

OBJECTIVES: To assess and compare the efficacy of atropine and glycopyrrolate combination in organophosphate poisoning. **METHODS:** A retrospective study was conducted in a tertiary care teaching hospital of South India. Data was collected retrospectively from medical record section from 2012 to 2013 in a suitable designed case record form. Data was analysed by using SPSS 20.0 with chi-square and one way anova. **RESULTS:** Total of 199 cases of organophosphate poisoning was documented out of which 135 (67.8%) were males and 64 (32.2%) were females. The average age in this group of patients was found to be 34.22 + 14.26. The average pre-hospitalization period was 1.58 + 2.07 days. Among them majority of the cases were suicidal (94.5%). A total of 159 patients received only atropine as treatment with an average hospital stay of 12.66 (SD= 11.88) days and a mean of 8.71 (SD= 10.03) days duration in ICU. Whereas the other 40 patients received both atropine and glycopyrrolate as treatment with an average stay of 15.68 (SD=12.76) days and a mean of 12.12 (SD=10.40) days duration in ICU. Amongst the 159 patients who received only atropine 40.9% received ventilation and for the other 40 who received atropine and glycopyrrolate only 60% received ventilation. Out of the 159 patients who received only atropine 7.6% underwent tracheostomy and 25.8% were found to have intermediate syndrome, whereas for patients who received both atropine and glycopyrrolate 15.4% underwent tracheostomy and 35% were found to have intermediate syndrome. **CONCLUSIONS:** Efficacy of two regimens reveals that atropine was found to be more effective when given alone when compared with atropine and glycopyrrolate combination in OP poisoning.

PIH7

THE EFFECTIVENESS OF FIRST TRIMESTER COMBINED SCREENING ON REDUCING THE RATE OF INVASIVE GENETIC PROCEDURES IN A CITY BASED POPULATION OF HUNGARY 2010-2013

Nagy S¹, Bajnóczky K¹, Boncz I², Kovács G³

¹Pécs Aladár County Teaching Hospital, Győr, Hungary, ²University of Pécs, Pécs, Hungary,

³Széchenyi István University, Győr, Hungary

OBJECTIVES: To assess the effectiveness of combined biochemical and ultrasound screening for chromosomal abnormalities in the first trimester of pregnancy on reducing the rate of invasive genetic procedures in a city based population on Hungary. **METHODS:** Previously women aged 35 years or more had access to chorionic villus sampling (CVS) or amniocentesis (AC). A private prenatal diagnostic center offered a population based screening protocol irrespective of maternal age. Invasive testing was performed for women having a combined risk for fetal aneuploidy > 1:250. Total number of 4611 singleton and twin pregnancies in the gestational age of 11+0 and 13+6 weeks were enrolled between November 2010 and August 2013. Maternal serum level of pregnancy associated protein-A (PAPP-A) and free-beta human chorionic gonadotropin (free β -hCG) were determined by KRYPTOR (Brahms-ThermoFisher GmbH, Germany). **RESULTS:** The screening rate in this city based population was 60%. 277 (6.3%) women had a positive first trimester screening result. There were 16 fetuses with Down's syndrome and 14 fetuses with other chromosomal abnormalities diagnosed. The sensitivity and specificity were 100% and 95%, the false positive rate was 4.5% and the false negative rate was 0%. The positive predictive value of the test was 11%, the negative predictive value was 100%. The number of pregnancies in which an invasive test was performed decreased from 518 in 2005 to 295 in 2013, or by 44%. The proportion of women aged less than 35 years increased, while the rate of women over 35 decreased in this invasive group. **CONCLUSIONS:** It is possible to change the pattern of invasive prenatal procedures and reduce the proportion of women having CVS or amnio. Efficient information is needed to increase the screening rate, especially in a self-financed system, where the public health insurance does not cover this type of nationwide screening.

PIH8

BURDEN OF DISEASE IN ASIAN COUNTRIES AND THE USE OF DISABILITY-ADJUSTED LIFE-YEARS AND QUALITY-ADJUSTED LIFE-YEARS

Groom ZC¹, Beale RC¹, Brooks-Rooney C²

¹Costello Medical Consulting Ltd., Cambridge, UK, ²Costello Medical Singapore Pte Ltd., Singapore

OBJECTIVES: Disability-adjusted life-years (DALYs) and Quality-adjusted Life-years (QALYs) are two measurements commonly used in health care evaluations; however the specific disease areas where they are most applicable are not fully defined. The objective of this study was to review the use of DALYs and QALYs in trials taking place in China and Thailand and review the relationship with disease burden. **METHODS:** PubMed was searched for studies published after 01/01/2004 reporting DALYs and QALYs for communicable and non-communicable diseases in China and Thailand. Data on disease burden were obtained from the World Health Organisation's (WHO) 'Mortality and Burden of Disease Estimates for WHO Member States in 2004' database. **RESULTS:** 117 studies were included for China; 79 reported QALYs and 38 reported DALYs. 34 studies were included for Thailand (QALYs: 28; DALYs: 6). Of trials reporting QALYs, 74.7% of Chinese and 78.6% of Thai trials focussed on non-communicable disease; the most commonly investigated disease was cancer. Of trials reporting DALYs, 44.7% of Chinese and 16.7% of Thai trials focussed on non-communicable diseases. In terms of the disease burden, communicable/non-communicable diseases account for 24.6%/75.4% and 33.7%/66.3% of the burden in China and Thailand respectively. Leading causes of disease burden were cerebrovascular disease (7.7%) and HIV (12.0%) in China and Thailand respectively. **CONCLUSIONS:** A dual burden of disease was observed in Asian countries in terms of non-communicable/communicable diseases. The QALY was the preferred measure for non-communicable diseases in China and Thailand. While the DALY is used equally in communicable and non-communicable diseases in China, it is used predominantly for non-communicable diseases in Thailand. This presents a challenge to health care managers; while it is clear that QALY is used mostly for non-communicable diseases, the most appropriate use of the DALY is unclear. Further research into the characteristics of diseases within these categories is required.

INDIVIDUAL'S HEALTH – Cost Studies

PIH10

USING HORMONAL CONTRACEPTION REDUCE UNINTENDED PREGNANCY IN CHINA

Tang M, Mao Y, Chen Y

Fudan University, Shanghai, China

OBJECTIVES: The potential high-unintended pregnancy rates have resulted in great productivity loss in China. Several contraceptive methods have been introduced by both the providers and the woman themselves to reduce the unintended pregnancy rates. A cost-benefit analysis on various hormonal contraceptive methods was performed in order to provide references for contraception selection in China. **METHODS:** A decision-tree model was used to compare contraception costs and effects among different contraceptive methods. All women were classified into three contraception profiles (continuation, discontinuation and switch, discontinuation and drop-out). Outcomes included no pregnancy, pregnancy with no birth and birth. All the probabilities, medical and medication data in this model were derived from the literature and interviews. **RESULTS:** A comparison of total estimated yearly and cumulative costs indicated that contraceptive implants, transdermal contraceptive, extended-cycle OC, vaginal ring, and IUD were less costly, less than \$281733.7 in a three-year study period. While transdermal contraceptive, extended-cycle OC and vaginal ring were not available in the Chinese market, contraceptive implants and IUD were the only two choices in China with lowest cumulative costs. The further cost-benefit analysis also demonstrated contraceptive implants as good value for money. Using contraceptive implants were proved to have the lowest cost of pregnancy from failure of \$839.9, with a total cost of \$26814.9, and a benefit-cost ratio of 2.2, far over 1.0. Sensitivity analysis by tornado diagrams showed that cost of pregnancies, age and proportion of discontinuation and switch might have the greatest impact on the costs and failure risks of contraceptive implants. **CONCLUSIONS:** In order to reduce the unintended pregnancy rates, the implementation of hormonal contraception may lead to a benefit in terms of both costs and effects. And among all the hormonal contraception in the Chinese market, contraceptive implants tend to generate greater economic benefits. Note: 1US dollar=6.46 Chinese yuan.

PIH11

DISEASE BURDEN OF UNINTENDED PREGNANCY IN CHINA

Mao Y¹, Tang M¹, Chen Y¹, Wu S²

¹Fudan University, Shanghai, China, ²National Research Institute for Family Planning, Beijing, China

OBJECTIVES: China is a big country with a large population. Reproductive health education is not sufficient for women of childbearing age, which leads to high unintended pregnancy (UP) rate. These represent a significant cost to the health care system. This study analyzes the epidemiology and productivity loss of unintended pregnancy in China. **METHODS:** The study reviewed published scientific articles and policy documents related to unintended pregnancy in China. We retrieved literature from Wanfang and PubMed databases, and searched policy documents in websites of National Bureau of Statistics and National Center for Women and Children's health, China CDC. **RESULTS:** Almost 10% of fertile women have UP in China each year. There are four different results of UP, including miscarriage, elective abortion, ectopic pregnancy and delivery. There are two methods of elective abortion, including operation abortion and drug abortion. The costs of operation and drug abortion are about US \$131.58 and \$100.62 in early pregnancy respectively, and \$154.80 and \$464.40 in the second trimester respectively. Drug abortion costs are much more in the second trimester because of complications. The incidence of ectopic pregnancy is about 4.4%, and there are three therapeutic methods. The costs of laparoscopic operation and open abdominal surgery are more than drug conservative treatment. The costs are between \$309.60 and \$1393.19. Delivery has three possibilities. Vaginal delivery accounted for 52.6%, and cesarean section accounted for 46.2%. The incidence of premature birth is about 6.36%. Vaginal delivery and cesarean section will cost about \$387.00 and \$619.20 respectively. The costs of premature birth range from \$928.80 to \$1547.99, and the costs will be increased with high likelihood of neonatal weight. **CONCLUSIONS:** UP poses a heavy economic burden in China, but the economic burden could be reduced if fertile women receive more reproductive health education, get appropriate treatment and have periodical prenatal examination.

PIH12

AN UPDATE OF COST-EFFECTIVENESS OF ROTAVIRUS VACCINATION IN INDONESIA: TAKING A BIRTH-DOSE VACCINATION STRATEGY INTO ACCOUNT

Suwantika AA¹, Setiawan D², Atthobari J³, Postma MJ¹

¹University of Groningen, Groningen, The Netherlands, ²University of Groningen, Groningen, The Netherlands, ³Gadjah Mada University, Yogyakarta, Indonesia

OBJECTIVES: Rotavirus infection was reported as the major cause of severe diarrhea in children under 5-years-old in Indonesia. A low cost rotavirus vaccine to protect infants from birth has been developed for developing countries, such as Indonesia. This study aims to update our initial analysis on the cost-effectiveness of rotavirus vaccination in Indonesia, taking a birth-dose vaccination strategy explicitly into account. **METHODS:** An age-structured cohort model was developed for the 2013 Indonesia birth cohort. Applying different rotavirus vaccine efficacies for formula-fed and breastfed infants, we compared two vaccination strategies: (i) three-dose schedule at 2, 3 and 4 months of age, and (ii) three-dose schedule at 0, 1, and 2 months of age. We applied a 5-year-time-horizon with 1 monthly analytical cycles for children less than 1 year of age and annually thereafter. Also, we used Monte Carlo simulations to examine the economic acceptability and affordability of the rotavirus vaccination. **RESULTS:** Rotavirus vaccination would reduce rotavirus-diarrhea cases in children under 5-years-old by 475,806 and 489,259 cases for the first and second strategies, respectively. Considering amaret price of US\$ 5 per dose, the Indonesian government would require budgets of US\$ 65.0 million and US\$ 65.3 million for the first and second strategies, respectively. The incremental cost-effectiveness ratios were US\$ 150 and US\$ 146 for

the first and second strategies, respectively, which were much lower than the 2013 Indonesian Gross Domestic Product (GDP) per capita of US\$ 4,790. **CONCLUSIONS:** The implementation of a birth-dose rotavirus vaccination strategy in Indonesia would be more cost-effective than a later vaccination schedule. The mortality rate and vaccine price were the most influential parameters impacting the cost-effectiveness results.

PIH13

THE PHARMACOECONOMICS REVIEW OF 7-VALENT PNEUMOCOCCAL CONJUGATE VACCINATION IN ASIAN-PACIFIC REGION

Zhu L

Analysis Group, Cambridge, MA, USA

OBJECTIVES: Since 2000, when the PCV7 (7-valent Pneumococcal Conjugate Vaccine) gradually went public, lots of cost-effectiveness evaluations on it have been done in Euro-American countries. In contrast, there is little economic review on PCV7 in Asian-Pacific region. This review comprehensively evaluated the cost and benefit of introducing PCV7 into the national immunization plan (evaluation include with and without the herd effect) of the Asia-Pacific region, to serve as a policy reference for the Asian-Pacific regions in their immunization plans. **METHODS:** All articles were identified from PubMed and Embase database between January 1st, 2002 and June 30th, 2013 in Korea, Hong Kong, Malaysia, Singapore, Australia and Japan. The following keywords were used: cost, cost-effectiveness, pneumococcal diseases and pneumococcal conjugate vaccine. Results were collected in terms of different assumptions, such as incidence ratios, vaccine uptake rate, and duration of protection and so on. Costs included both direct and indirect cost. **RESULTS:** The clinical benefits and cost effective results varied from country to country. For illnesses avoided, the results varied between 4,030 and 30,040 per year. In terms of deaths avoided, the number of events varied between 14.2 and 643 per year. Studies that considered herd effects reported much more favorable cost-effectiveness than those that did not, with the ICERs US\$5,929/LYG in Hong Kong, US\$10,261/LYG in Malaysia, US\$43,275/QALY in Singapore from social perspective. **CONCLUSIONS:** With respect to the WHO's classification that an intervention is cost-effective if ICER is between 1 And 3 times of GDP, universal PCV7 vaccination would be considered cost-effective in Hong Kong, Malaysia and Singapore.

INDIVIDUAL'S HEALTH – Patient-Reported Outcomes & Patient Preference Studies

PIH15

PARTIAL REIMBURSEMENT OF ANTIVIRAL AGENTS FOR HBV: IMPACT ON ANTIVIRAL UTILIZATION AND COMPLIANCE

Qiu Q¹, Duan XW², Li Y², Yang LK², Chen Y², Li H¹, Duan ZP², Wang L¹

¹Peking Union Medical College & Chinese Academy of Medical Science, Beijing, China, ²Beijing You'an Hospital of Capital Medical University, Beijing, China

OBJECTIVES: To determine the impact of partial reimbursement on antivirals which was first implemented in July 1, 2011 on antiviral utilization and compliance for CHB patients in Beijing. **METHODS:** Two separate cohorts were enrolled. These consisted 14,163 CHB outpatients who were referred to Beijing You'an Hospital during Jan 1, 2010 to Dec 30, 2010 and 16,228 between Jul 1, 2011 and Jun 30, 2012. Follow-up ended on Jun 30, 2011 and Dec 31, 2012, respectively. Demographic characteristics, routine biochemical and virological detection results, and antiviral prescription information were collected from electronic database. Antiviral utilization, medication possession ratio (MPR) and persistence rate were compared between patients with medical insurance (PMI) and paid out-of-pocket (PPO). Questionnaire survey was given to randomly sample 307 outpatients to confirm the validity of the electronic database. **RESULTS:** A total of 13,364 outpatients from each cohort were enrolled after propensity score matching. The antiviral utilization rate for PMI increased from 57.4 to 75.9% ($P < 0.001$) after the reimbursement policy and the rate among PPO increased from 54.9 to 56.7% ($P = 0.028$). A 5% increase ($83.4\% \pm 24.3$ vs. $88.7\% \pm 19.4\%$, $P < 0.0001$) in MPR was observed among PMI after reimbursement and an increase of under 2% was observed among PPO ($83.7\% \pm 24.2$ vs. $85.2\% \pm 23.1\%$, $P = 0.0055$). About 71% of the patients had more than 80% MPR in each cohort before reimbursement. This increased to 79.3% ($P < 0.0001$) and 73.0% ($P = 0.0228$) for PMI and PPO, respectively. PMI had a higher 6-, 12-, 15-month persistence rate than PPO, especially for outpatients receiving ETV and ADV. The questionnaire with 100% respond rate showed that more than 90% outpatients only took antiviral medicine at You'an Hospital, suggesting the validity of the electronic database. **CONCLUSIONS:** The new reimbursement policy showed a positive impact on antivirals utilization as well as compliance for insured CHB patients, especially for patients receiving ETV and ADV.

PIH16

JOINT MODELING OF PRIMARY AND SECONDARY NON-ADHERENCE OUTCOMES

Pedan A, Geng J

InVentiv Health, Burlington, MA, USA

OBJECTIVES: Medication non-adherence to chronic therapies may severely impact effectiveness of treatment. Non-adherence may occur at different stages in a patient's treatment journey. It may occur at the very beginning of therapy if a patient receives the initial prescription but does not redeem it at a pharmacy (primary non-adherence), or it may happen after the patient fills a prescription at a pharmacy but fails to follow the instructions or fails to refill the prescription (secondary non-adherence). **METHODS:** The purpose of this study is to demonstrate that both primary and secondary non-adherences can be jointly described by a hurdle model, which has the interpretation as a two-part model. The first part is a binary outcome model, and the second part is a truncated count model (Poisson or negative binomial). The hurdle model is an example of the finite mixture models which can be fitted by SAS's new procedure PROC FMM. **RESULTS:** Data in this retrospective cohort study of medication non-adherence was obtained from blind computerized pharmacy records of a national retail pharmacy chain.

Primary non-adherence was defined as a binary outcome representing failure to fill a new prescription within 30 days after the medication was prescribed to the patient and secondary non-adherence was defined as a number of refills obtained by a patient within a 12 month follow up period. Various measured patient, prescription, and prescribing physician characteristics were included in the model. Hurdle model results indicate that important predictors are missing from the single-component models, but exist in the joint model of primary and secondary non-adherence. **CONCLUSIONS:** The authors conclude that a hurdle modeling approach enables the taking of simple, well-understood models primary (logistic regression) and secondary non-adherence (count regression) and combine them in a way that provides a better description of the data than a single-component models provide separately.

PIH17

A QUALITATIVE ASSESSMENT OF DOCTORS PERCEPTION TOWARDS THE QUALITY OF PHARMACEUTICAL CARE SERVICES IN KHYBER PAKHTUNKHWA, PAKISTAN

Azhar S¹, Murtaza G², Kousar R³

¹COMSATS Institute of Information Technology, Abbottabad, Pakistan, ²COMSATS, Abbottabad KPK Pakistan, Pakistan, ³COMSATS, Abbottabad, Pakistan

OBJECTIVES: The main objective of this study is to explore the perception of doctors regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. **METHODS:** A qualitative study design was adopted. A semi-structured interview guide was developed, through snowball sampling technique face to face interviews were conducted until saturation point has reached till 15th doctors. Doctors from public and private hospitals in Khyber Pakhtunkhwa, Pakistan who were interviewed from December to February 2014. The interviews were conducted at the doctor's work-place. Written consent was obtained from the participants prior to the interview. **RESULTS:** Among the respondents interviewed, nine were male and six female doctors. Thematic content analysis yielded 4 major themes: (a) Collaboration of doctors and pharmacists, (b) Lack of provision of patient counseling, (c) Separation of prescribing & counseling services, (d) Patient compliance through pharmaceutical care. **CONCLUSIONS:** The findings demonstrated that implementation of pharmaceutical care provision would benefit the doctors and patient. Doctors were willing to collaborate with pharmacist because it will facilitate the doctors as due to time limit they are unable to do proper patient counseling. They have also showed positive response towards implementation of pharmacy practice which would definitely improve the patient compliance.

PIH18

REFERENCE VALUE OF BLOOD SERUM ALKALINE PHOSPHATASE IN MONGOLIAN ADULT

Chanagsuren G¹, Dorj E², Dorj O¹, Gunchin B³

¹School of Nursing, HSUM, Ulaanbaatar, Mongolia, ²School of Biomedicine, HSUM, Ulaanbaatar, Mongolia, ³Health Sciences University of Mongolia, Ulaanbaatar, Mongolia

OBJECTIVES: To determine the reference value of blood serum alkaline phosphatase of adult according to related age, sex, season and region. **METHODS:** In the research, totally 3742 people were conducted. The research was implemented and supported by central laboratory of Biomedical school, HSUM, "Mobio" laboratory of Korea and "Mega" laboratory. The research of serum alkaline phosphatase was made by the kinetic method which is confirmed by IFCC and used the liquid reagent of Roche Hospitex diagnostics and Human firm. The research result was statistically analyzed with standard programming the SPSS statistic. **RESULTS:** The mean value of blood serum alkaline phosphatase activity of adult with confidence interval $P = 0.95$, the mean value was for the male 81.78 ± 0.48 , ($n = 1597$) U/L and for female 76.99 ± 0.41 ($n = 2145$) U/L. While determining the Interval for reference value of blood serum alkaline phosphatase, interval was for male $51.08 - 112.47$ U/L8 U/L and for female $39.77 - 114.21$ U/L. Blood serum alkaline phosphatase activity of adult Mongolian have dependence of sex ($p < 0.0001$) and it was high for male. Also, serum alkaline phosphatase activity is varying ($p < 0.0001$, $r = 0.102$) depending on age. There is no dependence of activity of serum ($p = 0.43$) appeared by region. **CONCLUSIONS:** Mean value of serum alkaline phosphatase activity is for people 70.50 ± 0.63 U/L and minimum limit of reference value is $40.09 - 116.72$ U/L. The activity of serum alkaline phosphatase has deference from age and sex with confidence interval ($p = 0.0001$). For male high, for female low, weak direct dependence from age ($r = 0.102$) and strong direct dependence from sex were discovered.

PIH19

ASSESSMENT OF UTILITIES IN JAPAN: DATA AVAILABILITY AND METHODOLOGY

Chen X¹, Kim HR², Crawford B¹

¹Adelphi Values, Tokyo, Japan, ²The University of Tokyo, Tokyo, Japan

OBJECTIVES: Utility data are essential for cost-effectiveness analyses, especially with the introduction of HTA in Japan in 2016. Given a paucity of information regarding the availability of data and related research methodologies used in Japan, this study aims to present a comprehensive literature review regarding utility assessment in Japan. **METHODS:** Medline (English) and Ichushi (Japanese) were searched to understand where the utilities were derived. Search terms included Utility OR health state preference OR 効用値 OR QALY OR 質調整生存年 [Title/Abstract] and all articles published before November 30, 2013 were reviewed. Articles were required to detail the methods for utility development or selection, and needed to be based in Japan. They were also required to focus on the assessment of utilities or be part of a cost-effectiveness analysis. **RESULTS:** A total of 246 manuscripts were found after removing duplicates. From these, 137 were included in the full text review and 99 were selected for analysis. The number of studies increased from 1 manuscript in 2000 to a total of 16 in 2012 and 6 in 2013. 70 articles were cost-effectiveness analysis. 50 articles cited utility values from previous or overseas studies. Among original utility measurement studies EQ-5D and TTO were the most frequently used methods.