PMS9

COST BURDEN OF SECOND FRACTURE IN PATIENTS WITH COMMERCIAL INSURANCE

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OBJECTIVES: Estimate total incremental costs from second fracture for patients with closed hip, vertebral, and non-hip non-vertebral (NHNV) fractures in the commercially insured US population. **METHODS:** Patients with closed hip, vertebral, and NHNV fracture were identified in 2002–2008 MarketScan® Commercial Database. All patients were 50–64 years old at incident fracture and had data 12-month pre- and post-period from incident fracture. Cases experienced a subsequent fracture during the 12-month post-period with index date as the first subsequent fracture date. Controls had no subsequent fractures during the post-period; their index dates were randomly assigned based on the distribution of index dates of cases. All patients had 12-month post-period from index date and total costs were examined during the 12-month. Multivariate regressions controlled for demographic and clinical characteristics between cases and controls. Annual costs were projected to US commercially insured population in 2002–2008 based on projected number of patients with second fractures using weights derived from the Medical Expenditure Panel Survey. **RESULTS:** A total of 4752 hip, 10,080 vertebral, and 52,734 NHNV patients met the study criteria, with a mean age of 58 years and 63.9% women. Average annual costs per person were $71,272 for cases vs. $20,828 for controls, $67,772 vs. $20,029 and $41,635 vs. $11,212 for the hip, vertebral, and NHNV cohort, respectively. Regression-adjusted incremental costs were $47,351, $43,238, and $23,852 for hip, vertebral, and NHNV fracture patients, respectively. The annual incremental costs associated with second fracture were projected to be $166.4 million, $199.2 million, and $468.8 million among patients 50–64 years old with initial hip, vertebral, and NHNV fracture in the US commercially insured population. **CONCLUSIONS:** There is substantial cost burden associated with second fracture on the US health care system. Intervention for patients after their first fractures may help reduce the long-term economic and clinical burden associated with second fracture.

PMS10

THE INDIRECT COSTS ASSOCIATED WITH ABSENTEEISM OF WORKING ADULTS WITH RHEUMATOID ARTHRITIS: EVIDENCE FROM UNITED STATES NATIONAL SURVEY DATA

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OBJECTIVES: To quantify individual and national estimates of the indirect costs of rheumatoid arthritis (RA), using national survey data. **METHODS:** This was a retrospective study using 1996–2006 data from the Medical Expenditure Panel Survey (MEPS). Individuals' self-reported health conditions were mapped to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnostic codes. Individuals with an ICD-9-CM diagnostic code of 714.xx (rheumatoid arthritis and other inflammatory polyarthropathies) were categorized as having RA. A two-part model was specified to estimate the probability of time lost from work and annual number of workdays missed due to illness, conditional on missing at least 1 workday among employed individuals. The annual missed workdays were combined with MEPS earnings information to estimate individual and national indirect costs of absenteeism. **RESULTS:** There were 312 patients with RA (mean age = 46 years; 76% female), and 89,734 without RA (mean age = 41; 52% female). The study revealed that 67% (209/312) of individuals with RA missed work as compared with 58% (52,046/89,734) of those without RA (P = 0.0007). Among those individuals who missed work, individuals with RA had a mean annual number of missed workdays of 12.05 versus 7.92 for individuals without RA (P = 0.0081). Per capita indirect costs associated with the incremental difference in annual lost workdays between those with and without RA was $500. The estimated national indirect costs of absenteeism associated with RA were $229 million per year. **CONCLUSIONS:** Individuals with RA have a higher probability of missing work and missing more workdays as compared to those without RA. The per capita and national annual indirect costs associated with RA are substantial. The potential of appropriate and early diagnosis and treatment of RA to reduce time lost from work and indirect costs for individuals with RA should be examined.

PMS11

THE DIRECT MEDICAL COSTS OF RHEUMATOID ARTHRITIS: EVIDENCE FROM UNITED STATES NATIONAL SURVEY DATA

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OBJECTIVES: To quantify individual and national estimates of the direct medical costs of rheumatoid arthritis (RA), using national survey data. **METHODS:** This was a retrospective study using 1996–2006 data from the Medical Expenditure Panel Survey (MEPS). Individuals' self-reported health conditions were mapped to International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnostic codes. Individuals with an ICD-9-CM diagnostic code of 714.xx (rheumatoid arthritis and other inflammatory polyarthropathies) were categorized as having RA. Health care services included prescription medications, inpatient, outpatient, emergency room, office, and home health visits. Total direct medical costs included health care costs covered within the health care system including those covered by health insurance plans and out-of-pocket (OOP) costs paid by individuals. To estimate costs, multivariable linear regression analyses were performed to compare individuals with and without RA. All costs were inflated using the medical component of the 2008 Consumer Price Index (CPI) and are represented in 2008 US dollars. **RESULTS:** There were 1213 individuals with RA (mean age = 58 years; 75% female) and 160,985 without RA, (mean age = 48 years; 58% female). Annual per capita health care costs for individuals with RA were more than double for those individuals without RA ($8955 vs. $3,925; P < 0.0001). Annual per capita OOP costs for individuals with RA were also higher than those of individuals without RA ($2131 vs. $917; P < 0.0001). When combining health care and OOP costs, per capita direct costs increased by $11,086. The US national annual estimates of the, total direct medical costs (health care, OOP) for individuals with RA were $7.9 billion ($6.36 billion, $1.54 billion). **CONCLUSIONS:** The direct medical costs associated with RA are substantial not only to health care payers but also to patients. The extent to which appropriate and early diagnosis and treatment of RA may reduce total health care costs for health care payers and individuals with these diseases should be examined.

PMS12

COST OF SECOND FRACTURE AMONG MEDICARE PATIENTS WITH INITIAL HIP, VERTEBRAL, AND NON-HIP NON-VERTEBRAL (NHNV) FRACTURES

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OBJECTIVES: Estimate the incremental costs from second fracture for patients with closed hip, vertebral, and non-hip non-vertebral (NHNV) fractures. **METHODS:** Case-control analysis estimating costs of second fracture, using patients with closed hip, vertebral, and NHNV fracture from 2002–2008 MarketScan® Medicare Supplemental Database. Patients had Medicare supplemental at incident fracture and 12-month pre-period and follow-up period from the incident fracture. Index date was the first subsequent fracture date for patients with subsequent fracture during the 12-month (cases); index dates for patients without subsequent fractures during the 12-month follow-up (controls) were randomly assigned based on the distribution of index dates of cases. Total costs were examined during the 12-month follow-up period using generalized linear models. A decomposition analysis of the incremental costs attributable to the second fracture was conducted to examine what proportion of the difference was due to different patient characteristics and what proportion was due to different model structures between cases and controls. **RESULTS:** A total of 40,772 hip, 39,479 vertebral, and 82,216 NHNV patients met the study criteria, with a mean age of 80.5 years. The rate of second fracture within 1 year of the initial fracture was 8.8%, 9.2%, and 8.2% for the three cohorts respectively. For the initial hip fracture cohort, annual costs were $34,143 vs. $15,296 for cases and controls; for vertebral, $35,773 vs. $16,523; for NHNV, $33,275 vs. $12,970. Adjusted incremental costs associated with second fractures were $18,645, $19,702, and $19,697 in these three cohorts respectively, and 89–94% of the incremental costs were due to the structural difference in estimated coefficients of the models for cases and controls. **CONCLUSIONS:** Relative to patients with a single fracture, the average cost of patients with subsequent fracture(s) was 2–3 times higher. Effective management of first fractures may help reduce the long-term economic and clinical burden.

PMS13

INCREMENTAL MEDICAL COST OF MUSCOLOSKELETAL DISORDERS IN THE UNITED STATES: ESTIMATES FROM 2006 MEDICAL EXPENDITURE PANEL SURVEY (MEPS) DATA

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OBJECTIVES: Recent medical cost estimates of musculoskeletal disorders (MSDs) as a group have not been calculated. This study estimates the incremental direct medical cost for individuals with MSDs in the United States (US). **METHODS:** Retrospective analysis was conducted using the 2006 Medical Expenditure Panel Survey (MEPS) data. Individuals, 18 year and older were identified using International Classification of Diseases (ICD)-9 diagnosis codes 274.xx and 710.xx–739.xx for all diseases under MSDs. Incremental total expenditures of MSDs was estimated using a regression model adjusting for various factors like age, gender, geographic region, race, ethnicity, education, insurance status and number of medications(proxy measure for comorbidity). Generalized linear and regression models were built to analyze the overall incremental treatment cost of MSDs. **RESULTS:** Of the 105,166 individuals sampled in 2006 MEPS data, approximately 11,129 individuals (10.58%) experienced at least one MSD. Majority of the individuals were females%, whites%, and 40 years and older. The total treatment cost for MSDs was $479.19 billion in 2006 compared to $193 billion in 1996. The largest cost components in 2006 were hospitalizations, physician visits, and prescription medications. **CONCLUSIONS:** With incremental medical expenditures estimated at $US 479 billion, individuals with MSDs utilize significant amount of health care resources. The systematic assessment of MSDs and their associated cost is necessary to increase the awareness of MSDs prevalence in our population. There is a need for MSD-related intervention programs which can be instrumental in reducing the costly impact of MSDs on individuals' well-being and productivity.