONCLUSION:** The findings of the study show that there is still a need for action with regard to drug administration in German nursing homes.

PIH30

PRIVATE HEALTH INSURANCE VS. MEDICAID COVERAGE: DISPARITIES IN PROCESS OF CARE MEASURES
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OBJECTIVE: The opponents of the socialization of health care hypothesize that socialization of health care could lead to decrease quality of care. The aim of our study was to compare the quality of care delivered to a privately insured population compared to those covered by government subsidized Medicaid plan in the same region. **METHODS:** Administrative claims data from July 2004 through June 2005 were used from a private health plan and the Medicaid plan within the same state in the Southeastern US. Two quality indicators from the Health Plan Employer Data and Information Set (HEDIS) were adapted and used to compare compliance rates between the privately insured and Medicaid populations (Table 1). Based on the specifications of each indicator, children who met relevant criteria were identified as the denominator. Of those, children that received the indicated intervention were identified as the numerator. Population-level rates were calculated for each quality indicator for both plans. **RESULTS:** Children in the private health plan received the indicated quality care much more frequently than the Medicaid population, with nearly 3-fold differences in compliance rates. Varicella zoster virus (VZV) vaccines and measles, mumps and rubella (MMR) vaccines were included in the analysis for 2 year old children. The private plan had a denominator of 4222 children and the Medicaid plan had 15,653 children for both measures. Eighty-two percent of private plan children received a VZV vaccine compared to 29% of Medicaid children. Eighty-four percent of private plan children received an MMR vaccine compared to 29% of Medicaid children. **CONCLUSION:** Children covered by Medicaid plans are significantly less likely to receive quality health care than compared to those who have private insurance coverage. Further studies are needed to investigate to what degree this wide disparity is driven by socioeconomic factors and the socialization of health care.

MUSCULAR-SKELETAL DISORDERS—
Clinical Outcomes Studies

PMS1

EFFECT OF BISPHOSPHONATES ON FRACTURES IN POSTMEOPAUSAL WOMEN: A SYSTEMATIC LITERATURE REVIEW
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OBJECTIVE: While bisphosphonates have been available for many years, new drugs in this class have recently become available. We sought to understand whether differences exist on fracture risk and adverse events among oral (i.e., alendronate, risedronate, ibandronate) and intravenous (i.e., ibandronate, pamidronate, and zoledronic acid) bisphosphonates available in the United States in postmenopausal women. **METHODS:** A search of the English-language literature in Medline and Cochrane databases was conducted from 1997 to 2007 using combinations of these search terms: bisphosphonates, alendronate, risedronate, zoledronic acid, pamidronate, ibandronate, fracture, adverse events, and osteoporosis. Articles were included if they were meta-analyses or randomized controlled trials (RCT) and provided information on fracture risk and adverse events. **RESULTS:** In the most recent meta-analysis, alendronate (n = 12,099 patients; 11 trials) and risedronate (n = 13,795 patients; 6 trials) reduced the risk of vertebral fractures (RR:0.55, 95%CI 0.45–0.67; RR:0.61, 95%CI 0.50–0.76) and non-vertebral fractures (RR:0.84, 95%CI 0.74–0.94; RR:0.80, 95%CI 0.72–0.90), including hip fractures (RR:0.61, 95%CI 0.40–0.92; RR:0.74, 95%CI 0.59–0.94). Similarly, in a RCT among 7765 women, the incidence of vertebral fractures, non-vertebral, and hip fractures was significantly reduced with zoledronic acid (RR:0.30, 95%CI 0.24–0.38; RR:0.75, 95%CI 0.64–0.87; RR:0.59, 95%CI 0.42–0.83). In contrast, oral ibandronate (n = 1952) lowered the risk of vertebral fractures (RR:0.62, 95%CI 0.41–0.75) but not nonvertebral fractures. Data on fracture risk with pamidronate were not identified. Adverse events were similar between bisphosphonates and placebo in all included studies, except with zoledronic acid where serious atrial fibrillation (1.3% vs. 0.5%; p < 0.001), an increase in Scr >0.5 mg/dL (1.2% vs. 0.4%; p = 0.001), and urinary protein >2+ (0.5% vs. 0.2%; p = 0.06) were higher with treatment compared to placebo. **CONCLUSION:** This evidenced-based literature review shows that clinical differences among bisphosphonates exist. This suggests that selection of bisphosphonates needs to be individualized to maximize the desired effect and minimize risks.

PMS2

COMPARATIVE EFFICACY OF BIOLOGICAL TREATMENTS IN PATIENTS WITH PSORIATIC ARTHRITIS; SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS
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OBJECTIVE: Three biological agents (adalimumab, etanercept and infliximab) are registered for psoriatic arthritis (PsA) by the EMEA or the FDA. Our objectives were to compare the efficacy of the available biologicals in PsA and to compare their effect sizes by standardized improvement criteria of signs and symp-

toms. METHODS: Randomized controlled trials (RCT) of adalimumab, etanercept and infliximab involving patients with PsA were searched in MEDLINE by Cochrane Highly Sensitive Search Strategy. The quality of selected studies was measured using the Jadad-score. Two clinical outcomes were analyzed: the rate of patients achieving at least 20% improvement by the American College of Rheumatology criteria (ACR20) and the Psoriatic Arthritis Response Criteria (PsARC). Review Manager 4.2 software was applied for the analysis, using the number needed to treat (NNT) and relative risk (RR) as statistical variables. Due to lack of face-to-face evidence on biologicals, indirect comparison was conducted applying Butcher's method. RESULTS: Six RCTs were identified involving altogether 982 patients on the active treatment arms: adalimumab (n = 413), etanercept (n = 265) and infliximab (n = 304). All trials were placebo controlled, the primary follow-up time was 12–16 weeks and the primary outcome was ACR20. The NNTs (95% confidence intervals) for adalimumab, etanercept and infliximab were 2.6 (2.1–3.2), 2.1 (1.7–2.7) and 2.0 (1.7–2.4) patients to achieve ACR20 outcome and 2.9 (2.3–4.0), 2.2 (1.8–2.8) and 2.0 (1.6–2.4) to fulfill PsARC outcome, respectively. Indirect pairwise comparisons of TNF-alpha inhibitors yielded the RR of 0.87 (0.50–1.51) for adalimumab vs. etanercept, of 1.37 (0.72–2.61) for infliximab vs. etanercept and of 1.57 (0.87–2.86) for infliximab vs. adalimumab. CONCLUSION: Adalimumab, etanercept and infliximab are effective for the treatment of PsA. Both the NNTs and the responsiveness of the three drugs at PsARC and ACR20 outcomes are similar. Indirect comparison did not reveal significant difference in the efficacy among the TNF-alpha inhibitors in PsA.

PMS3

EFFICACY OF COX-2 SELECTIVE NSAIDS, NON-SELECTIVE NSAIDS, AND ACETAMINOPHEN IN OSTEOARTHRITIS: A BAYESIAN MIXED TREATMENT COMPARISON

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OBJECTIVE: To compare the efficacy of etoricoxib, lumiracoxib, celecoxib, non-selective (ns) NSAIDs and acetaminophen in the treatment of osteoarthritis. METHODS: RCTs investigating the effects of acetaminophen 4000 mg, diclofenac 150 mg, naproxen 1000 mg, ibuprofen 2400 mg, celecoxib 100–400 mg, lumiracoxib 100–400 mg, and etoricoxib 60 mg with a treatment duration of at least two weeks were identified with a systematic literature search. Endpoints of interest were pain, physical function and patient global assessment of disease status (PGADS). Pain and physical function reported on VAS or LIKERT scales were translated into effect sizes (ES). PGADS was reported on a 0–100 mm VAS scale. An ES 0.2–0.5 was defined as a "small" treatment effect, whereas ES of 0.5–0.8 and >0.8 were defined as "moderate" and "large", respectively. Outcomes of all trials were analyzed simultaneously with a Bayesian mixed treatment comparison. A negative estimate indicates favourable outcomes. RESULTS: There is an 84% probability that etoricoxib 60 mg shows the greatest improvement in pain of all interventions compared, followed by diclofenac 150 mg (7% probability) and ibuprofen 2400 mg (4%). Etoricoxib 60 mg showed an ES of −0.62 (95%Credible Interval −0.78; −0.45) relative to placebo, an ES of −0.12 (−0.33; 0.07) relative to diclofenac 150 mg, and an ES of −0.21 (−0.50; 0.07) relative to ibuprofen. Regarding physical functioning, there is an 85% probability that etoricoxib 60 mg showed the greatest improvement, followed by diclofenac 150 mg (8% probability) and ibuprofen 2400 mg (4%). ESs of etoricoxib 60 mg relative to diclofenac 150 mg and ibuprofen 2400 mg were −0.12 (−0.34; 0.08), and −0.23 (−0.53; 0.06) respectively. The greatest improvements regarding PGADS were expected with diclofenac (29% probability) followed by etoricoxib (25%). CONCLUSION: The current study estimated the efficacy of acetaminophen, nsNSAIDs, and COX-2 selective NSAIDs in OA and demonstrated that etoricoxib 60 mg is likely to result in the greatest improvements in pain and physical function.

PMS4

THE EFFECT OF HOSPITAL VOLUME ON 30 DAYS MORTALITY FOLLOWING HIP FRACTURE

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OBJECTIVE: The aim of our study was to examine the relationship between volume (annual number of patients) and outcome (30 days mortality) in patients with femoral neck fracture. METHODS: Data derived from the nationwide dataset of the National Health Insurance Fund Administration. Patients aged over 60 years with femoral neck fracture admitted to acute care hospital were included into the study. 30 days mortality following the primary surgical treatment was analyzed. We examined the relationship between volume (annual number of patients) and outcome (30 days mortality). First quintiles with similar patient number was applied (method I), than the patient number itself was the variable (method II). Several other covariates were included into the analysis: sex, age, co-morbidities, type and location of fracture, type of surgery (ostheosynthesis, arthroplasty), within 30 days complications, hospital type, day of surgery and surgical delay. The association between covariates was evaluated with logistic regression analysis (OR: odds ratio, 95% CI: confidence interval, p value). RESULTS: Altogether 3783 patient from 65 different hospitals were included into the study. The average 30 days mortality was 8.99 %, ranging between 7.82–10.0 % (method I). Using the volume data itself as continuous variable (method II), the connection between volume and outcome could not be proven (ORunivariate = 0.998, CI: 0.9974–1.0005, p: 0.1779; ORmultivariate = 0.9987, CI: 0.9962–1.0013, p: 0.3378). We did not find any relationship between hospital volume and outcome in patients with femoral neck fracture. However it is important to highlight the role of hospital type, where treatment at medical university (medical school) is associated with significantly lower 30 days mortality. CONCLUSION: We would like to emphasize on the analysis of our nationwide dataset that initial treatment in high-volume hospitals was not associated with lower 30 days mortality. However, type of hospital (teaching status) seems to be more important predictor of 30 days mortality.

PMS5

WHAT HAPPENED TO VIOXX USERS?

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OBJECTIVE: To understand the impact of the October 2004 withdrawal of rofecoxib on prescription analgesic use for arthritis patients who had been taking this medication. METHODS: Patients were selected from the MarketScan databases who, during January-September 2004, had a diagnosis of osteoarthritis on a medical claim and who filled prescriptions for at least 90 days of therapy with rofecoxib, an alternative COX-2 inhibitor (celecoxib), or a branded, non-selective, nonsteroidal, anti-