involvement of health technology assessment institutions, the adjustment of the reimbursement system in a time frame allowing the survival of the company, and the dissemination of the technology. **RESULTS:** Involvement of objective institutions like the Federal Committee (GemBA) or the Institute for Reimbursement in the hospital sector (INEK) is necessary to prevent implementation of new technologies without adequate medical efficacy and economic effectiveness. For positive recommendations a critical mass of clinical and health economic studies is prerequisite. But in time adjustment of the reimbursement catalogue, e.g. as new DRG or additional payment to existing DRGs, seem to be crucial for implementation of a new costly technology. **CONCLUSION:** Slow decisions processes can delay if not prevent the use of useful new therapeutic technologies. Although according to the German law cost effectiveness should be considered in reimbursement decisions, so far it did not play a relevant role in reimbursement decisions in the hospital sector.

PHP30

PRESCRIBING PATTERNS AND ASSOCIATED COSTS OF PSYCHOTROPIC DRUGS IN A MAJOR HEALTH CARE SYSTEM IN SAUDI ARABIA

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OBJECTIVES: Recognizing the prescribing pattern and associated costs of psychotropic medications and the factors associated with such prescribing is crucial and may play an important role in improving the health care services provided to patients on such medications. The objective of this study was to assess current trends and factors influencing the prescribing of psychotropic medications. The study also estimated the direct cost associated with these medications. **METHODS:** This is a retrospective study of (N = 71,136) prescription events of psychotropic medications identified from outpatient pharmacy records of a major health care system in Riyadh, Saudi Arabia for years 2002, 2003, and 2004. Patient characteristics, psychotropic medications use and the associated costs over the three years period were determined. Logistic regression was used to evaluate the influence of physician specialty and other relevant factors on prescribing of different psychotropic medications. **RESULTS:** Over the three years period the use of high cost agents have sharply increased to account for around 8% of the total outpatient spending on pharmaceuticals in 2004. Prescriptions by General Practitioners (GPs) accounted for 35% of the total psychotropic medications prescribed. However, patients on these medications were more likely to receive a high cost drug from a psychiatrist than from any other specialty. **CONCLUSIONS:** The results of the study indicate that psychotropic medications are mainly prescribed by GPs and that the likelihood of being prescribed a psychotropic medication, which may be of high cost, is greater when patients see a psychiatrist. In Saudi Arabia, health care systems should closely monitor prescribing patterns for psychotropic medications to avoid unnecessary cost and consequently, the potential for inappropriate use of such agents.

PHP31

CHARGES FOR HOSPITAL ADMISSIONS ATTRIBUTABLE TO HEALTH DISPARITIES FOR AFRICAN AMERICAN PATIENTS IN SOUTH CAROLINA DURING 1998–2002

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OBJECTIVE: To estimate the financial effect of racial disparities as reflected in differences in hospital admission rates each of the 25 Major Diagnostic Categories (MDCs) in the state of South

Carolina. **METHODS:** Estimates were calculated for total submitted charges within each MDC that were attributed to higher admission rates for African Americans than for Caucasians in South Carolina, based on age-adjusted annual admission rates. Each of the 25 MDCs was evaluated to reveal which component Diagnostic Related Groups (DRGs) were the largest admission "drivers" or contributors to the observed differences in admission rates. South Carolina hospital discharge data for 1998–2002 was used for the analysis. The database includes all-payer billing data for inpatient hospital admissions as received on the UB-92 billing file for the covered episode. Charges were inflation-adjusted to 2002 constant dollars. **RESULTS:** Between 1998 and 2002, there were an estimated $1.6 billion in total charges for hospital admissions in South Carolina that were attributed to higher age-adjusted admission rates for African-American patients. In addition, African Americans had consistently higher hospital admission rates for disease categories that are often associated with a failure to obtain ambulatory and preventive care. **CONCLUSION:** Our analysis reveals that age-adjusted hospital admission rates for African Americans in South Carolina are higher than for Caucasians, and that the gap appears to be widening over time. Given the magnitude of the financial implication, interventions with even a small impact on the conditions underlying the racial disparities in hospital admissions are likely to be cost-effective.

PHP32

COMBINING PHARMACY AND HOSPITAL DATA IN A RISK ADJUSTMENT MODEL

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OBJECTIVE: Health districts have been established as part of the decentralization of responsibility within the Italian National Health Service. A major challenge is to assure that appropriate financing is provided to meet the needs of the population. Risk adjustment models are being developed that can be used for districts' resource allocation, planning and evaluation activities. **METHODS:** Pharmaceutical, hospital, and demographic data from 2000 and 2001 have been assembled for the entire population of Emilia Romagna, a large northern Italian region (4 million). Pharmaceutical and hospital tariffs were a proxy for costs. Morbidity indicators based upon pharmacy and hospital data were developed for risk adjustment. Prospective risk adjustment models were fit. We tested several models of increasing complexity, taking advantage of the predictive power of pharmacy- and hospital-based diagnostic groups. Our final adjuster was based upon a combination of the pharmacy and hospital groupings. We considered fairness across administrative units, as equity was a key policy goal. **RESULTS:** The pharmacy cost model predicts 25.8% of the variation in pharmacy costs. Our hospital cost model predicts 10.1% of variation in prospective hospital costs. Predictive accuracy for pharmacy cost models were improved by information from the hospital data; and were more stable for those who used health services in year 1, and better for those who used hospital and pharmacy services compared to those who did not have any service use. For the pharmacy model predictive accuracy by district ranged from 0.91 to 1.10; for the hospital cost model, predictive accuracy by district ranged from 0.93 to 1.13. **CONCLUSIONS:** We demonstrate that risk adjustment models using pharmacy data to identify individual morbidity are good predictors of future year costs. Regional and district health managers can use these models for

planning specific interventions and for evaluating patterns of pharmaceutical and hospital use.

PHP33

USE OF PHARMACOECONOMICS FOR CREATION OF THE STATE FORMULARY IN UKRAINE

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OBJECTIVES: In Ukraine forms insurance medicine and formulary system. Annually state selects more than 3% from a gross national product. The limited tool on pharmaceuticals is insufficiently. **METHODS:** We in the commission of Health Ministry of Ukraine have developed regulations about the National list of the essential medicines with use the pharmacoeconomic analysis for carrying out of the state purchases. The analysis "cost-minimization" dominates, the analysis "cost-effectiveness" will carry out seldom in connection with complexity of searching of the data about effectiveness of drugs. We have developed techniques the pharmacoeconomic analysis for creation of the formulary. **RESULTS:** We have created «The Program of pharmacoeconomical evaluation of drugs in Ukraine», which includes the education of the pharmacists on pharmacoeconomics and organization of pharmacoeconomical researches. We have developed recommendations on the pharmacoeconomic analysis for carrying out in Ukraine in view of its economic, demographic features. At the present stage in Ukraine the State formulary of medicines is developed. The government is hesitant to apply pharmacoeconomics widely in pricing and reimbursement. There is a system of gathering of pharmacoepidemiological data. Little experience exists in quality of life, measurement and cost-utility techniques. On the basis of materials of ISPOR we prepare the textbook "Pharmacoeconomics" by Ukrainian. More than 4000 practical pharmacists are acquainted with pharmacoeconomical analysis. The original educational program on pharmacoeconomics for the clinical pharmacists is created. **CONCLUSIONS:** The pharmacoeconomics is necessary for creation of the insurance medicine and State Formulary in Ukraine. The education of the doctors and pharmacists on pharmacoeconomics is necessary for improving quality spent researches. Creation of the state formulary of medicines after results the pharmacoeconomical analysis will allow to improve medicinal provision of the population of Ukraine.

PHP34

EFFECTS OF MEDICAL SAVINGS ACCOUNTS ON HEALTH CARE UTILIZATION AND HEALTH EXPENDITURE: EVIDENCE FROM CHINA

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OBJECTIVES: To evaluate the effects of Medical Savings Accounts (MSAs), a health care financing method, on the health care utilization and health expenditure of the insured employees in China. **METHODS:** The study used a before and after design. A multivariate econometric model was used to analyse the effects of MSAs reform on the changes in health care utilization and health expenditure, while controlling the effects of all other confounding factors. The use of health care and health expenditure was modeled in a two-step process: whether or not to seek health care; and how much to use health care and the resulting expenditure, giving that health care was to be used. The data are from a series of annual surveys at the individual level conducted in a Chinese city during 1993 to 1999. **RESULTS:** The use of MSAs in the Chinese city is associated with the shift of health care utilization from inpatient and emergency settings to outpatient

settings. It is also associated with reduced use of high-tech diagnostic services. But overall health care utilization level and health expenditure continued to increase after the MSAs reform. **CONCLUSIONS:** The use of MSAs in the Chinese city resulted in the reduction of inpatient care and emergency care but failed to reduce the overall health care utilization and health expenditure per insured patient. The results suggest that MSAs may have more income effects than substitution effects on health care utilization and expenditure.

PHP35

AGE AND GENDER IN PHARMACEUTICAL EXPENDITURE: A TOOL FOR RISK CALCULATION

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OBJECTIVES: To highlight the importance of considering both age and gender of users (population (pop) with any prescription) if analyzing pharmaceutical expenditure. **METHODS:** All primary health care prescriptions (2003) have been considered (95 million prescriptions; 4.2 million users; 1237 million €). Indicators analyzed: prescriptions per user (P/U), cost per prescription (C/P) and cost per user (C/U), all from administration viewpoint. Risk of consuming (U/Pop) has been also calculated according to age and gender. **RESULTS:** Global: C/U: €291.9; P/U: 22.4; C/P: €13.0. Men present prescriptions more expensive (+€1.5), but women are more expensive (€305.6 vs. €275.4) because on average they demand 4.8 prescriptions more than men P/U grows exponentially ($R^2 = 0.929$) until 89 y.o.(63.4). Min: 4.3(10 y.o.). C/P varies considerably until 28 y.o. (avg: €10.0; Pearson v.c:32.1). Prescriptions of growth hormone increase the C/P a 83% among 12–16 y.o. Since 29 y.o. C/P stabilizes (avg: €12.9; Pearson v.c.:8.6) presenting an upward trend at ages close to retirement age (chronic illnesses and copayment). C/U behaves exponentially until 88 y.o. ($R^2 = 0.962$). At 88 y.o. C/U is 3 times higher than global average and 28.5 higher than at 5 y.o. Since 17 y.o., women consume more medicines than men, but men present prescriptions more expensive than women so there are alternations in C/U. U/Pop at 70 y.o. is 1.84 times higher than at 30 y.o.(prob.0.90 vs. 0.49), and the difference in C/U is €569. For equal ages, there are also differences in U/Pop between primary health care teams (PHCTs) because of, for example, other socio-economic and geographical variables. **CONCLUSIONS:** It's important to include age and gender of users in comparative analysis between PHCTs in order to consider differences in the population pyramid and in utilization levels. Benchmarking activity between PHCTs is being carried out monthly with these three standardized indicators. These reports allow to locate inefficiency with more accuracy and to apply measures more effective.

PHP36