DU3
TRENDS OF HYPNOTIC MEDICATION USE IN A 2000-BED MEDICAL CENTER IN TAIWAN
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OBJECTIVES: Although the evidence showed the risks of using sedative benzodiazepine (BZD) and long-terms use of non-BZD hypnotics (i.e., Z-drugs) among the elderly, it is still unavoidable to use these medications for the elderly to solve their insomnia problems. This study aimed to describe the utilization of hypnotic medications for outpatients in a 2000-bed medication center in Taiwan. **METHODS:** We conducted a secondary data analysis using China Medical University Hospital (CMUH) in-house databases. From 2007 to 2013, those outpatients ever prescribed with, estazolam, lorazepam, diazepam, alprazolam, zolpidem and zopiclone were of interest. The prescription prevalence rates of these drugs, its average number of defined daily dose (DDD), prescriber specialties and demographic characteristics of patients were examined using descriptive analyses. **RESULTS:** Those elder patients were prescribed with 133 ±158 DDD of Z-drugs in CMUH in 2007. 7.6% of them used Z-drugs exceed 365DDD within one year. In 2009, more than 40% of all 15,815 prescriptions with BZD and Z-drug hypnotics were prescribed for patients aged 65 year or more. Of them, 44% of alprazolam, 51.1% of diazepam, 46% of estazolam, 41% of zolpidem, and 46% of zopiclone were prescribed for the elderly patients, respectively. In 2011, 40% of zolpidem users and 32% of zopiclone users were elderly. The top three prescribing specialists for Z-drugs were neurologist, cardiologist and psychiatrists in (accounted for 63.01% and 46.96% for zolpidem and zolpiclone, respectively). Of 12,982 patients being prescribed with 53,330 BZD and Z-drug prescriptions in 2013, 76.9% were aged 65 year or more. The Z-drugs were still more common than BZD as a whole. **CONCLUSIONS:** While the elderly accounted for small proportion of medical care users, relatively larger proportions were prescribed with BZD and Z-drug hypnotics to manage their insomnia problems in CMUH across seven years. Further outcome assessments for such usage are necessary.

DU4
STATIN MEDICATION USE AND THE DEVELOPMENT OF PROLIFERATIVE DIABETIC RETINOPATHY AMONG PATIENTS WITH TYPE 2 DIABETES, HYPERTENSION, AND HYPERLIPIDEMIA
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The progression from Non-Proliferative Diabetic Retinopathy (NPDR) to Proliferative Diabetic Retinopathy (PDR) is associated with a decline in best-corrected visual acuity and related health care utilization. Few studies have systematically assessed the effect of pharmacological regimens in delaying the progression of PDR. Many patients are also on chronic medication regimens which may also have temporal effects on the risk of disease progression.**OBJECTIVES:** Examine how patients' chronic medication utilization potentially influences their PDR progression among NPDR patients with type-2 diabetes, hypertension and hyperlipidemia in the United States. **METHODS:** This retrospective cohort study was conducted using a claims database of all beneficiaries had any ophthalmic care and were enrolled in a large managed-care network from 2001 to 2012. Utilization of distinct oral hypoglycemic agents, blood pressure lowering agents and lipid lowering agents were measured by the total cumulative dosage of medication (g) within a three year moving window. A multivariate Cox regression analysis with medication use as a time-varying covariate assessed the association between medication use and progression to PDR. **RESULTS:** A total of 10,845 NPDR patients with all of these three conditions were eligible for this study, and 837(7.72%) of them developed PDR during the follow up period. Increased use of Statins was associated with a significant decreased hazard of developing PDR (Hazard Ratio: 0.995 95%CI [0.99–0.999], $p<0.05$) after adjusting for demographic and clinical confounders. Patients with increased use of insulin had increased hazard of developing PDR (Hazard Ratio: 1.002 95%CI [1.001-1.004], $p<0.01$). Potential risk factors of PDR progression included HbA1c level and diabetes-related complications. **CONCLUSIONS:** By developing a time-dependent medication use model, our study provides important information on physicians' prescribing strategies aimed at preventing PDR progression among patients with type-2 diabetes, hypertension and hyperlipidemia. Increasing adherence to statins for patients diagnosed with all of these three components of metabolic syndrome may be helpful for delaying their PDR progression.

HEALTH SERVICES RESEARCH STUDIES

HS1
CLINICAL OUTCOMES ASSOCIATED WITH THE USE OF GUIDELINE RECOMMENDED CARE IN PATIENTS POST DISCHARGE FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)
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OBJECTIVES: To evaluate the impact of the use of guideline recommended care on the risk of subsequent moderate to severe COPD exacerbation requiring hospitalization or emergency department (ED) visit following discharge from COPD in a privately insured population in Texas. **METHODS:** Retrospective population-based cohort study design using Blue Cross Blue Shield of Texas (BCBSTX) enrollment and claims data (years 2008 to 2011) was employed. All COPD-related hospitalizations and ED visits were extracted. Patients were identified as adherence to guideline recommended care if within 30 days of discharge, had at least one claim of prescription fills for any maintenance medications and had at least one follow up visit with a primary care physician or pulmonologist. The presence of a subsequent COPD-related exacerbation requiring hospitalization or an ED visit was assessed for one year post-discharge and compared between cohorts who receive and did not receive guideline recommended care using a probit regression model with instrumental variables. **RESULTS:** One-fourth (29%) of the patients with COPD-related hospitalizations/ED visits were identified as recipients of the guideline recommended care. Receiving guideline recommended care was associated with a reduction of 4.4 percentage points in the probability of having subsequent COPD exacerbation requiring hospital admission/ED visits (p-value = 0.837). Analysis focusing on the follow up visit alone shows that having follow up visits were significantly associated (p-value = 0.018) with a reduction in the probability (32.8 percentage points) of having subsequent COPD exacerbation requiring hospital admission/ED visits, while the use of maintenance medication was associated with an increase in the probability (19.5 percentage points) of having subsequent COPD exacerbation requiring hospital admission/ED visits (p-value = 0.337). **CONCLUSIONS:** The use of guideline recommended care, especially in the use of follow up care, was significantly associated with the reduction in the probability of having subsequent COPD exacerbation requiring hospital admission/ED.

HS2
MEDICATION ADHERENCE AS A VALUE MESSAGE: A RARITY IN EVALUATION ASSESSMENTS SUBMITTED TO MAJOR HTA BODIES
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OBJECTIVES: Poor or non-adherence causes medical and psychosocial complications for patients and represents a considerable financial burden for health care systems worldwide. Medication adherence problems have not been routinely highly valued by health technology assessment (HTA) bodies in their evaluation assessments. In this study we assess the extent to which leading HTA bodies consider the value of medication adherence in their reimbursement decision making. **METHODS:** Evaluation of published assessments made from 2010 to 2013 in five leading HTA bodies (Canadian Agency for Drugs and Technologies in Health (CADTH), the French National Authority for Health (HAS), England's National Institute of Health and Care Excellence (NICE), the Australian Pharmaceutical Benefits Advisory Committee (PBAC) and the Scottish Medicines Consortium (SMC)) were reviewed for asthma, hypertension, diabetes, multiple sclerosis, psychological disorders and alcohol dependence. The primary outcome measure was to identify the number of assessments in which HTA bodies have considered adherence as a value message. **RESULTS:** A total of 405 evaluation assessments were submitted to HTA bodies for the above stated indications and timeframe. Out of these assessments, adherence was discussed in 65 (16.1%) of the assessments. However, adherence was not considered valuable for reimbursement decision making by HTA bodies in 19 of these 65 assessments. In the remaining 46 assessments, adherence was considered as a value message while making reimbursement decisions by the HTA bodies but it did not impact the final reimbursement decision in 79% of the instances. **CONCLUSIONS:** Leading HTA bodies have not considered medication adherence as a key metric in their reimbursement decision making.

HS3
HAD THE INDIVIDUAL MEDICAL BURDEN OF BASIC HEALTH INSURANCE PARTICIPANTS REALLY BEEN ALLEVIATED IN 2009-2012?
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OBJECTIVES: To analyze the out-of-pocket medical expenses of Basic Health Insurance participants between 2009 and 2012, and determine whether the individual medical burden has been alleviated really in the health care reform from 2009. **METHODS:** This study used the data from the National Sample Survey on Medical Service Utilization of Basic Medical Insurance participants in 2009-2012. This survey involved about 375 thousands in-patients with BMI from about 70 cities all over the country. All the actual claim data of medical expenses and medical care utilization from 2009 to 2012 were collected. Descriptive analysis was applied to the data and the related payment policies of BMI were reviewed. **RESULTS:** 1) The total medical expenses burden of the BMI in-patients is keeping a high speed growth between 2009 and 2012, increased from about US$33 billion to about US$64.5 billion (increased 25% per year). 2) The inpatient expenses presented a left skewed distribution. Over 55% of the expense burden came from 20% cases spending above US$3200. 3) The out-of-pocket rates of urban employee and residents were about 29% and 49% respectively, and both of them presented a U-type pattern. The inpatients spending below US$800 or above US$3200 had a higher burden. 4) The individual medical burden presented an increase tendency with the increase of the hospital level. **CONCLUSIONS:** Generally, health insurance eased the economic burden of inpatients and made out-of-pocket expense acceptable. But the individual burden for those inpatients with expenses above US$3200 had not been alleviated enough. New measures should be pursued to make further reduce, such as raising the reimbursement ceiling and providing new supplementary health insurance for severe illness. The increase speed of total medical burden should be controlled by lean formula management. The patients with commonly encountered illness should be guided to basic-level hospitals and supervision on medical service utilization should also be strengthened to control the irrational medical cost.

HS4
QUALITATIVE ASSESSMENT OF THE QUALITY OF PHARMACEUTICAL CARE SERVICES IN THE PROVINCE OF KHYBER PAKHTUNKHWA, PAKISTAN: HOSPITAL PHARMACISTS' VIEWS
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OBJECTIVES: To evaluate the perception of hospital pharmacists regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. **METHODS:** Qualitative assessment was implemented. A semi-structured interview guide was developed and face to face interviews were conducted. Hospital pharmacists was interviewed

saturation point was reached at 13 in Khyber Pakhtunkhwa province of Pakistan from December to February 2014. The interviews were conducted at the hospital pharmacy, arrangements for the time and place of interview were made during initial contacts. Written consent was obtained from the participants prior to the interview. **RESULTS:** Among the respondents interviewed, nine were male and four female hospital pharmacist aged between 25 and 50 years. Thematic content analysis yielded 5 major themes: (a) Patients reporting (b) Lack of patient counseling (c) Lack of participation in health awareness programs, (d) Pharmacists reducing the prescribing errors, (e) Insufficient number of pharmacists. **CONCLUSIONS:** Findings revealed that hospital pharmacist in Pakistan are not actively participating in provision of pharmaceutical care services. They are facing significant hurdles for their actively participation in patient care, major obstacles is the unavailability of sufficient number of pharmacist, lack of appropriate time for patient counseling and poor relationship between pharmacists and other health care providers. Moreover there is a need to explore the concept of pharmaceutical care among the other health care providers and general public.

MENTAL HEALTH OUTCOMES RESEARCH STUDIES

MH1
EFFICACY AND SAFETY OF PALIPERIDONE PALMITATE IN THE TREATMENT OF SCHIZOPHRENIA: A META-ANALYSIS

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OBJECTIVES: Paliperidone palmitate long-acting injectable (PP-LAI) is a new once-monthly atypical antipsychotic for the treatment of schizophrenia. This article is to evaluate the efficacy and safety of PP-LAI in the treatment of schizophrenia. **METHODS:** Published clinical studies concerning PP-LAI for schizophrenia were searched systemically and assessed by Jadad items. RevMan 5.2 software was used for data analysis and for calculating the combined outcomes of clinical trials and their 95% Confidence Intervals (CI). Furthermore, sensitive analysis and publication bias test were conducted to assess the stability of results from Meta-analysis. **RESULTS:** 12 clinical randomized controlled trials including 39 analytic sets were selected for Meta-analysis. According to Jadad items, the qualities of including researches were high in which the rules of random grouping and balancing baseline characteristics between groups were conducted rigorously. The incidence of effective cases in PP-LAI group was 1.7 (95%CI: 1.50-1.91) times higher than that in placebo group (Z=8.55, P<0.01) and equaled to the rate in risperidone group (RR=1, 95%CI: 0.88-1.13). Compared with the control group of placebo (RR=1.01, 95%CI: 0.97-1.05) and risperidone (RR=1.07, 95%CI: 0.98-1.16), PP-LAI seemed to be well tolerated, with the same incidence of adverse events. The stability of the present Meta-analysis was accepted without any statistical significance found by sensitive analysis and publication bias test. **CONCLUSIONS:** Paliperidone palmitate has certain efficacy and safety in the treatment of schizophrenia.

MH2
CURRENT IMPACT OF DEMENTIA ON THE CAREGIVER IN CHINA

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OBJECTIVES: Dementia is an irreversible brain disease that results in progressive cognitive impairment and, eventually, inability to carry out the simplest tasks of daily living. Currently there exists no cure for this disease. Patients suffering dementia require plenty of care, mainly provided by the families. The objective of this study was to assess the time required from the patients' caregivers according to the patient's health state, and the consequences for the active population in current China. **METHODS:** The current Chinese demographic structure was put in balance with the need of caregiving time needed by the dementia population. Demographic data, proportion of diagnosed and/or treated patients were provided the China Alzheimer's project Memory360. A Markov model was developed to estimate the average caregiver's time needed per patient per day over 5 years, separately for treated and not treated patients. **RESULTS:** Current demographic situation in China is rather favourable with 70% of the population aged between 15 and 59 years (compared to 60% in Europe or United States and 65% in Japan). There are approximately 6 active persons for one elderly. It was demonstrated that over five years, untreated patient with dementia requires around 9.3 hours per day compared to 6.7 hours per day for a treated patient. It was estimated that there were 10 million patients with dementia in China, with only 21.3% among them receiving treatment. More than 87 million hours per day are needed to take care of Chinese patients with dementia for around 910 million working people. **CONCLUSIONS:** In the current situation of China, it is estimated that in average one worker over ten will spend one hour per day providing care to a patient affected by dementia. Taking into account the rapidly aging population, this burden is likely to increase considerably in the future.

MH3
FACTORS ASSOCIATED WITH RELOCATING TO NURSING HOMES AMONG COMMUNITY-DWELLING OLDER PERSONS WITH DEMENTIA

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OBJECTIVES: This study examined factors of relocating to nursing homes among community-dwelling older persons with dementia. **METHODS:** This retrospective study used data from The Aging, Demographics, and Memory Study (ADAMS) to assess dementia severity and service use from 2002 to 2004 in the United States. This study examined psychotropic medication use among 279 older people diagnosed with dementia and used logistic regressions to identify factors associated with nursing home relocation among older persons with dementia. **RESULTS:** Among older persons with dementia (weighted sample =177,843), 9.2 % of persons with dementia (weighted sample=16,272) took any antipsychotic medications; 69.7% were female and 68.8% were white. The average age was 85 years. Their physical functions were measured by the number activities of daily living (avg. 2.92) and number of instrumental activity of daily living (avg. 3.6). The most frequent diagnoses were Alzheimer's disease (78.8%) and vascular dementia (23.2%). I used the Neuropsychiatry Inventory (NPI) for behavior problems (delusions, hallucinations, agitation/aggression, depression, apathy, elation, anxiety, disinhibition, irritability/lability, and aberrant motor behavior). I evaluated severity of dementia using the Clinical Dementia Rating Scale (CDR). I found that older persons with dementia are significantly more likely to relocate to the nursing home in 2 years if they were severely demented (OR=1.3, p<.05), or were on antipsychotic medications (OR =1.0 p<.05), or were getting older (OR=0.01, p<.05). But, those who were living with caregiver (OR=-1.8, p<.01), or were Hispanic (OR= -1.4 p<.01) were significantly less likely to move to nursing homes. Alzheimer patients were significantly more likely to relocate to nursing home compared to vascular dementia patients (OR= -1.4, p<.05). **CONCLUSIONS:** Community-dwelling older persons with dementia are more likely to move to nursing home within 2 years if they had to be medicated for their behavior problems and were on antipsychotic medications and, the dementia is more advanced

MH4
CLINICAL AND ECONOMIC OUTCOMES OF MEMANTINE USED IN MODERATE OR SEVERE DEMENTIA PATIENTS IN CHINA: RESULTS FROM A HEALTH ECONOMIC MODEL

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OBJECTIVES: In China, memantine is only reimbursed for severe dementia, while approved for moderately severe to severe dementia. The present model assesses the clinical and economic outcomes of extending national recommendations for memantine to moderate dementia. **METHODS:** A Markov model was developed to simulate transition between health states associated with dementia. Three alternative strategies - no treatment, memantine prescribed from moderate to severe, and memantine prescribed in severe only- were compared over a five-year time horizon for a cohort of 1,000 patients with moderate dementia. The proportions of severe, dependent or aggressive patients, and caregivers'time, were estimated as clinical outcomes. Total costs were estimated and compared as economic outcomes. Deterministic sensitivity analyses were conducted to test the robustness of model assumptions and parameters estimates. Data inputs were taken from multiple sources, including clinical trials and a Delphi panel. The model adopted societal perspective with only direct costs considered. **RESULTS:** After five years, the cohort of patients administered memantine from the moderate stage had developed the lowest proportions of severe (45%), dependent (52%) and aggressive (7%) patients, and necessitated less caregiver's time (6.7hours/day). In the cohort of patients administered memantine in the severe stage only, these estimates were higher (54%, 61%, 8% and 8.35 hours/day, respectively). There were higher in patients not treated (64%, 77%, 13% and 9.26hours/day). Starting from the third year, memantine started in moderate stage incurred the lowest costs. By year five, total costs were RMB 182.5, 197.0 and 200.0 million for memantine from moderate, memantine in severe only and no treatment respectively. The sensitivity analysis produced comparable results. **CONCLUSIONS:** Over five years, memantine consistently demonstrated higher clinical benefit when administered in moderate to severe patients as compared to restricted to severe and showed increasing cost-savings after 2years mainly due to the avoided hospitalisations.

RESEARCH PODIUM PRESENTATIONS – SESSION II

CARDIOVASCULAR DISEASE OUTCOMES RESEARCH STUDIES

CV1
COMPARISON OF ORAL VERSUS INTRAVENOUS NSAIDS FOR THE TREATMENT OF PATENT DUCTUS ARTERIOSUS IN PRETERM AND/OR LOW BIRTH WEIGH INFANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Intravenous Indomethacin and Ibuprofen are treatment of choice for pharmacologic closure of patent ductus arteriosus (PDA) in preterm infants according to inhibitory effect on cyclooxygenase. However, unavailability of the intravenous formulations in many countries leads to off-label use of oral NSAIDs for PDA closure. This study therefore aimed to determine the effectiveness and safety of oral NSAIDs compared to their intravenous formulations for PDA closure in preterm and/or low birth weight infants. **METHODS:** Randomized or quasi-randomized (RCTs) and observational studies comparing oral NSAIDs to intravenous Indomethacin or Ibuprofen with reported result of closure rate were identified. Fixed and random effect models were used for meta-analyses. Heterogeneity test including I2 were performed to assess the appropriateness of pooling the data. **RESULTS:** Fourteen studies comparing the effectiveness and safety of oral NSAIDs (Indomethacin, Ibuprofen and Sulindac) with intravenous NSAIDs (Indomethacin and Ibuprofen) were recruited. For the primary outcome (closure rate), no statistically significant difference between oral Ibuprofen and intravenous NSAIDs group [five RCTs of oral Ibuprofen versus Intravenous Ibuprofen group; RR = 1.12 (95% CI 0.990, 1.240, I2 23.1%)] and [four RCTs of oral Ibuprofen versus Intravenous Indomethacin group; RR = 1.035 (95% CI 0.755, 1.418, I2 12.7%)]. Results from the observational studies were also similar to those of RCTs. Two observational studies comparing oral Indomethacin and intravenous Indomethacin revealed no statistically significant difference (RR = 0.927 [95% CI 0.704, 1.22, I2 0.0%]). There was no significant difference in adverse outcome between oral and intravenous NSAIDs treatment