neck pain. METHODS: Patients were recruited by 42 general practitioners if they had been suffering from neck pain for at least two weeks. The 183 patients were randomly allocated to manual therapy (spinal mobilization, n = 60), physical therapy (exercise therapy and massage, n = 59), or GP care (counseling, education and medication, n = 64). Clinical outcomes included perceived recovery, pain intensity, functional disability and quality of life (EuroQol). Direct and indirect costs were measured by means of cost diaries completed by patients during the intervention period and the 52-week follow up. Differences in mean costs between groups were evaluated by applying non-parametric bootstrapping techniques. RESULTS: The total costs of the manual therapy (Euro 447) were approximately one-third of the costs of the physical therapy (Euro 1,297) and GP care (Euro 1,379). These differences were found to be statistically significant when bootstrapping was applied. The cost-effectiveness ratios and the cost-utility ratios showed that manual therapy was dominant (less costly and more effective), compared to physical therapy and GP care. The recovery rates based on perceived recovery after 12 months were 72% for manual therapy, 63% for physical therapy and 56% for GP care. With regard to pain intensity and functional disability, manual therapy was also found to be dominant over time, compared to physical therapy and GP care, for these clinical outcomes, although the differences were small. CONCLUSIONS: This study showed that manual therapy (spinal mobilization) is more effective and less costly than physical therapy and GP care.

PAM22

STUDYING PREDICTORS OF FRACTURES AMONG OMNICARE NURSING HOME RESIDENTS
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Upon admission to a skilled nursing home facility, information is recorded on a Minimum Data Set (MDS), a 400 item instrument used as the basis of 1) reimbursement for Medicare eligible nursing home stays and 2) care planning, survey and certification for all nursing home stays. OBJECTIVE: To predict and evaluate variables related to hip fractures in the nursing home setting. METHODS: Electronic MDS data was available from 200 homes for variable evaluation times. The first available Assessment Reference Date (A3A), was the baseline for a regression of time to first fracture. Excluded were 1) patients with a fracture having an A3A date within the first 10 days of baseline visit, and 2) patients with <60 days of follow-up, from first to last A3A visit. Analysis included a Kaplan-Meier curve summarizing time to fracture, and a Cox Proportional Hazards regression model.

RESULTS: The initial data set included 23,045 patients. 11,465 met the inclusion criteria, and 336 of these had fractures. Most important variables, based on the coefficient size, associated with increasing risk, were unsteady gait, deterioration in ADL function, a hospital stay in the last 90 days, use of full bed rails, and Alzheimer’s disease. The risk was also higher among females and whites. The need for full physical help while standing had a lower risk when compared to need for less support, but this is likely due to a lowered potential for falling, and increased vigilance in the part of staff. “Deteriorated” ADL function had almost twice the risk when compared to “improved” ADL. CONCLUSION: Unsteady gait, deterioration in ADL, use of bed rails, presence of Alzheimer’s disease, and hospital admissions were associated with an increased risk of hip fracture. A larger sample of fractures would be more likely to be successful in studying additional relationships.

PAM23

VECTEBRAL FRACTURES AMONG GLUCOCORTICOID PATIENTS SIGNIFICANTLY INCREASE MEDICAL CARE COSTS
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BACKGROUND: Previous studies have demonstrated that high levels of glucocorticoid (GC) exposure are associated with increased fracture risk. However, none has reported potential cost impacts. OBJECTIVE: To estimate the marginal costs from vertebral fractures among GC patients. METHODS: Subjects 18–64 years old with different GC exposure levels, with and without fractures, were selected (n = 50,191). GC exposure was categorized into three levels: high (3+ claims of continuous use or >9.5 prednisone-equivalent mg/day), low (other GC use), and no GC use. Fractures, comorbid conditions, and costs were determined 15 months before and up to 3.5 years after index date. Regression models were used to estimate the marginal effects of vertebral fractures on pharmacy costs, medical costs and total costs. The models controlled for age, gender, pre-index date costs, GC exposure/fracture combinations, and pre-index and new post-index date comorbid conditions. RESULTS: Vertebral fractures led to significant per-member per-month (PMPM) cost increases in each GC exposure group. Furthermore, the additional increase in marginal cost from vertebral fracture on total PMPM costs among high GC patients versus low GC patients was 83% ($170; p < 0.001). Differential increases in pharmacy and medical PMPM costs between high and low GC patients were 151% ($56; p < 0.01) and 68% ($115; p = 0.014), respectively. CONCLUSIONS: Vertebral fractures were associated with increased PMPM costs, holding constant patients’ underlying conditions. High GC patients had greater PMPM increases from vertebral fractures com-