originals (any pharmaceutical released before 01/08/1987, per 2007 decree). The product reference price was assumed to be 100 for all groups. The effect of amended regulations was estimated for all five product groups by applying the changed discount rates to the reference price throughout the years 2004 to 2011. **RESULTS:** The reference price in 2004 was considerably different than in 2012. The price of original products without generics decreased from 100 to 59. The price of generics, and original products with generics decreased to 47.5. The 20-year-old original and generic products were affected the least, as the price of the 20-year-old original products decreased to 69.1 and of generics to 71.3. The different effects of regulations on each product group indicate that companies are heterogeneously affected depending on inventory. **CONCLUSIONS:** Drug groups were not uniformly affected by the regulations. With less overhead and expenses (e.g., clinical trials, marketing, promotions), generic drug manufactures are more easily adaptable to new regulations and market conditions. This may cause a shift to extensive production of generic medications in the Turkish pharmaceutical industry and decrease research and development investments.

PHP64

EVALUATION OF PUBLIC PERCEPTION TOWARDS MEDICINE QUALITY AND PRICES IN AFGHANISTAN

Bashaar M, Hassali MAA
University Sains Malaysia, Penang, Penang, Malaysia

OBJECTIVES: To evaluate Public Perception towards Medicine Quality and Prices in Afghanistan. **METHODS:** A cross-sectional descriptive survey involving 1282 population in six zones of Afghanistan was undertaken. **RESULTS:** The study findings revealed that a total of (50.2%) of respondents agreed that imported medicines and (41.4%) said that locally manufactured medicines have good quality. High proportions (61.4%) of Afghan doctors are prescribing quality medicines, and also medicines given by public hospitals in Afghanistan are of high quality (54.9%). (38.4%) agreed that the afghan drug regulatory authority controls quality of medicine. Interestingly, (96.3%) respondents were agreed, that Afghan government should adopt health policies to control the medicine prices and expenditure. (89.6%) respondents agree that higher medicine costs negatively impacts patient outcomes. Half of the respondents (44.5%) say that in Afghanistan doctors have poor understandings on medicine prices. (68.7%) of respondents agreed that the price regulation system should be implemented from manufacturer to patients. When respondents asked, (94%) agreed that all medicine need to be disclosed on the dispensed medicine label. A round, (19.9%) of respondents agreed that medicine prices in Afghanistan are affordable to everyone. (93.1%) of the respondents said, prescription drug prices need to be regulated by the government. When respondents asked (68.2%) agreed that medicine prices are high in private hospitals. **CONCLUSIONS:** The first national survey on medicine quality and pricing, suggests that, the government should take firm steps to control the quality and disparate medicine prices, to ensure accessibility, availability and affordability of medicine to all. The drug regulatory authority has less control to regulate medicine quality and prices, due to critical factors, e.g. lack of qualified staff and quality control lab, insufficient salaries and corruption. No medicine pricing policy is in place and pro-poor medicine pricing policy development is crucial.

PHP65

QUALITY OF CARE: REFERENCE AND COUNTER REFERENCE FROM FAMILY PHYSICIANS AND RHEUMATOLOGISTS' PERSPECTIVES– A PILOT STUDY

Baumgratz TD[1], Battisti R[1], Cuziol M[1], Janini ACR[1], Levy RA[2], Abreu MM[1]
[1]*Universidade Federal de São Carlos, São Carlos, São Paulo, Brazil,* [2]*Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil*

OBJECTIVES: To delineate family physicians' and rheumatologists' point of view when primary care is facing cases of rheumatic diseases. To experimentally identify barriers in the reference and counter reference. **METHODS:** This is a pilot study, transversally designed, with family physicians and rheumatologists in a single city. Methodological steps: 1) Development and preparation of three clinical scenarios that simulate and address different levels of clinical severity; 2) application of these scenarios in the sample; 3) validation of the study scenarios. Final scenarios: a) *Scenario one:* patient with an autoimmune disease diagnosis presenting fever and fatigue; b) *Scenario two:* patient with fibromyalgia and with poor adherence to the health care plan, requiring a medication to relief the symptoms; c) *Scenario three:* patient with septic arthritis, prostration, and in poor clinical conditions. Decisions to be chosen: Decision 1: To apply a health care plan (investigation and/ or treatment) and refer to a rheumatologist; Decision 2: to prescribe medication and do not reference to rheumatologist; Decision 3: to refer to a rheumatologist with no primary care intervention. Afterwards, a multiple-choice questionnaire addressing potential factors that lead to barriers in the reference and counter reference process was applied. Descriptive analysis was performed to map the results and bootstrap method for constructing hypothesis tests. **RESULTS:** Twenty-two family physicians and rheumatologists were involved. For *Scenario one*, the majority of interviewee chose Decision 1 [1.27 (1 –3), SD 0.59)]. For the *Scenario two*, respondents chose the decision 2 [2 (1 – 3), SD 0.76)]. For the *Scenario three, decision three* was the preferred [1.47 (1 –3), SD 0.83)]. For the reference and counter-reference evaluation, interviewee considered that there is a poor communication between family physician and rheumatologist [4.2 (2 – 5), SD 1.01)]. **CONCLUSIONS:** Proper communication seems to be a hurdle for the reference and counter reference system.

PHP66

SOCIOECONOMIC INEQUALITIES IN HEALTH IN URBAN PAKISTAN

Jahangeer RA
Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan

OBJECTIVES: The objective of this analysis is to examine socioeconomic inequalities in health. It investigates whether, and to what extent, household economic status and other socio-demographic variables are associated with the health of individuals residing in urban areas of Pakistan. **METHODS:** The study uses data from the Pakistan Socioeconomic Survey (PSES) and analysis is based on 11,069 individuals who belong to 1,435 urban households. Health status is based on self-reported morbidity during the two weeks preceding the interview. Household economic status is measured by a wealth index constructed using data from the survey on ownership of durable assets and housing conditions. Principal components analysis (PCA) is used to construct the index and households are categorised into quintiles by PCA scores. The logistic regression is used to estimate the effects of various social, demographic, economic and regional characteristics of individuals/ households on health status. **RESULTS:** Overall, 12.7% individuals reported any health complaint during the two weeks preceding the interview. Male household members have lower prevalence of morbidity (10.6%) compared to females (14.9%). A total of 17.6% members of the lowest quintile reported any health complaint compared to 11% of the highest quintile. Furthermore, highest morbidity was reported by members of Muslim households (12.9%), widowed/divorced/separated members (26.2%), those with no education (16.8%), agriculture/fisheries workers (18.3%) and those residing in urban areas of Balochistan (14.2%). The logistic regression exhibits a strong significant ($p<0.01$) association between household economic status and health status. Members of poorest, poor, middle and rich households are significantly ($p<0.01$) more likely to report any health complaint compared to members of the richest households, controlling for gender and age, religion, marital status, education, occupation, and residence in an area. **CONCLUSIONS:** Socioeconomic inequalities in health are widespread in urban Pakistan. Public health policies aimed at reducing gaps between health status of poor and non-poor need to be initiated.

HEALTH CARE USE & POLICY STUDIES - Formulary Development

PHP67

REVIEW OF THE CURRENTLY LISTED DRUGS IN SOUTH KOREA

Cho JS, Lim MK, Lee JH, Kim JO, Park EY, Sung YN, Kim JY, Yoon SH, Na YW, Lee JH, Lee BI
Health Insurance Review & Assessment Service, Seoul, Secho-Gu, South Korea

OBJECTIVES: A review of the entire currently listed drugs that had been eligible for subsidy was carried out by the Health Insurance Review and Assessment Service (HIRA) in South Korea. As a result of this review, the government can decide whether a drug should no longer be on the reimbursement drugs list. This study described how these reviews were carried out and the currently listed drugs were changed. **METHODS:** The currently listed drugs were divided into a total 49 therapeutic groups. The cost-effectiveness analyses were conducted to review of the first therapeutic groups (pilot review, migraine and hyperlipidemia drugs). However, in the others therapeutic groups their clinical usefulness and price reasonableness were reviewed respectively without the cost-effectiveness analysis, because the review framework was changed to improve the efficiency of review by the government. Accordingly, the drugs were delisted when the evidence of clinical usefulness were not founded and drugs' prices were the higher than 80 percentile of the highest price among drugs containing the same ingredients. **RESULTS:** As the result of pilot review, 371 drugs (98.1%) were decided to be on the reimbursement drugs list and 7 drugs (1.9%) were delisted. For drugs maintained on the list, 128 drugs (34.5%) had price cut. After the review framework is changed, 557 drugs (4.1%) were delisted and 3,705 drugs (28.7%) had price cut. For drugs delisted, 446 drugs (80.1%) had no clinical usefulness and 111 drugs (19.9%) were delisted because of several reasons such as fact that pharmaceutical companies did not accept to reduce drug prices. As a result, Of the total 13,844 drugs, 564 drugs (4.1%) were delisted and for drugs remained on the list, 3,831 drugs (28.8%) had price cut. **CONCLUSIONS:** This study could be helpful for understanding the currently listed drugs review. In the future, monitoring for the currently listed drugs utilization pattern should be needed.

HEALTH CARE USE & POLICY STUDIES - Health Care Costs & Management

PHP68

THE EFFECT OF RESETTING THE CLOCK IN HEALTH CARE

Gresz M[1], Varga S[2], Sebestyén A[3], Toldi J[2], Bogár L[2], Molics B[2], Boncz I[2]
[1]*National Institute for Quality- and Organizational Development in Healthcare and Medicines, Budapest, Hungary,* [2]*University of Pécs, Pécs, Hungary,* [3]*South-Trasdanubian Regional Health Insurance Fund Administration, Pécs, Hungary*

OBJECTIVES: The resetting the clock was introduced at the beginning of the last century in Hungary. Since then it has been maintained almost continually. Energy-saving has been the aim of the resetting the clock. The question is what the effect of the spring and fall time-shift for the human body is, how the human body can tolerate the effect of the spring and fall resetting the clock. **METHODS:** The data of the National Health Insurance Fund Administration were summarized from 1999 to 2011. That included 83 million out-patient and 2.7 million inpatient cases. The BNO main diagnoses of the week before resetting the clock were compared to the main diagnoses of the week after resetting the clock. **RESULTS:** The number of the out-patient cases decreased after resetting the clock. The number of the in-patient cases increased after both, the spring end the autumn resetting the clock. The highest increased was showed in the psychiatric patients. After resetting the clock, on Monday, the number of the hospitalized patients doubled. The psychiatric diagnoses, using the BNO code system, were 3.8-fold, the diseases, related to circulatory system was 1.9-fold and the traumatological cases were 1.5-fold after resetting the clock. **CONCLUSIONS:** The economical benefit of resetting the clock can be questioned in the view of the plus 53,000 hospitalized patients (14,000 more circu-

latory, 10,000 more psychiatric and 3,000 more traumatological cases). Are the cost-savings in balance with the outcome?

PHP69

UNITED STATES VALUATION OF CHILD HEALTH OUTCOMES

Craig BM[1], Brown DS[2], Cunningham C[3], Greiner W[4], Reeve B[5]
[1]Moffitt Cancer Center, Tampa, FL, USA, [2]Washington University, St. Louis, MO, USA, [3]McMaster University, Hamilton, ON, Canada, [4]Universität Bielefeld, Bielefeld, Germany, [5]University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

OBJECTIVES: The potential for comparative effectiveness research (CER) to characterize the benefits of new, expensive pediatric therapies has expanded greatly due to recent advances in the measurement of patient-reported outcomes(PROs) and the rise of biomedical informatics. To enhance CER and better inform allocations of scarce health care resources, this study examines 1) how much are adults willing to trade child health-related quality of life (HR-QoL) for reduced child mortality, and 2) which HR-QoL outcomes in childhood are more preferred? **METHODS:** In this discrete choice experiment (DCE), 2,000 adults from a national panel complete a series of 40 paired comparisons, either choosing between child HR-QoL outcomes and longevity or choosing between alternative child HR-QoL outcomes. Under this pivoted partial profile design, each health problem occurs at either age 7 or 11, will last for either 6 or 12 months, and be described using adjectival statements derived from the EQ-5D-Y, Behavioral Problems Index (BPI), and the National Survey of Children with Special Health Care Needs (NS-CSHCN). **RESULTS:** The study is currently being fielded.The results will address the 2 primary aims as well as produce quality-adjusted life year (QALY) estimates for child health outcomes. Applications of these estimates will be exemplified using the NS-CSHCN and other available pediatric health databases. **CONCLUSIONS:** While much of the literature of health valuation has focused on adult outcomes, this is the first national valuation study of child HR-QoL outcomes. Future work may examine the value of a QALY by age.

PHP70

A SYSTEMATIC REVIEW OF HOSPITAL-AT-HOME CARE: COST SAVINGS ARE OVERESTIMATED

Goossens LMA, Vemer P, Rutten-van Mölken MPMH
Erasmus University, Rotterdam, The Netherlands

OBJECTIVES: The concept of hospital-at-home means that home treatment is provided to patients who would otherwise have been treated in the hospital. Hospital admissions may be shortened (early assisted discharge, EAD) or avoided. This may lead to lower costs, but there is a risk that savings are overestimated if homecare and other relevant outpatient costs are not taken into account appropriately or if average or generic prices per inpatient day are applied. The objective of this study was to assess the quality of cost analyses of hospital-at-home studies for acute conditions published from 1996 through 2011 and to present an overview of evidence on cost savings. **METHODS:** The Medline and NHS HEED databases were searched. Methodological quality was assessed using the Quality of Health Economic Studies instrument (QHES). Cost calculations were considered incorrect if they failed to meet four criteria. Unit costs of inpatient hospital days had to be disease-specific. The decreasing intensity of care over the course of an admission had to be reflected in costs of inpatient days. In studies from the societal perspective, informal care costs had to be included. Violating any of these criteria leads to overestimation of savings from hospital-at-home. Finally, follow-up had to be at least one month in order to capture relevant downstream costs, in particular for readmissions. **RESULTS:** The average QHES score was 65 (out of 100) . Only 5 out of 29 studies met all criteria and had a sufficiently clear explanation of their methodology. The most frequent problem was the use of average costs per inpatient hospital day, which was problematic in at least 11 EAD studies. Follow-up was too short in 13 studies. Informal care costs lacked in one study that stated to adopt a societal perspective. **CONCLUSIONS:** While most studies found cost savings, these were probably overestimated.

PHP71

COST EFFECTIVENESS ANALYSIS OF FACILITY AND COMMUNITY BASED PROVISION OF FAMILY PLANNING IN KAMPALA

Kaganda PN, Ssengooba F, Baine SO
Makerere University, Kampala, Uganda

OBJECTIVES: In Uganda, the number of new acceptors of family planning (FP) services is still low, partly due to limited use of cost effective delivery approaches. Currently, FP is delivered through community based distribution (CBD) and facility based distribution (FBD). However, FBD remains the preferred approach despite the effectiveness and low cost nature of CBDs. The objective of this study was to compare the cost effectiveness of facility and community based provision of FP by a non-government organization. **METHODS:** Cost effectiveness study was done using a providers' perspective in an urban setting of Kampala. Cost data was collected by reviewing available accounting records and effectiveness in couple years of protection (CYP) was determined using client cards for the period January 2008 to December 2010. Both approaches were analyzed using Tree-Age Pro 2011, with the facility based approach as the comparator. Cost effectiveness was determined using a decision model based on the WHO recommended FP delivery procedures. Net Health Benefit analysis was performed and results were subjected to sensitivity analysis. **RESULTS:** CBDs had a lower cost effectiveness ratio of US $ 21.21 per CYP compared to US $ 37.17 per CYP for the FBD approach. Counseling rates were higher for CBDs with 95%, compared to 69% for FBDs. CBDs yielded' cost savings of US $ 39.43 for every CYP gained compared to FBDs. **CONCLUSIONS:** The CBD approach was more cost effective than FBDs in increasing FP use. Increasing community based provision of low cost FP methods and implants is an effective way of increasing FP use in poor urban settings.

PHP72

NEW PRICING POLICIES AFTER INITIATION OF THE HEALTH TRANSFORMATION PROGRAMME IN TURKEY

Memis SA[1], Deger C[1], Marmarali B[1], Parali E[1], Sumer F[1], Karakeben K[1], Baser O[2]
[1]Bayer Türk, Istanbul, Turkey, [2]STATinMED Research/The University of Michigan, Ann Arbor, MI, USA

OBJECTIVES: The Turkish population health status improved significantly with the implementation of the Health Transformation Programme (HTP) and reference pricing system in 2004.This study analyzed pharmaceutical industry dynamics due to these changes in Turkey since 2004. **METHODS:** Using data from the Turkish Statistical Institute Industry Database (2001-2011), trends in total, production and pharmaceutical industry production indexes were evaluated. Interrupted time series models were used to determine the effect of changes in 2004. Using the IMS LifeLink Health Plan Claims Dataset (2004-2011), pharmaceutical market growth rate trends were analyzed. Subgroup analysis was performed for brand, generic, and 20-year old drugs. Both domestic and imported drug shares (units, expenditures) were compared (2005-2011). **RESULTS:** The 2004 reference pricing system implementation negatively affected the pharmaceutical production index, with discounts ranging from 1% to 80% for approximately 1,000 medications based on comparisons of biologically-equivalent products and pharmaceutical prices in five, low-price European countries ($p<0.01$). There were no significant changes in total and production industry indexes. Although brand medication market shares remained constant across the years (2004: 42.2%, 2011: 42.6%), unit shares significantly increased, (2004: 12.4%, 2011: 16.9%). The opposite trend occurred in the generic market. Although generic medication expenditures slightly increased (2004: 14.6%, 2011: 16.2%), unit consumption decreased (2004: 13.6%, 2011: 9.7%). The 2004-2011 trends for unit and cost shares were not significantly different for 20-year old drugs (cost share: 43.3% vs. 41.2%, unit consumption: 74.0% vs. 73.4%, respectively). **CONCLUSIONS:** Changing the pricing systems with instantaneous amendments of the regulations impacts not only the reduction of drug prices and fiscal policy but also the structure and investments of the pharmaceutical industry. While solutions are being developed to increase drug expenses, long-term perspective of the industry's situation and monitoring of effects are important with respect to sustainability.

PHP73

USING DECISION ANALYSIS METHOD TO EVALUATE THE EFFECTIVENESS OF SIMILAR FUNCTION MEDICAL MATERIALS IN HOSPITAL

Fang NC[1], Yao MJ[2], Tseng TY[1]
[1]Tunghai University, Taichung City, Taiwan, [2]National Chiao Tung University, Hsinchu County, Taiwan

OBJECTIVES: The development and research in health care industry has constantly created new medical materials which provide more functional and lower side-effects than former medical materials, but the price become more expensive relatively. In order to balance the trade-off between medical quality and cost reduction, hospitals have to keep making critical decisions on choosing a best cost-effectiveness of hospital materials. This study aims to develop approaches for the evaluation of hospital materials. **METHODS:** Since it is a multi-criteria decision-making problem, we first screen the critical factors and dichotomize them into two categories, the quantitative indicators and the qualitative indicators. The quantitative indicators include "daily expenses", "profits", "consumption of quantity" and "defective rate". The qualitative indicators include "manufacture capability", "physician preference", "special function or design" and "safety and convenience". We proposed to evaluate the quantitative indicators and the qualitative indicators by data envelopment analysis and analytic hierarchy process, respectively. **RESULTS:** This study uses four items of wound dressing for effectiveness evaluation (the code A, B, C, D to replace there's brand names). First we accord to operation definition from the quantitative indicators to collect relevant data, and we analysis those data. Item A in the DEA method analysis results is the most effective, item D is the second, and item C is the worst. The consultants compare four items in pairs from the qualitative indicators, calculating the weighted by the relative importance of four items. Analysis on the four qualitative indicators, item D in the AHP method analysis results is the most effective, item A is the second, and item C is the worst. **CONCLUSIONS:** The proposed approaches are able to acquire a ranking of the effectiveness of hospital materials. Following our case study, we conclude that the proposed approaches may serve as more objective and effective decision-support tools for the decision makers.

PHP74

COST-OF-ILLNESS OF PATIENT-REPORTED ADVERSE DRUG EVENTS – A POPULATION-BASED SURVEY

Gyllensten H[1], Rehnberg C[2], Jönsson AK[3], Petzold M[4], Carlsten A[1], Andersson Sundell K[1]
[1]Nordic School of Public Health NHV, Gothenburg, Sweden, [2]Karolinska Institutet, Stockholm, Sweden, [3]Linköping University, and County Council of Östergötland, Linköping, Sweden, [4]University of Gothenburg, Gothenburg, Sweden

OBJECTIVES: To estimate the cost of illness (COI) of self-reported adverse drug events (ADE) and the COI resulting from self-reported adverse drug reactions (ADR) and sub-therapeutic effects of medication therapy (STE), from the health care perspective in a population-based study. **METHODS:** In 2010, a random sample of 14,000 Swedish residents, aged 18 years and older, received a cross sectional postal survey, including questions about experienced ADEs (ADRs, STEs, untreated indications, drug dependence, and drug intoxications), overall health care use and