statistically significantly higher rates of therapy addition compared to the non-IPH group (2.1% vs. 0.9%; p<0.0001), switches in therapy (2.3% vs. 0.6%; p<0.0001) and treatment discontinuations (3.9% and 3.2%; p=0.001). There were multiple statistically significant differences between the IPH and non-IPH groups across several antidiabetic drug classes regarding therapy addition, switch or discontinuation. For example, IPH patients were 12.5 times more likely to add basal insulin compared to non-IPH patients (95% CI, 3.7 - 42.4; p<0.0001). **CONCLUSIONS:** Inpatient admission of patients with T2DM was associated with more frequent treatment modifications to their pre-admission treatment regimen compared to a matched cohort of patients without inpatient admissions. An inpatient admission represents an opportunity to modify pre-admission diabetic treatment regimens. Future studies are needed to determine if such modifications are associated with improvements in patient outcomes.

PHS169

**RESOURCE USE AND OUTCOMES OF TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA IN RUSSIA: A RETROSPECTIVE FIELD STUDY**

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**OBJECTIVES:** Community-acquired pneumonia (CAP) represents a considerable burden in senior adults in Russia. In adults >18 years, the incidence is ~280 per 100K, with >1% of treated cases resulting in death. The risk of CAP increases with increasing age and comorbidities. We assessed resource use and outcomes of CAP in Russia to characterize disease burden in Russian adults. **METHODS:** We conducted a retrospective chart review in a central Russian region of Tver for samples of 500 and 400 patients treated in inpatient and outpatient settings respectively. All patients were 50 years of age and older and were not transferred from a hospital or previously hospitalized in the past 2 weeks. Data were collected regarding age, gender, comorbidities, referral patterns, outcomes, resource use, employment status, and productivity loss. **RESULTS:** Among inpatient CAP episodes the mean age was 65.9 years and 55.4% were male. Most of the hospital admissions were referred by outpatient physician (63.4%), 25.4% were admitted by ambulance and 11.2% self-referred. Among outpatient cases the mean age was 65.5 years and 52% were male. Based on comorbidities, 75.0% of inpatient and 68.8% of outpatient cases were at moderate/high risk of pneumonia. The overall length of stay among inpatient cases was 13.6 days. Mean length of stay was similar across age groups and by risk categories. Outpatient cases received an average of 5 procedures, including one X-ray per case, and an average 8.4 days of antibiotic therapy. Employed patients below retirement age comprise 12.8% and 18.3% of the inpatient and outpatient cases, respectively, and days lost from work per patient of working age was 8.0 (inpatient) and 7.0 (outpatient). **CONCLUSIONS:** CAP is a significant cause of health care utilization in adults in Russia. Most CAP patients have chronic comorbidities. Resource utilization was similar across age and risk groups.

PHS170

**RHEUMATOID ARTHRITIS PATHWAY PROGRAM IMPACT ON PATTERNS OF CARE**

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**OBJECTIVES:** To analyze the feasibility of a collaborative evidence-based consensus-driven pathway in rheumatoid arthritis (RA). Unsustainable cost trends in health care have been the focus of much debate. RA has been a particular target of these concerns due to its chronic nature, arsenal of expensive therapeutics, variability in patterns of care, care coordination issues and often absent objective determinants of disease activity and treatment responsiveness. Pathway programs have been suggested as a means to decrease treatment variability thereby improving quality and cost. **METHODS:** CareFirst BlueCross BlueShield and Cardinal Health collaborated with rheumatologists in the CareFirst network to develop a payer-sponsored RA pathway program. Participation was voluntary but reimbursement enhancements were offered to mitigate cost of provider adoption and compliance. **RESULTS:** 80 physicians from 37 CareFirst community network practices signed participation agreements. A steering committee of 12 physicians created the pathway with the following unique elements: obligatory use of a real-time decision-support and data-capture tool; requirement for a clinical disease activity index (CDAI) at each physician visit; use of disease-modifying antirheumatic drugs as first-line treatment for at least 12 weeks before use of biologic agents; and a requirement that dose, schedule, and adjustments for biologic agents follow package label prescribing guidelines. A total of 1800 unique RA patients entered the program. CDAI capture through the decision support tool exceeded 70% of visits. DMARD rule compliance resulted in an 8% reduction in overall biologic agent use. Claims-validated compliance with initial infused biologic agent dose and schedule by label increased from 40% to 53%. Pathway adherence was without a consequent increase in CDAI scores. **CONCLUSIONS:** High-level pathway program adoption suggests feasibility of this approach. Label-based prescribing of DMARD and biologic agents was not associated with higher CDAI scores, confirming that evidenced-based algorithms do not jeopardize patient outcomes. Opportunity exists to improve biologic use compliance.

## DISEASE-SPECIFIC STUDIES

### INDIVIDUAL'S HEALTH – Clinical Outcomes Studies

PIH1

**THE ASSOCIATION BETWEEN SLEEP PROBLEMS, SLEEP MEDICATIONS AND FALLS IN COMMUNITY-DWELLING OLDER ADULTS: RESULTS FROM THE HEALTH AND RETIREMENT STUDY 2010**

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**OBJECTIVES:** Studies have shown that the use of psychotropic medications such as sedative hypnotics have a significant association with risk of falls in older adults. However, very few studies have assessed the association with poor sleep, medications used to improve sleep, and the combined effect of these variables on the risk of falls. The objectives were: 1) to determine the prevalence of sleep problems, use of sleep medications and falls and 2) to evaluate the association between sleep problems, sleep medications, and falls in adults aged 65 or older. **METHODS:** The study population comprised a nationally representative sample of non-institutionalized adults aged 65 years or older participating in the 2010 Health and Retirement Study. Prevalence of sleep problems, sleep medication use and falls was calculated. Logistic regression modeling was used to examine the effect of sleep problems, sleep medications, and both on the risk of falls after controlling for covariates. Statistical analysis was performed using SAS 9.4 statistical software. **RESULTS:** In 9,937 community-dwelling older adults, 36% had fallen in the past two years. 71% reported sleep problems and 21% reported taking medications or other treatments to help sleep. Older adults who do not have sleep problems and take sleep medications (OR=1.50, 95%CI= 1.10-2.03) and those who do have sleep problems and take sleep medications (OR=1.28, 95%CI= 1.07-1.54) have a significant risk of falls, compared to older adults who do not have sleep problems and do not take sleep medications. **CONCLUSIONS:** Sleep problems, use of sleep medications, and occurrence of falls are common among older adults. Consistent with previous literature, sleep medication use predicted falls. However, those with sleep problems not taking sleep medication did not have significant risk of falls as has been previously reported. Health care professionals should consider medication-associated risk when treating sleep problems in older adults.

PIH2

**CARDIOVASCULAR AGENTS - MOST COMMON CLASS INVOLVED IN ADVERSE DRUG REACTIONS IN INDIAN ELDERLY INPATIENTS**

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**OBJECTIVES:** This 2-year long prospective observational study was undertaken to characterize the most common medications involved in causing Adverse Drug Reactions (ADRs) in the Indian elderly inpatients. **METHODS:** The records of 1510 inpatients aged 60 years or above, either sex, were assessed using subjective and objective parameters to identify ADRs. **RESULTS:** Of the total 1510 patient records evaluated, 228 ADRs were noted in 197 patients. The prevalence of ADRs in Indian elderly inpatients was found to be 13%. Type A ADRs accounted for 85% of the total ADRs. The most frequently occurring ADR was hypotension. The 3 most frequently involved drug classes in ADRs were Cardiovascular (CVS) drugs (70%), followed by Blood and blood forming organs (12%) and Anti-infectives (6.5%). Within the CVS drugs, antihypertensives, diuretics and lipid modifying drugs were the causative agents. **CONCLUSIONS:** Cardiovascular agents were the most commonly involved drugs associated with ADRs in the elderly inpatients. In view of the fact that these drugs are well established in clinical practice, prevention of the CV illnesses seems to be the only route to minimize the adverse drug reactions for the Indian population.

PIH3

**OVARIAN STIMULATION USE, INCLUDING CLOMIPHENE CITRATE, AND INTRAUTERINE INSEMINATION USE AND THE RISK OF MULTIPLICITY AND MAJOR CONGENITAL MALFORMATIONS: A META-ANALYSIS**

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**OBJECTIVES:** The relationship between medically assisted reproduction (MAR) use and the risk of major congenital malformations (MCM) is controversial. Multiplicity is a recognized adverse effect of MAR; nevertheless, there is no consensus on the incremental risk. Our meta-analysis summarizes the literature on fertility treatments and risks for the newborn, explains discrepancies between studies, and identifies the gaps in knowledge for future research. **METHODS:** We carried out a systematic review to identify published papers between 1966 and 2012 in Medline, Embase and Cochrane Central Register of Controlled Trials. We included observational studies and randomized clinical trials related to the risk of multiplicity or MCM conceived following ovarian stimulation (OS) alone, intrauterine insemination (IUI) and in-vitro fertilization (IVF) with related procedures compared to spontaneously conceived infants or infants conceived using other MAR. **RESULTS:** We identified 238 eligible studies. Among them, 186 reported data on IVF, 37 reported data on OS used alone and 21 on IUI use. Compared to natural conception, OS used alone was associated with a greatly increased risk of multiplicity (RR 11.07, 95% CI 6.94-17.67), major congenital anomalies of nervous system (RR 1.88, 95% CI 1.20 -2.96) and major musculoskeletal malformations (RR 1.38, 95% CI 1.06-1.79). The risk of multiplicity further decrease and the risk of major musculoskeletal malformations increase when data were restricted to clomiphene citrate (the first line OS). Compared to natural conception, the use of IUI was associated with greatly increased risk of multiplicity (RR 10.16, 95% CI 7.35-14.06) and major musculoskeletal malformations (RR 1.66, 95% CI 1.26-2.18). **CONCLUSIONS:** A limited number of observational studies focused on the risk of multiplicity and MCM following OS alone and IUI compared the data on IVF use. Results suggest that overall OS used with or without IUI increases the risk of multiple birth and some types of MCM.

PIH4

**RISK OF FALLS AND FRACTURES ASSOCIATED WITH ANTICHOLINERGIC MEDICATION USE IN THE ELDERLY**

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