

prevalence in 100,000 among men was 911.6 patients, among women 818.0 patients, in total 862.7. Average age of patients in outpatient care was 51.5 years, there was a significant difference (13.2 years) between men (45.0 years) and women (58.2 years). As regards sex distribution in outpatient care: 46.1% of patients were men, 53.9% were women, in general practice care men accounted for 54.7%, women for 45.3% of patients. **Conclusions:** Prevalence of injuries to the shoulder and upper arm was 1.11-times higher among men than among women. Prevalence in outpatient care was higher among men, in general practice care it was higher among women. Average age of women was 13.2 years higher than that of men.

PMS55

EPIDEMIOLOGICAL DISEASE BURDEN OF INJURIES TO THE KNEE AND LOWER LEG BASED ON ROUTINELY COLLECTED HEALTH INSURANCE CLAIMS DATA

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Objectives: Injuries to the knee and lower leg cause considerable difficulties in everyday self-care of patients. The aim of our study was to determine the epidemiological disease burden of injuries to the knee and lower leg. **Methods:** Data were derived from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), for the year 2018. Data analysed included annual patient numbers, case numbers and prevalence of care utilisation per 100,000 population according to age groups and sex. The following health insurance treatment categories were included into our study: general practice care, home care, in- and outpatient care, medical imaging, laboratory diagnostics, drugs and medical aids. Patients with injuries to the knee and lower leg were identified with the following code of the International Classification of Diseases 10th revision: S 80-89. **Results:** The highest national patient numbers were in outpatient care: 106,058 men and 106,234 women, in total 212,292 patients, followed by general practice care (45,330 men and 42,009 women, in total 87,339), and use of medical aids (12,847 men and 12,969 women, in total 25,816). Based on patient numbers in outpatient care, prevalence in 100,000 among men was 2,270.3 patients, among women 2,080.3 patients, in total 2,171.0. Average age of patients in outpatient care was 44.8 years, there was a significant difference (9.5 years) between men (40.0 years) and women (49.5 years). As regards sex distribution in outpatient care: 50% of patients were men, 50% were women, in acute inpatient care men accounted for 53.6%, women for 46.4% of patients. **Conclusions:** Prevalence of injuries to the knee and lower leg was the same among men and women in outpatient care. In acute inpatient care, prevalence was slightly higher among men. The average age of women was 9.5 years higher than that of men.



PMS56

EPIDEMIOLOGICAL DISEASE BURDEN OF FRACTURE OF SKULL AND FACIAL BONES BASED ON ROUTINELY COLLECTED HEALTH INSURANCE CLAIMS DATA

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Objectives: Accident-related fractures of the skull and facial bones are the most common pathological changes to the skull. The aim of our study was to determine the epidemiological disease burden of fracture of skull and facial bones. **Methods:** Data were derived from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), for the year 2018. Data analysed included annual patient numbers, case numbers and prevalence of care utilisation per 100,000 population according to age groups and sex. The following health insurance treatment categories were included into our study: general practice care, home care, in- and outpatient care, medical imaging, laboratory diagnostics, drugs and medical aids. Patients with fracture of skull and facial bones were identified with the following code of the International Classification of Diseases 10th revision: S02. **Results:** The highest national patient numbers were in outpatient care: 11,306 men and 8,284 women, in total 19,590 patients, followed by CT diagnostics (4,158 men and 3,407 women, in total 7,565 patients), and general practice care (3,718 men and 2,349 women, in total 6,067). Based on patient numbers in outpatient care, prevalence in 100,000 among men was 242.0 patients, among women 162.2 patients, in total 200.3. Average age of patients in outpatient care was 46.1 years, there was a significant difference (11.5 years) between men (40.3 years) and women (52.8 years). As regards sex distribution in outpatient care: 57.7% of patients were men, 42.3% were women, in CT diagnostics men accounted for 55.0%, women for 45.0% of patients. **Conclusions:** Prevalence of fracture of skull and facial bones was 1.49-times higher among women than among men. Average age of women was 11.5 years higher than that of men. High patient numbers of CT diagnostics are attributable to the fact CT is the primary diagnostic method.



PMS57

EPIDEMIOLOGIC MODELING TO GUIDE PAYER DECISIONS IN RARE DISEASES: A CASE STUDY OF DUCHENNE MUSCULAR DYSTROPHY IN THE UNITED STATES

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Objectives: Payers require a thorough understanding of patient population size to make evidence-based decisions regarding treatment coverage. For rare diseases, this information is not always readily available; often epidemiologic estimates are reported as a wide range of values or may be derived from populations of limited relevance to a payer's target population. Epidemiological models can combine available data with necessary assumptions to customize estimates of population size. The objective is to describe an interactive model to estimate the number of Duchenne muscular dystrophy (DMD) patients in the United States (US) relevant to different stakeholders. **Methods:** A model was developed to estimate DMD prevalence by age, diagnosis, and ambulatory status. Two approaches for birth incidence input were explored: (1) a systematic review to identify published estimates and (2) numeric calibration using sum-of-squared errors to align model-predicted estimates with published age-specific prevalence data. Published data describing DMD diagnosis, mortality, and the US male population by age were identified. Diagnosis and mortality data were combined via state-transition modeling to estimate age-specific prevalence based on birth incidence from both approaches. A customized interface was developed to generate results for a given plan size and demographic distribution, and sensitivity analyses were conducted across ranges of uncertain values. **Results:** Patient population sizes estimated using the incidence back-calculation approach were well-aligned with published registry data and birth incidence values. The model matched reported trends in prevalence by age, reflecting typical patterns of diagnosis and mortality, and extended these results to plan-specific projections. **Conclusions:** Customized interactive epidemiological models are valuable tools to synthesize available information for rare diseases and present results needed by payers. Model outputs can be used in budget impact analyses and other economic assessments. While this example is specific to DMD, this methodology could be applied for developing evidence-based prevalence tools for other rare diseases.

PMS58

EPIDEMIOLOGICAL DISEASE BURDEN OF INJURIES TO THE ELBOW AND FOREARM BASED ON ROUTINELY COLLECTED HEALTH INSURANCE CLAIMS DATA

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Objectives: Injuries to the elbow and forearm cause serious difficulties for patients with everyday self-care. The aim of our study was to determine the epidemiological disease burden of injuries to the elbow and forearm. **Methods:** Data were derived from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), for the year 2018. Data analysed included annual patient numbers, case numbers and prevalence of care utilisation per 100,000 population according to age groups and sex. The following health insurance treatment categories were included into our study: general practice care, home care, in- and outpatient care, medical imaging, laboratory diagnostics, drugs and medical aids. Patients with injuries to the elbow and forearm were identified with the following code of the International Classification of Diseases 10th revision: S50-S59. **Results:** The highest national patient numbers were in outpatient care: 58,986 men and 65,374 women, in total 124,360 patients, followed by general practice care (18,732 men and 20,588 women, in total 39,320 patients), and inpatient care (4,173 men and 5,852 women, in total 10,025). Based on patient numbers in outpatient care, prevalence in 100,000 among men was 1,262.7 patients, among women 1,280.1 patients, in total 1,271.8. Average age of patients in outpatient care was 43.3 years, there was a significant difference (12.9 years) between men (36.5 years) and women (49.5 years). As regards sex distribution in outpatient care: 47.4% of patients were men, 52.6% were women, in general practice care men accounted for 47.6%, women for 52.4% of patients. **Conclusions:** There was no significant difference in prevalence between men and women. Average age of women was 12.9 years higher than that of men.



PMS59

EPIDEMIOLOGICAL DISEASE BURDEN OF PETROCHANTERIC FRACTURE BASED ON ROUTINELY COLLECTED HEALTH INSURANCE CLAIMS DATA

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Objectives: Petrochanteric fractures cause excessive burden for elderly, weak patients with limited mobility and thus significantly influence quality of life. The aim of our study was to determine the epidemiological disease burden of petrochanteric fracture. **Methods:** Data were derived from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), for the year 2018. Data analysed included annual patient numbers, case numbers and prevalence of care utilisation per 100,000 population according to age groups and sex. The following health insurance treatment categories were included into our study: general practice care, home care, in- and outpatient care, medical imaging, laboratory diagnostics, drugs and medical aids. Patients with petrochanteric fracture were identified with the following code of the International Classification of Diseases 10th revision: S7210. **Results:** The highest national patient numbers were in outpatient care: 2,845 men and 6,312 women, in total 9,157 patients, followed by acute inpatient care (2,388 men and 5,858 women, in total 8,246), and general practice care (1,699 men and 3,735 women, in total 5,434). Based on patient numbers of acute in-patient care, prevalence in 100,000 among men was 51.1 patients, among women 114.7 patients,



in total 84.3. Average age of patients in acute inpatient care was 78.7 years, there was a significant difference (8.3 years) between men (72.8 years) and women (81.1 years). As regards sex distribution in outpatient care: 31.1% of patients were men, 68.9% were women, in acute inpatient care men accounted for 29.0%, women for 71.0% of patients. **Conclusions:** Prevalence of petrochanteric fracture was 2.2-times higher among women than among men. Average age of women was 8.3 years higher than that of men. Higher patient numbers among women and their higher age was due to the high number of affected women suffering from osteoporosis.

PMS61

DISABILITY AND DEPRESSION IN LOW BACK PAIN. EVIDENCE FROM A COHORT STUDY

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Objectives: Despite widespread global research endeavors, Low Back Pain (LBP) remains a troublesome issue both for clinicians as well and patients due to substantial socio-economic burden and poor recovery rates. LBP as the leading cause for years lived with disability. The aim of this study is to assess the disability and depression in a cohort with positive diagnosis of LBP at one year of follow up in India. **Methods:** This study is based on data from a cohort study conducted in northern parts of India to determine the prevalence and associated risk factors for developing LBP. Adult population of either gender between 18-65 years of age were enrolled. The outcomes assessed were self-reported depression, functional disability, and the risk factors associated with depression among the cohort of LBP positive patients by employing Modified Oswestry Low Back Pain Disability Questionnaire (MODQ) and Hamilton Depression Rating Scale (HAM-D) scale. **Results:** A total of 871 patients were identified positive for LBP which were followed for one-year duration and the response rate of 805 (92%) was reported. The mean (SD) age of total population was 33.0 (11) years, females (60%) and Body Mass Index 22.5 (4.4) kg/m². Amongst LBP positive cohort, 68% of the subjects had a minimal/moderate disability, and 32% suffer with severe disability, crippled or bed bound. Majority of the patients were normal 620 (89%), 51 (7%) suffered mild depression and 14 (2%) each with moderate or severe/very severe depression. Being male OR (95%CI) 2.14 (1.30-3.55), p<0.01 was a significant factor for depression. **Conclusions:** Low back pain causes significant disability in the patients, which critically impacts the quality of life. Depression was reported in a quarter of patients.



PMS62

EPIDEMIOLOGICAL DISEASE BURDEN OF INJURIES TO THE WRIST AND HAND BASED ON ROUTINELY COLLECTED HEALTH INSURANCE CLAIMS DATA

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Objectives: Traumatological injuries affecting the musculoskeletal system significantly influence patients' quality of life. The aim of our study was to determine the epidemiological disease burden of injuries to the wrist and hand. **Methods:** Data were derived from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), for the year 2018. Data analysed included annual patient numbers, case numbers and prevalence of care utilisation per 100,000 population according to age groups and sex. The following health insurance treatment categories were included into our study: general practice care, home care, in- and outpatient care, medical imaging, laboratory diagnostics, drugs and medical aids. Patients with injuries to the wrist and hand were identified with the following code of the International Classification of Diseases 10th revision: S60-69. **Results:** The highest national patient numbers were in outpatient care: 160,368 men and 123,789 women, in total 284,157 patients, followed by general practice care (56,350 men and 37,700 women, in total 94,050 patients), and use of pharmaceuticals (13,585 men and 8,770 women, in total 22,355). Based on patient numbers in outpatient care, prevalence in 100,000 among men was 3,432.8 patients, among women 2,424.0 patients, in total 2,906.0. Average age of patients in outpatient care was 37.2 years, there was a significant difference (5.9 years) between men (34.6 years) and women (40.6 years). As regards sex distribution in outpatient care: 62.3% of patients were men, 37.7% were women, regarding the use of pharmaceuticals men accounted for 70.3%, women for 29.7% of patients. **Conclusions:** Prevalence of injuries to the wrist and hand was 1.42-times higher among men than among women. Average age of women was 5.9 years higher than that of men. Significant difference was found between the sexes in the use of pharmaceuticals.



Musculoskeletal Disorders - Health Policy & Regulatory

PMS63

HOW ARE FLARES MEASURED TO EVALUATE TREATMENT EFFICACY IN RHEUMATIC CONDITIONS? A REVIEW OF FDA-APPROVED DRUG LABELS

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Objectives: While the term 'flare' commonly characterizes periods of increased disease severity, its medical definition varies. Efforts to standardize flare evaluation



in therapeutic areas such as rheumatoid arthritis (RA) have been ongoing. This research aimed to explore how flare has been measured in rheumatic conditions in support of product labelling goals for treatment efficacy to identify common practices and discrepancies across flare evaluations. **Methods:** The FDA database was searched for the most recently approved product labels indicated for RA, Juvenile Idiopathic Arthritis (JIA), and ankylosing spondylitis (AS). Labels were reviewed to extract information regarding flare evaluations to inform treatment outcomes. Characteristics of flare evaluations were summarized across the labels. **Results:** Twenty total unique labels were reviewed. Six flare evaluations (JIA=5, AS=1, RA=0) were described across five product labels approved between 2016 and 2019. Flare evaluations included multiple criteria for assessment. Five flare evaluations utilized the Pediatric American College of Rheumatology (ACR) response criteria 30, which involved a $\geq 30\%$ worsening in ≥ 3 variables (physician and patient/global assessments, number of active joints, range of motion, physical function, and laboratory exam) and prohibited $\geq 30\%$ improvement in ≥ 1 variable. Three evaluations required at least two active joints in addition to worsening in other variables, while one evaluation also considered fever not due to infection. One evaluation in JIA relied solely on laboratory exams and physician assessments in its flare evaluation. **Conclusions:** Almost all reviewed evaluations of disease flare used a composite approach based on the ACR30 criteria, while some included additional limitations or variables such as fever. **Results:** suggest that more work is needed to standardize how flare is evaluated for comparability within (and potentially across) rheumatic conditions. Standardized measurement of disease flare can increase consistency across patients, caregivers, and clinicians, and improve methods for assessing treatment benefit.

Musculoskeletal Disorders - Health Service Delivery & Process of Care

PMS64

VARIATION IN DURATION OF ANTIBIOTIC PROPHYLAXIS IN ELECTIVE KNEE REPLACEMENT PROCEDURES

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Objectives: Identify variation in the duration of use of prophylactic antibiotics in knee replacement surgery by hospitals and surgeons. **Methods:** This is a retrospective cross sectional study in which Vizient's clinical database/resource manager (CDB/RMTM) was used to identify elective knee replacement surgery patients whose procedures were performed on an inpatient basis. The study period was January 2016 to December 2019. Only elective infection-free patients were included in the study. Median numbers of days of antibiotic prophylaxis by encounter length of stay by hospital and surgeon were tabulated and compared. **Results:** There were 100,000 encounters across 300 hospitals that were infection-free and had elective knee replacement surgery in the study period. Patients were generally older (greater than 65 years of age), female, white, and had Medicare insurance coverage. The hospitals varied in teaching status (nearly half being teaching hospitals), ruralness (very few being defined as rural), and more than 75 percent were hospitals with more than 200 staffed beds. Patients' length of stay was generally 1 or 2 days stays. There were, however, a significant number of stays that were longer. The median duration of prophylaxis was 2 days in many hospitals irrespective of duration of hospitalization. However, other hospitals' prophylaxis duration matched days in the hospital. These hospitals were not inherently different in characteristics of their patients nor hospitals' characteristics. Thus identifying predictors of longer duration prophylaxis was not successful. **Conclusions:** There is significant variation in duration of antibiotic prophylaxis for knee replacement surgery by hospital and surgeon taking into account patient length of stay across elective patients that were infection-free. These differences have several implications. First, longer prophylactic therapy equates to higher medication cost for the encounter. Furthermore, longer duration therapy increases the risk of antibiotic resistance among patients receiving extended prophylaxis.



PMS65

A VISUAL ANALYTICAL APPROACH TO UNDERSTANDING TREATMENT PATTERNS AMONG TREATMENT-NAÏVE RHEUMATOID ARTHRITIS PATIENTS WITH BIOLOGIC USE IN THE US VETERANS HEALTH ADMINISTRATION DATABASE

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Objectives: Rheumatoid arthritis (RA) is a common autoimmune condition which is increasingly treated with biologics as monotherapy. This study evaluated treatment patterns among biologic-naïve RA patients prescribed biologics in the Veterans Health Administration (VHA) population. **Methods:** Adult patients with ≥ 2 diagnosis for RA treated with a biologic (abatacept [ABT], adalimumab [ADA], anakinra [ANK], certolizumab pegol [CZP], etanercept [ETN], golimumab [GOL], infliximab [IFX], rituximab [RTX], and tocilizumab [TOC]) during the identification period (01OCT2014-30SEP2018) were included. The first observed biologic claim was designated as first-line (1L) treatment (index biologic). Patients were excluded if they had any previous biologic claim 12 months prior to index biologic initiation. The Charlson comorbidity index (CCI) score was determined. Patient data were assessed until death or study end. Change in line of treatment was defined as switch to a non-

