

in all 60 institutions enrolled. Patients with polytrauma were not included into the study. The effects of prognostic factors were analysed by uni- and multivariate logistic regression ($p < 0.05$) in three groups: 1) all fracture-related treatments; 2) non-prosthetic; and 3) prosthetic treatments. **RESULTS:** Out of 413 patients, 17.92% required further fracture-related treatment. In 7.75% non-prosthetic, and in 10.17% prosthetic treatment was performed. We demonstrated the odds ratios by multivariate regression analysis according to risk factors [95% confidence interval, CI] are also given. Fracture displacement OR/2.243, CI:[1.036–4.858] weekend surgery OR/2.347, CI:[1.049–5.248], infections OR/3.681, CI:[1.172–11.55], central nervous system-related co-morbidities OR/3.639, CI:[1.421–9.318] and the county hospital level of management OR/2.356, CI:[0.997–5.568] were associated with significantly increased risk for further surgery. **CONCLUSION:** To reduce the influence of risk factors, standardization of the substantive traumatologic and orthopedic professional guidelines, as well as the introduction of common orthopedic-trauma patient care (British model) are suggested. To achieve high-quality standardized patient management, personal and material conditions are required to be accessible every day of the week. In the presence of co-morbidities, reduction of their harmful effects should be a major consideration by focusing on the patient both in the peri- and postoperative periods.

POS3

THE ROLE OF SURGICAL DELAY ON EARLY MORTALITY IN PATIENTS WITH FEMORAL NECK FRACTURE

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OBJECTIVES: The aim of the present study was to investigate the relationship between the delay of definitive surgical treatment and mortality rates occurring within 30 days post-injury in patients aged 60 or older with femoral neck fracture. **METHODS:** Data were obtained from the database of the National Health Insurance Fund and from the questionnaire survey carried out by the institutions providing the treatment. Logistic regression analysis was performed to analyse the correlation between mortality risks within 30 days and delayed surgery in patients operated at 12–24 h, 24–48 h or after 48 h post-injury in comparison with mortality risks associated with early (within 12 h) treatment. **RESULTS:** The number of patients meeting the case definition criteria was 3777 with the average age of 77.97 years. Mortality rates in four groups were 7.7%, 10.5%, 10.5% and 9.4%, respectively. According to multiple regression analysis, all three groups (12–24 h, 24–48 h and the over 48 h) showed a trend to increased mortality risks but this was not statistically significant (OR_{12–24 h} = 1.301 CI_{12–24 h}: 0.945–1.791, $p = 0.106$; OR_{24–48 h} = 1.384 CI_{24–48 h}: 0.932–2.056, $p = 0.108$; OR_{48 h <=} .246 CI_{48 h <=}: 0.950–1.635, $p = 0.113$). Sex, age and accompanying diseases significantly influenced early mortality, while early post-operative complications did not have a significant impact on the mortality risks. **CONCLUSION:** The results of the present study indicate the importance of early surgery in the treatment of femoral neck fractures in order to decrease early mortality associated with the disease in the elderly populations. Our results highlight the importance of further evaluating the reasons behind the delay in the surgical treatment (problems during treatment, difficulties in surgical access, co-morbidity etc.), especially in cases when surgery is performed with a 24 h

or longer post-injury delay in order to determine factors that influence the prognostic significance of surgical delay in the case of different patient groups.

OSTEOPOROSIS—Cost Studies

POS4

ECONOMIC IMPACT OF FRENCH NEW GUIDELINES ON POST-MENOPAUSAL OSTEOPOROSIS DIAGNOSIS

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OBJECTIVES: With at least 150,000 osteoporotic fractures in France, annual cost for osteoporosis consequences was estimated to about €600 millions. Poor diagnosis rate led French authorities to decide reimbursement of bone mineral densitometry (BMD) for osteoporosis high risk population in July 2006 (i.e. postmenopausal women with at least one risk factor as defined by the National Union of the Health Insurance Services). Our study was aimed to estimate the prevalence of osteoporosis risk factors so as to assess the economic impact of this case-finding strategy. **METHODS:** This cross-sectional epidemiological survey was carried out within a representative population of women aged 45 years and over constituted using a stratified random sampling method (age, sex, socio-professional group, and employment status). Face-to-face home interviews determined eligibility of women for BMD-screening and whether they had underwent a BMD and received a diagnosis of osteoporosis. Direct costs were assessed from the perspective of the health care providers (i.e. BMD and physician consultation: 39.96€ and 18.60€ respectively). **RESULTS:** In our sample, 79.6% (2081) of women were menopausal. 51.8% of them were eligible for BMD-screening and 11.6% were already diagnosed by BMD with osteoporosis. Among the diagnosed women, a third (31.0%) didn't have any risk factors and would not be eligible for the screening. Based on these results, number of French eligible women for BMD-screening would be about 5.8 millions associated with a total cost of €342 millions. Women diagnosed by BMD were 1.3 million and could also achieve 2.3 millions representing a cost per patient screened of 165€. **CONCLUSION:** According to this study, the French case-finding strategy for postmenopausal osteoporosis would cost €342 millions and would lead to treat an additional one million patients.

POS5

LITERATURE REVIEW ON THE COSTS OF NON-COMPLIANCE IN OSTEOPOROSIS

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OBJECTIVES: Medication compliance is a significant factor contributing to the clinical- and cost-effectiveness of therapy. This study aimed to investigate the evidence on the overall cost of non-compliance with medication, taking osteoporosis therapy as an example. **METHODS:** The specific question addressed was “What are the direct medical health care costs of non-compliance and non-persistence in osteoporosis?”. A literature review was conducted to search for publications presenting work under the broad terms “costs”, “compliance/persistence” and “osteoporosis”. The databases searched were Medline, EMBASE, and the Cochrane Library. The listings were then appraised to identify those papers relevant to the study question and for inclusion in

the evidence base. This evidence base was then investigated, in order to assess findings to answer the study question. **RESULTS:** In total, 52 papers were listed; four were relevant for inclusion. Two of these articles were retrospective cohort studies and two were based on budget-impact models. Costs were presented as medical charges; medication possession ratio (MPR) and/or persistence rates were measures of non-compliance; osteoporosis medications included bisphosphonates and HRT. US Medical charges were 35% higher in non-compliers compared with compliers and total monthly charges were 76% higher. Based on modelling, persistence levels with bisphosphonates of <50% at 12 months results in almost 20,000 excess fractures over a 10 year period and ≤ 22 M per annum fracture-related costs to the UK NHS. **CONCLUSION:** The evidence base in this area is limited. However, it indicates that medication non-compliance and failure to persist has substantial financial consequences within the field of osteoporosis management. This conclusion is consistent with the evidence available from both observation studies and modelling analyses in the US and UK health care systems. Further work is warranted to review other disease areas, and to further synthesise the data to provide an estimated aggregate of the international cost of medication non-compliance.

POS6

COST-EFFECTIVENESS OF OSTEOPOROSIS SCREENING CAMPAIGN FOR BELGIAN WOMEN

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OBJECTIVES: To assess the cost-effectiveness of an ongoing osteoporosis screening campaign in Belgian women aged from 50 to 69 years. **METHODS:** A cost-effectiveness analysis was performed using a decision tree analysis and a microsimulation Markov model. We compared the screening campaign versus no intervention. Screening campaign consisted of quantitative ultrasound screening by mobile units. For all individuals having a positive result, three possibilities are observed: no follow-up, direct treatment or screening with DXA (dual energy X-ray absorptiometry). Most of the individuals having a positive DXA result received Alendronate therapy. Sensitivity analyses and simulations were based on model parameters (discount rates, fracture costs, fracture risks, fracture disutility, mortality excess and treatment specificities), characteristics of screening campaign (screening efficacy, prevalence of osteoporosis and screening cost), number of clinical risk factors and persistence level. **RESULTS:** In the base case (with 100% persistence), the cost per QALY gained for the screening strategy was €44,927. Sensitivity analyses showed that this value was affected by persistence level (€81,921 for realistic persistence). The efficiency greatly improved if we only screen individuals with one clinical risk factor (€23,265) or more (from €15,377 for two clinical risk factors to cost-saving for four clinical risk factors). We also showed that pre-screening using quantitative ultrasound was more efficient than universal DXA screening if the cost of quantitative ultrasound was less than €14.8 per patient screened. **CONCLUSION:** The base case result was near to threshold value of €45,000 per QALY gained. Consequently, it was difficult to interpret the results and to qualify the campaign efficiency. Our recommendations to improve it are to target screening on individuals with one or more clinical risk factors, to generalize DXA for all individuals having a positive quantitative ultrasound result, to treat all individuals having a positive DXA result and to improve compliance and adherence to therapy.

POS7

COST-EFFECTIVENESS SIMULATION MODELING OF THE COMPLIANCE OF 5 MG ZOLEDRONIC ACID ONCE A YEAR VERSUS CURRENT TREATMENTS IN POST-MENOPAUSAL OSTEOPOROSIS

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OBJECTIVES: To compare effectiveness, medical costs and cost-effectiveness of zoledronic acid, one single yearly infusion, versus usual care in post-menopausal osteoporosis in France, taking into account compliance profiles. **METHODS:** Twelve simulation based models were built to investigate 3 types of fractures: vertebral (VF), non-vertebral (NVF) and hip (HF), comparing 2 groups: zoledronic acid and usual care. Two effectiveness assumptions have been tested to handle the issue of clinical trial population heterogeneity: 1) specific agent effectiveness values, and 2) same standard effectiveness range of values for all active agents. Direct medical costs include drug costs, medical visits, monitoring and fracture medical management. Compliance has been integrated into the model with the assumption that non-compliant patients have the placebo effectiveness range of values. Conservative compliance range of rates for active agents has been expressed in accordance with the literature and expert opinion, from 40% to 60% for oral drugs and from 50% to 100% for Zoledronic acid single yearly infusion. A full probabilistic sensitivity analysis has been carried out to generate costs, effectiveness and cost-effectiveness over 3 years, with confidence intervals. Statistical tests were performed to calculate potential significant differences. **RESULTS:** Using the second assumption (2), the zoledronic acid strategy leads to less vertebral, non-vertebral and hip fractures than usual care: (88.0% vs. 85.7%, 89.4% vs. 88.2% and 97.2% vs. 95.4%) respectively, ($p < 0.001$). Zoledronic acid generates lower total medical costs versus usual care in all types of fracture ($p < 0.001$): 944€ vs. 995€ (VF), 1164€ vs. 1245€ (NVF) and 1156€ vs. 1261€ (HF). **CONCLUSION:** Zoledronic acid is the dominant strategy, regardless of fracture type or effectiveness assumptions. A simulation modeling approach seems appropriate to investigate various effectiveness values from heterogeneous clinical trials. Isolating the compliance effect allows us to confirm the added value of a once yearly infusion of zoledronic acid 5 mg.

POS8

COMPARISON OF THE COST-EFFECTIVENESS OF ZOLEDRONIC ACID 5 MG FOR THE MANAGEMENT OF POST-MENOPAUSAL OSTEOPOROSIS IN THE UK SETTING

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OBJECTIVES: To evaluate the cost effectiveness of zoledronic acid 5 mg once yearly compared to the leading branded compounds in the UK, i.e. Fosamax once weekly, Actonel once weekly, Bonviva once monthly, and Protelos once daily in patients with postmenopausal osteoporosis. **METHODS:** The cost effectiveness model applied tracks the model NICE used in their appraisal document for the cost effectiveness of treatments of osteoporosis in postmenopausal women at increased risk of fracture. Lifetime costs and quality adjusted life years (QALYs) were calculated assuming five years of treatment. Relative risks of fracture protection were obtained from the HORIZON-PFT trial for zoledronic acid 5 mg, meta-analyses from NICE reviews