consumption to find any significant difference. **METHODS:** A total of 161 antibiotics are in Iran's drugs list. According to Iran's FDO regulations all pharmaceutical companies should report their sales statistics to this organization each month. Sales amount could be derived from this database state by state. According to WHO method, each drug ATC and DDD code have been derived. DID index (Defined daily dose /1000 Inhabitants/ Day) have been calculated according to the population of each states. **RESULTS:** Correlation coefficients of ascending trends of antibiotics in Northern states' and Iran have been reported respectively as following: In oral antibiotics, four classes have significant ascending trend: Betalactams (0.715 vs. 0.693), Cephalosporines (0.99 vs. 0.989), Macrolides (0.911 vs. 0.949), Quinolones (0.897 vs. 0.9). Three classes have significant descending trend: Amphenicoles (-0.836 vs. -0.76), Sulfonamides (- 0.924 vs. -0.948), Aminoglycosides (-0.809 vs. -0.943). In parenteral antibiotics two classes have significant ascending trend: Imipenem (0.967 vs. 0.979), Macrolides (0.951 vs. 0.95). Two of them have significant descending trend: Betalactams (- 0.916 vs. -0.79), Aminoglycosides (-0.809 vs. -0.943). **CONCLUSIONS:** Most trends were ascending and same as the pattern of whole countries consumption. These results approve the theory of the priority in training programs to clinicians and people according to RUD's goals in Northern states' same as other parts of country.

PHP26
CONSUMPTION OF ANTIDIABETICS IN SERBIA IN 2010: A COMPARISON WITH CROATIA AND DENMARK

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OBJECTIVES: Considering diabetes as a major public health problem worldwide, the aim of our study was to analyze overall volume of use of antidiabetics, compared to Croatia, as the neighboring country, and Denmark, chosen for its rational and conservative prescription practice. **METHODS:** Data for consumption of antihyperglycaemic drugs (A10) in 2010 were obtained by a retrospective, observational, population-based study. Utilization of these drugs was expressed as DDD per 1000 inhabitants a day (DID). **RESULTS:** In 2010, antidiabetics (A10) were used at a similar rate in Serbia, Croatia and Denmark (47.34 DID, 49.88 DID and 47.50 DID, respectively), but the share of utilization of insulins (A10A) and oral antidiabetics (A10B) differed between countries. Relatively high proportion of insulin use in Denmark (36.2% of all antidiabetics) compared to Serbia (22.0%) and Croatia (26.4%) may be attributed to high incidence of type 1 diabetes in Nordic countries and compliance with most of recent pharmacotherapeutic guidelines that suggest the use of long-acting insulins (A10AE) in type 2 diabetes (4.0 DID of A10AE in Denmark, in comparison to 1.28 DID in Serbia and 1.91 DID in Croatia). Proportions of oral antidiabetics use also differed between these countries. Metformin, as the only biguanide (A10BA) used and preferred oral agent for type 2 diabetes, accounted for 51.2% of total use of oral antidiabetics in 2010 in Denmark, while sulfonylureas (A10BB), as a second-line treatment, were used at a rate of 36.6%. In Serbia and Croatia, sulfonylureas were used predominantly (55.6% and 48.6, respectively). New medicinal products with effect on the incretin system (A10BH and A10BX) were used at a rate of 4.1 DID in Denmark, contrary to 0.45 DID in Croatia and 0.002 DID in Serbia. **CONCLUSIONS:** The large differences in utilization of various antidiabetics between observed countries suggest considerable variations in habits, especially with regard to type 2 diabetes treatment.

PHP27
THE EFFECT OF RETIREMENT ON MENTAL HEALTH

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OBJECTIVES: To explore the effect of retirement on retiree's mental health, this study investigated the change in the usage of sedative-hypnotic drugs after the retirement for sedative-hypnotic users. **METHODS:** We conducted a retrospective cohort study with comparison groups through following a population-based random sample containing one-million beneficiaries of Taiwan's National Health Insurance from 1999 to 2009. Individuals retired between 2000 and 2003 and aged between 50 and 64 were first identified. Those taking sedative-hypnotic drugs at least one year before and six years after retirement were selected as the study sample, and were further stratified into high-dosage and low-dosage users based on their defined daily doses (DDDs). A propensity score (PS) matching was conducted to select two non-retiree control groups with respect to sedative-hypnotic dosage. Each non-retiree was assigned a pseudo retirement date, the same retirement date as his/her matching retiree counterpart. Nonparametric Wilcoxon tests were conducted to compare the differences in DDDs between the retiree and control groups. Generalized estimating equations (GEE) were employed to investigate the odds ratios (ORs) of drug usage between the retiree and control groups. **RESULTS:** 9,687 retired sedative-hypnotic users were identified. After PS matching, the number of high-dosage users in both retiree and control groups was 3,265, and the number of low-dosage users was 3,072. The Wilcoxon tests revealed no difference in DDDs between the retirees and non-retirees before and after their retirements. The GEE analyses however showed that, compared to their non-retiree counterparts, the low-dosage retired users significantly reduced the dosage of after their retirement (OR=0.97, p < 0.05). A similar trend was observed in the high-dosage users but no significance. **CONCLUSIONS:** The decrease in the dependence on sedative-hypnotic drugs after their retirements for low-dosage users might suggest the retirement had a positive influence on mental health.

PHP28
SYSTEMATIC REVIEW ON FACTORS AFFECTING PHARMACEUTICAL EXPENDITURES

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OBJECTIVES: To systematically identify the main factors those contribute towards the increase of pharmaceutical expenditures. **METHODS:** A systematic search of published studies was conducted in common major electronic databases using search terms "factors", "financing ", "pharmaceutical", and "expenditures". To be included the studies need to 1) measure at least one of the following outcomes: total growth in pharmaceutical expenditures, price growth quantity growth; 2) a clear method to analyze the impact of factors affecting the increases of drug expenditures was mentioned; 3) were written in English. Non-primary articles that were published only as abstract, review; commentary and letter were excluded. Data were extracted from the primary eligible studies using data abstraction form. Information regarding study title, study author (s), country, year, study objective, study design, statistical methods to assess factors affecting pharmaceutical expenditures, results, and author (s) conclusions were collected. **RESULTS:** From a total of 2039 studies, only 20 studies were included for full review. The most significant determinants or factors of drug spending are demographic, disease category, public health, price, utilization, therapeutic choice, and residual –product mix. A number of studies from the review indicate that residual –product mix responsible for between approximately 30 per cent to approximately 493 per cent of total increases drug expenditures. **CONCLUSIONS:** Price change has little effect on expenditure increases compared with utilization and the residual. All the above factors need to be considered for optimum drug policy design. It is most important for policy makers to understand pharmaceutical spending trends, the factor influencing the rising of the limited resources and the main cost containment strategies.

PHP29
CONSIDERABLE DIFFERENCES IN THE UTILIZATION OF ANTIDEPRESSANTS BETWEEN SERBIA AND DENMARK

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OBJECTIVES: Depressive disorder is one of the major public health problems due to significant disability that it causes, as well difficulties in diagnostic procedures. The aim of the study was to determine the total antidepressant utilization in Serbia in correlation with Denmark and to get insight into financial resources allocations. Denmark was chosen for its developed pharmacotherapeutic practice. **METHODS:** Data for antidepressant (ATC group N06) utilization and consumption of financial resources in 2010 were retrieved from the annual reports of relevent public institutions. The ATC/DDD methodology was applied and results were expressed in defined daily doses (DDDs) per 1000 inhabitants per day (DID). **RESULTS:** An interesting result of our study is that the utilization of antidepressants in 2010 appeared to be 7-fold higher in Denmark (83.8 DID) than in our country (11.67 DID). In accordance with these results, the consumption of financial resources for group N06 was approximately 9-fold higher in Denmark (89.680.072 USD) than in Serbia (10.261.963 USD). The most commonly used group of antidepressants in both countries were selective serotonin reuptake inhibitors (SSRI) (67.3% and 73.76% of all antidepressants for Denmark and Serbia respectively) which complies with the most recent clinical guidelines. There was a considerable difference between Denmark and Serbia in the utilization of a group N06AX which includes new generation of antidepressants (22.7 DID and 1.39 DID respectively). **CONCLUSIONS:** The differences between selected countries in antidepressant utilization and consumption of financial resources are partly consequential to different socioeconomic and health policy factors. This study shows that the overall utilization of antidepressants in Serbia is lower than in Denmark, which implies possible underdiagnosing of affective disorders in general practice.

PHP30
THE UTILIZATION AND EXPENDITURE OF REIMBURSED DIGESTIVE ENZYME AGENTS IN TAIWAN

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OBJECTIVES: To analyze the current utilization and expenditure of reimbursed digestive enzyme agents (DEs) in Taiwan. **METHODS:** The encrypted claim database of National Health Insurance (NHI) was used to analyze the prescription patterns and the expenditure of DEs for types of diseases, health care specialties, levels of medical institution, and insured BNHI branch. **RESULTS:** We identified that 29 DEs, within 15 groupings, are reimbursed by NHI up to 2011. Given that most DEs were developed in earlier stage, while only 2 items were approved by the Taiwan Food and Drug Administration after 2000, these approved items had broader scope of approved indications and limited evidence on their clinical efficacy. According to the analysis of 2001-2010 NHI databases, the most enzymes prescribed disease was gastroenteritis, related uncomfortable symptoms, and so forth. Over the ten years, the number of medical orders increased from 22.77 million to 46.71 million. Medical costs increased from more than NT$ 1 hundred million to over NT$ 2 hundred million. The highest usage rate of medical orders, by specialties, is 64% in Internal Medicine, especially in Gastroenterology and in General Medicine. The second is 7% to 9.6 % in Family Medicine. The usage rate is increasing each year in Surgery, from 4.13% in 2011 to 9.27% in 2010. The usage rates of medical order by 15 groupings have various trends of levels between different medical institution, and different insured BNHI branch. **CONCLUSIONS:**

Some countries' pharmaceutical benefits programs such as Australia, Canada, or U.S. listed DEs for pancreatic insufficiency due to chronic pancreatitis, carcinoma of the pancreas, or cystic fibrosis, however, those reimbursed by Taiwan NHI had broader scope of indications. In addition to more medical orders prescribed by varied health care specialties, we observed the expenditure increased by approximately two times over the past 10 years.

PHP31
KNOWLEDGE AND PRACTICE OF DISPOSAL OF DATE EXPIRED AND UNUSED DRUGS

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OBJECTIVES: Knowledge and practice of disposal of date expired and unused drugs among college students and people having a health science background and to find the most widely used method of drug disposal for the expired drugs in the study group. **METHODS:** A pilot study questionnaire was prepared and a survey was done among students with Health Science background to understand the appropriateness of content. Further 500 University students and people having a health science background were interviewed personally using the validated questionnaire prepared. Results were presented percentage responses and interpretation of the results helped in the derivation of the final conclusion. **RESULTS:** When asked about the awareness of the existing guidelines for the safe disposal of drugs in various countries 56% of the respondents knew about it while 44% were unaware. A total of 52.2% of the respondents agreed that the wrong drug disposal methods can lead to adverse environmental effects while 25.6% strongly agreed to it. A mere 4.8% disagreed to the statement while another 17.4% somewhat agreed to it; 56.8% strongly agreed to the fact that there was a need of a drug take back system in their place of residence. A total of 57.2% opined that there was a need of public awareness programs to increase the awareness about drug disposal in the general public. A majority 91.2% of the respondents admitted that they simply throw the expired drugs into the dustbins. 46.8% of the people said there was no work being done in this context by any organization. **CONCLUSIONS:** The study clearly indicates lack of awareness and good practices of date expired drugs among surveyed population. There is a need to create awareness regarding disposal of drugs among the population which should be done either by the government or any organization.

PHP32
ANALYZING THE UTILITIES OF FLUOROQUINOLONES AT A REGIONAL TEACHING HOSPITAL OF SOUTHERN TAIWAN

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OBJECTIVES: Adequate use of antimicrobial agent is critical issue in hospital. It would enlarge the burden, for instance increase medical expenditure and antimicrobial resistance rate, if misuse. To evaluate the annual use of the third line antibiotic agents - fluoroquinolones, including ciprofloxacin, moxifloxacin and levofloxain, and that could be took a reference to manage the use in a regional teaching hospital. **METHODS:** The data, including patient-days and the consumption quantity of ciprofloxacin, moxifloxacin and levofloxacin, was extracted monthly from Hospital Information System of a regional teaching hospital from January 2010 to December 2011. Consumption quantity was transferred to "1000DDD /patient-days". Data management and analysis was performed using student t test. **RESULTS:** Number of 1000DDD /patient-days in all fluoroquinolones were 202.47 in 2010, 202.47 in 2022 and there was no significantly difference (p=0.067). Number of 1000DDD /patient-days in ciprofloxacin significantly decreased (p= 0.0023) in 2011(1000DDD /patient-days =127.35) comparing with 2010 does (1000DDD /patient-days = 181.69). Number of 1000DDD /patient-days in moxifloxacin were 38.95 in 2010 and 48.08 in 2011. In the aspect of levofloxacin, number of 1000DDD were 25.46 in 2010 and 27.03 in 2011. The number of 1000DDD /patient-days in Moxifloxacin and levofloxacin both were no significantly difference between 2011 and 2010. **CONCLUSIONS:** The fluoroquinolones consumption decreased especially on ciprofloxacin, but the levofloxacin and moxifloxacin mild increased. Although no significantly difference on the amount of all fluoroquinolones between 2010 and 2011 may be good and stand for well control. But extenting the study to the outcomes of infection control and the association of the culture results would be more objective.

PHP33
DRUG-RELATED PROBLEMS AND LENGTH OF STAY IN THE MANAGEMENT OF INFECTION IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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OBJECTIVES: To identify the nature and frequency of DRPs (drug interaction and irrational dose), and their impacts on length of stay (LOS) of patients with chronic kidney disease (CKD) stage 4 and 5 hospitalized in Haji Adam Malik (HAM) Hospital, Indonesia. **METHODS:** This retrospective cohort study was conducted on 80 patients based on JAMKESMAS database for 6-month period (October 2009 - March 2010). Inclusion criteria were patients administered antibiotics and GFR of ≤30 mL/min/1.73 m^2. Exclusion criteria were patients under 18 years old, patients with cancer, and patient with Human Immunodeficiency Virus (HIV). Data collected include type of drugs administered, laboratory tests, and clinical outcomes. Identification of drug interaction and analysis of antibiotics dose rationality were performed using Stockley's drug interactions, Medlines, and Handbook of Clinical Drug Data. The impacts of DRPs on LOS were performed by multiple linear regression analysis. **RESULTS:** Of the sample, male was 66% and female was 34%; CKD

stage 4 was 17% and CKD stage 5 was 83%. Most drug interactions were between NSAIDs and ACE inhibitor, ranitidine and furosemide, ranitidine and ciprofloxacin, metoclopramide and NSAIDs, dexamethasone and furosemide, NSAIDs and furosemide. Mean value of drug interaction was 1 ± 1.31. Most frequent irrational doses of antibiotics involved ceftriaxone, ceftazidime, cefadroxyl, ciprofloxacin, and amoxicillin. Mean value of irrational doses was 0.43 ± 0.67. Means of LOS was 6.64±5.76. Multiple linear equation obtained: y = 3.91 + 2.16x1 + 0.97x2; y = LOS; x1 = drug interaction; x2= irrational dose of antibiotics. **CONCLUSIONS:** This finding must be highlighted and considered to optimize treatment of CKD. Impact of drug interaction on LOS of CKD patients was higher compared to that of irrational dose of antibiotics.

PHP34
THE CLINICAL EFFECTIVENESS AND RESOURCE UTILIZATION OF DRUGS WHICH CONTAIN HERBAL EXTRACTS – THE EXAMPLES ON SILYMARIN

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OBJECTIVES: Although most of the medications containing herbal extracts have been used in the treatment of diseases for many years, the evidence on the clinical efficacy and safety are still in controversy. It is necessary to conduct an evaluation on these products. **METHODS:** First, we defined the "medications containing herbal extracts" in this study, as well as identified the items reimbursed in National Health Insurance. In the next step, we analyzed the 2001-2007 National Health Insurance Research Database (NHIRD) to find the most frequently used items in the category. Silymarin was identified as the most used during 2001-2007. We conducted the literature search and review on the clinical effectiveness of the ingridient. **RESULTS:** In this review, we summarized the reports published by the literature. These reports had systematically reviewed on the topic of the effectiveness of silymarin in patients with alcoholic and /or hepatitis B or C liver diseases. In the report by The Cochrane Collaboration - a total of thirteen randomized trials assessed silymarin in patients with alcoholic and /or hepatitis B or C liver diseases were included in the meta-analysis. Results from these trials showed a significant effect of silymarin on liver-related mortality (RR 0.50, 95% CI 0.29 - 0.88), but no significant effects could be demonstrated if the analysis were restricted on only high quality trials (RR 0.57, 95% CI 0.28 - 1.19). For the resource utilization of silymarin, we found that the total claims on silymarin increased 59.83% from year 2001 to 2007. **CONCLUSIONS:** As mentioned above, the effectiveness of silymarin in patients with liver disease has not been established. Further studies on mechanisms of action, as well as related well-designed clinical trials are needed.

PHP35
IS THERE A DIFFERENCE IN PRESCRIPTION MEDICATION UTILIZATION BETWEEN AGED ADULTS WITH AND WITHOUT DISABILITY IN THE UNITED STATES?

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OBJECTIVES: To quantify the association between disability and prescription medication use among older adults. Individuals with disability may consume more or varying types of prescription medication, thereby requiring special services. **METHODS:** Data from the nationally-representative Health and Retirement Study 2006 and the Prescription Drug Study 2007 in the United States were used to examine associations between disability and prescription medication use among 2,755 adults. The dependent variable, disability versus no disability, was determined based on responses to questions assessing functional, mobility, and cognitive status. Subjects responding affirmatively to one of these types of disabilities were classified as disabled. Chi-square tests assessed the dependent categorical variables by disability. Negative binomial regressions were used to examine the relationship between disability and prescription medication use, controlling for accessibility, affordability, beliefs in medication, health conditions and sociodemographic variables. **RESULTS:** Of the 2,755 subjects, 70.8% were classified as disabled. Female, older, non-white, widowed, less educated, living in rural area, lower income, having three chronic diseases, poor health status, no alcohol or smoking habits, hardly exercise, taking prescription drugs regularly, and consulting with medical doctors more were all statistically significant variables indicative of greater risk of disability (P<0.0001). Subjects classified as disabled [IRR=1.09 (95% CI, 1.03-1.15)], with three or more chronic conditions [IRR=2.08 (95% CI, 1.93-2.35)], not exercising [IRR=1.08 (95% CI, 1.04-1.10)], taking medications regularly [IRR=1.85 (95% CI, 1.51-2.27)] and seven more times doctor visits [IRR=1.46 (95% CI, 1.36-1.57)] had a greater incidence of prescription medication uses. Subjects with lower income [IRR=0.99 (95% CI, 0.99-0.99)], no alcohol or smoking habits [IRR=0.93 (95% CI, 0.88-0.98)] had a lower incidence likelihood of prescription medication uses. **CONCLUSIONS:** Disability was a statistically significant predictor of prescription medication use. Further research is necessary to examine the associations between specific disability types and medications use.

PHP36
COMPARING ORAL 5-AMINOSALICYLIC ACID TREATMENT PERSISTENCE AND ADHERENCE IN PATIENTS WITH ULCERATIVE COLITIS IN THE UNITED STATES

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OBJECTIVES: Compare oral 5-aminosalicylic acid (5-ASA) treatment persistence and adherence in patients with mild/moderate ulcerative colitis (UC). **METHODS:** IMS LifeLink™ Health Plan claims data were analyzed to identify patients ≥18 years with ≥1 UC diagnosis (ICD-9-CM: 556.x) and had ≥1 prescription for 5-ASA (sul-