

Tu HAT<sup>1</sup>, Coyte P<sup>2</sup>, Li SC<sup>3</sup>, Postma MJ<sup>4</sup>

<sup>1</sup>University of Toronto, Toronto, ON, Canada, <sup>2</sup>University of Toronto, Toronto, ON, Canada,

<sup>3</sup>University of Newcastle, Callaghan, NSW, Australia, <sup>4</sup>University of Groningen, Groningen, Groningen, The Netherlands

**OBJECTIVES:** Rotavirus is the most common cause of severe diarrhoea worldwide. This study was designed to evaluate the cost-effectiveness of rotavirus immunization in Vietnam taking into account herd immunity and patterns of breastfeeding. The affordability of implementing universal rotavirus immunization was assessed based on both GAVI-subsidized and market vaccine prices for the next 5 years from the perspective of the Vietnamese health care system. **METHODS:** An age-structured birth cohort model for Vietnam was developed to compare two strategies of no vaccination and universal rotavirus vaccination in 2011. A lifetime time horizon was used with monthly time cycles for those under one year and annually thereafter. The analysis was performed under three breastfeeding scenarios: 1) 100% exclusive breastfeeding for children under 6 months; 2) 100% partial breastfeeding, and 3) 100% no breastfeeding. Herd immunity was explored in all scenarios. Monte Carlo simulations were used to examine the acceptability and affordability of the immunization strategy. **RESULTS:** Rotavirus immunization would effectively reduce severe cases of rotavirus during the first 5 years of life. Herd immunity makes rotavirus vaccination a cost-saving strategy under the GAVI-subsidized vaccine price in the case of partial breastfeeding and a cost-effective strategy in all breastfeeding scenarios under the market vaccine price. Affordability results showed that at the GAVI-subsidized vaccine price, rotavirus vaccination is affordable. **CONCLUSIONS:** This is the first study in developing countries considering herd immunity under rotavirus vaccination. If the indirect effect were considered, vaccination would become a cost-saving strategy. Given the high mortality rate of diarrhea in children under-five-years of age, our findings show rotavirus immunization to be an effective and “must-do” prevention strategy. Vaccination, however, only becomes affordable if Vietnam receives GAVI’s financial support. In the next five years, Vietnam will need financial support from international organizations to implement rotavirus vaccination.

#### PIH7

##### IMMUNIZATION PROVIDERS’ COST AND VACCINATION COST IN IRAQ

Al-Lela OQB<sup>1</sup>, Bahari MB<sup>2</sup>, Alabbassi MG<sup>3</sup>, Salih M<sup>3</sup>, Basher AY<sup>4</sup>

<sup>1</sup>Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Minden, Penang, Malaysia, <sup>2</sup>Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Pinang, Malaysia, <sup>3</sup>Department of Clinical Pharmacy, College of Pharmacy, The University of Mustansiriyah, Baghdad, Al-Baya, Iraq, <sup>4</sup>Universiti Sains Malaysia, Advance Medical and Dental Institute, Pinang, Malaysia

**OBJECTIVES:** To evaluate the activities of immunization providers in terms of activities time and cost, and to calculate the immunization doses cost. **METHODS:** Time-motion and cost analysis study design was used. Five public health clinics in Mosul-Iraq participated in the study. Fifty (50) vaccine doses were required to estimate activities time and cost. Micro-costing method was used; time and cost data were collected for each immunization-related activity performed by the clinic staff. A stopwatch was used to measure the duration of activity interactions between the parents and clinic staff. The immunization service cost was calculated by multiplying the average salary/min by activity time per minute. **RESULTS:** The average time for child registration was 6.7 minutes per each immunization dose, and the physician spent more than 10 minutes per dose. Nurses needed more than five minutes to complete child vaccination. The total cost of immunization activities was 1.67 US\$ per each immunization dose. Measles vaccine (fifth dose) has a lower price (0.42 US\$) than all other immunization doses. **CONCLUSIONS:** The time spent on physicians’ activities was longer than that spent on registrars’ and nurses’ activities. Physician total cost was higher than registrar cost and nurse cost.

#### INDIVIDUAL’S HEALTH - Patient-Reported Outcomes & Patient Preference Studies

#### PIH8

##### MEDICATION COMPLIANCE IN ERECTILE DYSFUNCTION (ED) PATIENTS WHO REPORTED SATISFACTORY RESTORATION OF ERECTILE FUNCTION (EF) AFTER ORAL TREATMENT

Kim YJ, Park HJ

Pfizer Pharmaceuticals Korea Ltd., Seoul, South Korea

**OBJECTIVES:** To explore how many patients discontinue oral treatment despite satisfactory restoration of their erectile function (EF) and to identify the associated characteristics to discontinuation of medication. **METHODS:** Erectile Dysfunction (ED) patients treated between 2009 and 2011 in 34 urology clinics in Korea were studied. Restoration of EF after taking medication more than 4 times was asked to patients. 882 patients who reported satisfactory restoration of EF were surveyed with a questionnaire to collect data regarding patient compliance of medication, demographic, clinical, partners’ characteristics and medication discontinuation reasons. Data on ED etiology and total medication period were collected via medical chart review. We used the 857 eligible data of discriminating discontinuation. **RESULTS:** Total of 857 ED patients aged  $53.6 \pm 11.8$  years had ED oral treatment for a mean period of  $25.3 \pm 24.7$  months. 251 (28.5%) patients discontinued oral treatment for the last one year, and patients aged < 50 years, living in rural areas and with monthly income < 4 million KRW tended to more discontinue their medication ( $P < 0.05$ , respectively). Lower sexual libido, shorter treatment period, psychogenic cause of ED, and experiencing low treatment efficacy were also associated factors with discontinuation ( $P < 0.05$ , respectively). Partners with characteristics of unawareness of patient’s ED treatment and experiencing poorer treatment satisfaction increased patients’ treatment discontinuation ( $P < 0.05$ , respectively). Most

frequent reasons for discontinuing treatment were unwillingness to have medication-dependent intercourse (31.0%), spontaneous recovery of EF (30.2%) and economic burden of medication (26.7%). **CONCLUSIONS:** Approximately one third of ED patients tended to discontinue the oral treatment while they reported satisfactory restoration of EF. Both patients’ and partners’ characteristics affected patients’ medication compliance in ED patient.

#### PIH9

##### ASSOCIATION BETWEEN HEALTH CARE PROVIDERS AND IMMUNIZATION COMPLIANCE IN IRAQ

Al-Lela OQB<sup>1</sup>, Bahari MB<sup>2</sup>, Alabbassi MG<sup>3</sup>, Salih M<sup>3</sup>, Basher AY<sup>4</sup>

<sup>1</sup>Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Minden, Penang, Malaysia, <sup>2</sup>Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Pinang, Malaysia, <sup>3</sup>Department of Clinical Pharmacy, College of Pharmacy, The University of Mustansiriyah, Baghdad, Al-Baya, Iraq, <sup>4</sup>Universiti Sains Malaysia, Advance Medical and Dental Institute, Pinang, Malaysia

**OBJECTIVES:** To identify the immunization providers’ characteristics associated with immunization rate in children younger than two years. **METHODS:** A cross-sectional and a cluster sampling design were implemented; 528 children between 18 and 70 months of age were sampled in five public health clinics in Mosul-Iraq. Providers’ characterizations were obtained. Immunization rate for the children were assessed. Risk factors for partial immunization were explored using both bivariate analyses and multi-level logistic regression models. **RESULTS:** Less than half of the children had one or more than one missed dose, considered as partial immunization cases. The study found significant associations of immunization rate with provider’s types. Two factors were found that strongly impacted on immunization rate in the presence of other factors; birthplace and immunization providers’ types. **CONCLUSIONS:** Improving communication between parents and immunization provider will engage the parents in decision making, clarify the importance of immunization, and highlight the value of immunization compliance.

#### PIH10

##### UTILITY VALUES FOR USE IN HEALTH CARE DECISION MAKING FOR OLDER FRAIL ADULTS

Comans TA<sup>1</sup>, Scuffham PA<sup>1</sup>, Gray L<sup>2</sup>, Peel N<sup>2</sup>

<sup>1</sup>Griffith University, Meadowbrook, Queensland, Australia, <sup>2</sup>University of Queensland, Brisbane, Queensland, Australia

**OBJECTIVES:** To compare the utility measurements and quality adjusted life years gained obtained from the EQ-5D and ICECAP-O instruments in a group of older frail people receiving a community program. **METHODS:** Prospective observational cohort study with baseline and repeated measures follow up of 357 participants and 122 caregivers. Participants were receiving the transition care program, a clearly defined post acute discharge program consisting of case management, medical and nursing support, rehabilitation services and personal and domestic care in one of six community sites in two states of Australia. Quality of life was measured four time points over six months. **RESULTS:** The ICECAP-O yielded consistently higher utility values at all time points than the EQ-5D. Admission utility scores were 0.55 (0.20) and 0.75(0.16) and at 6 months were 0.60 (0.28) and 0.84 (0.25) for the EQ-5D and ICECAP-O respectively. Using the area under the curve method, the QALYs gained from baseline over six months were modest; however the ICECAP-O gave higher overall QALYs gained than the EQ-5D. The increased QALYs gained with the ICECAP-O could have implications when using it in an economic evaluation of this type of service. **CONCLUSIONS:** The EQ-5D has been criticised for its potential lack of responsiveness particularly when only small health improvements are expected. The ICECAP-O may represent a better choice for use in evaluating community based programs for older frail people.

#### PIH11

##### A SURVEY EVALUATING GENERAL PUBLIC PERCEPTIONS TOWARDS TRADITIONAL MEDICINES USED FOR APHRODISIAC PURPOSE

Hassali MA<sup>1</sup>, Shafie AA<sup>1</sup>, Saleem F<sup>1</sup>, Chua GN<sup>2</sup>, Masood I<sup>2</sup>, Atif M<sup>3</sup>, Haq N<sup>1</sup>

<sup>1</sup>Universiti Sains Malaysia, Penang, Malaysia, <sup>2</sup>Universiti Sains Malaysia, Penang, P. Penang, Malaysia, <sup>3</sup>Alliance University College of Medical Sciences (AUCMS), Penang, Malaysia

The use of herbal medicine for aphrodisiac purpose has been increasingly in both developing and developed country. Within this context, it is little know regarding the factors contributing for the high usage of these preparations among general public. **OBJECTIVES:** To evaluate public perceptions towards the use of traditional products with aphrodisiac properties. **METHODS:** A cross-sectional study was undertaken among potential respondents selected from the state of Penang Malaysia. Totally, 392 respondents were included in the study. Descriptive statistics including frequencies and percentage were used for data analysis. Frequencies of demographic information of respondents are tabulated and expresses in bar chart and pie chart. **RESULTS:** The study showed that most of the respondents (46.94%) agreed that traditional medicines for aphrodisiac purpose are easily available in the country. Moreover, 40.31% of the respondents agreed that traditional medicine with aphrodisiac purpose is cheaper than modern medicine. **CONCLUSIONS:** There is a need for health care profession to explore in the field of traditional medicine in order to safeguard patients health. The study showed that the public have limited knowledge towards usage of traditional aphrodisiac medicine.

#### PIH12

##### A DESCRIPTIVE STUDY OF HEALTH RELATED QUALITY OF LIFE AMONG GENERAL POPULATION OF QUETTA, PAKISTAN

Ul Haq N<sup>1</sup>, Hassali MA<sup>2</sup>, Shafie AA<sup>2</sup>, Saleem F<sup>2</sup>, Aljadhry H<sup>3</sup>, Atif M<sup>4</sup>, Iqbal Q<sup>5</sup>

<sup>1</sup>Universiti Sains Malaysia, Penang, P. Penang, Malaysia, <sup>2</sup>Universiti Sains Malaysia, Penang, Malaysia, <sup>3</sup>King Saud University, Riyadh, Saudi Arabia, <sup>4</sup>Universiti Sains Malaysia, Penang, P. Pinang, Malaysia, <sup>5</sup>University of Balochistan, Quetta, Balochistan, Pakistan

**OBJECTIVES:** To evaluate Health Related Quality of Life (HRQoL) among general population of Quetta city, Pakistan. **METHODS:** The study was designed as a questionnaire-based cross sectional analysis. European Quality of Life scale (EQ-5D) was used for assessment of HRQoL. A total of 1500 healthy participants from March 2011 to July 2011, aging 18 years and above were approached. Descriptive statistics were used to describe demographic characteristics of the general population. Percentages and frequencies were used to categorize the categorical variables, while means and standard deviations were calculated for the continuous variables. Inferential statistics (Mann-Whitney and Kruskal Wallis tests) were used where appropriate. HRQoL was scored using values adapted from the UK general population survey. All analyses were performed using SPSS 16.0. **RESULTS:** One thousand five hundred questionnaires were distributed and 1255 were returned (with response rate of 83.67%). Six hundred and forty three (51.2%) were males. Majority (n=427, 34.0%) were categorized in age group of 28-37 years. Three hundred and thirty three (26.5%) had intermediate level of education. Two hundred and ninety one (23.2%) had monthly income of in between 10001-15000 Pakistan rupees with 828 (66.0%) having urban residency. HRQoL was measured as  $0.64 \pm 0.21$  and VAS score was  $68.71 \pm 11.71$ . Only age and marital status, among all demographic characteristics had significant relation with HRQoL score ( $p < 0.05$ ). **CONCLUSIONS:** Results of the present study provide the general health status of healthy population of Quetta city, Pakistan, which could serve as baseline data for further investigations.

#### RESPIRATORY-RELATED DISORDERS - Clinical Outcomes Studies

##### PRS1

#### COST-UTILITY OF MOLECULAR IGE IN VITRO DIAGNOSTICS (IVD) IN CHILDREN SUSPECTED WITH PEANUT ALLERGY COMPARED TO MOST USED DIAGNOSTICS IN SELECTED ASIAN MARKETS

Hermansson LL<sup>1</sup>, Glaumann S<sup>2</sup>, Mascialino B<sup>1</sup>, Wang LL<sup>3</sup>, Nilsson C<sup>4</sup>  
<sup>1</sup>Thermo Fisher Scientific, Uppsala, Sweden, <sup>2</sup>Södersjukhuset, Stockholm, Sweden, <sup>3</sup>China Allergy Society and Chinese Allergists, Uppsala, Sweden, <sup>4</sup>Sachs Childrens Hospital, Stockholm, Sweden

**OBJECTIVES:** In vitro diagnostic (IVD) has a considerable health economic impact: 60% of patients' information derives from IVD tests, but IVD makes 1% of the total health care budget in EU (EDMA, 2010). No cost-effectiveness (CE) analyses are available on molecular IVD in allergy; only NICE in the UK made a CE study IgE IVD for peanut allergy (PA). Given the impact of PA on quality of life (QALY), accurate diagnosis is crucial. 10% of children are considered peanut sensitised, but only 1-2% is true positive for PA world-wide. Subjects with IgE antibodies to allergens Ara h1-2-3 have high risk of allergic reactions (Astier, 2006). DBPCFC is the gold-standard for food-allergy diagnosis; however it is time-consuming, expensive and might induce severe reactions in PA subjects (Nicolau, 2010). Other cheaper options such as open challenge are also used. IVD can give clinicians a tool to decide the need of DBPCFC (Sastre, 2010); is IVD CE per QALY (CEQ) compared to DBPCFC or open challenge in suspected PA children in selected Asian markets (China, Japan and Korea)? **METHODS:** Clinical data was collected at Stockholm's Sachs' Childrens hospital (Nilsson, 2011) and from published literature. A 5-year simulation model comparing IVD (ImmunoCap® - allergens f13, Ara h 1-2-3-8-9) with DBPCFC or open challenge was developed with Exel®, to analyse CE for IVD. The sensitivity and specificity of each diagnostics determines the percentage of patients true-allergic, false-allergic, true-healthy and false-healthy. Results are presented from the health care perspective. **RESULTS:** IgE IVD is CEQ and cost saving for children with suspected PA in multiple countries compared to gold-standard DBPCFC or open challenge. **CONCLUSIONS:** IVD is a CEQ alternative to DBPCFC in selected patients in multiple countries. DBPCFC might be replaced in selected cases, still being useful in subjects with conflicting immunological/clinical results (Codreanu, 2011).

##### PRS2

#### META-ANALYSIS OF THE EFFECTS OF THEOPHYLLINE ON KIDNEY FUNCTION IN NEONATES WITH PERINATAL ASPHYXIA

Pongmesa T, Poolsup N, Sirirattanaong K, Jitareerat S, Lertsasatid Y  
 Department of Pharmacy, Faculty of Pharmacy, Silpakorn University, Mueang, Nakhon Pathom, Thailand

**OBJECTIVES:** A number of studies have demonstrated that theophylline could prevent acute renal failure in neonates with perinatal asphyxia. No meta-analysis on this topic, however, is available. Hence, we aimed to conduct a meta-analysis on the efficacy of theophylline in preventing impaired renal function in such neonates. **METHODS:** A systematic search was performed through following electronic databases: PubMed, ScienceDirect, Cochrane Library and Wiley Online Library from their respective inception until February 2012. The bibliography of the retrieved studies was also reviewed. The searching keywords included: theophylline, asphyxia, renal dysfunction, kidney dysfunction, renal failure, neonate, newborn and randomized controlled trial. The inclusion criteria for study selection were: 1) being a randomized controlled trial (RCT); 2) evaluating the effects of theophylline on kidney function in neonates with perinatal asphyxia; and 3) reporting on serum creatinine (SCr) or glomerular filtration rate (GFR); and 4) being published in English. Study quality was assessed by the Jadad scale. Results were pooled using inverse variance-weighted method. Data were analyzed using Review Manager (RevMan) version 5.1.4. **RESULTS:** Altogether five RCTs met the criteria. All studies investigated the effect on SCr while only three of them reported the effect on GFR. The total numbers of patients included in the evaluation of effect on SCr and GFR were 247 and 127, respectively. Theophylline was found to significantly

reduce SCr, with the pooled mean difference in SCr being -0.32 mg/dL (95%CI: -0.52 to -0.13 mg/dL,  $p=0.001$ ). Likewise, it was found to significantly increase GFR, with the pooled mean difference in GFR being 10.20 ml/min (95%CI: 4.80 to 15.59 ml/min,  $p=0.0002$ ). **CONCLUSIONS:** This study suggests beneficial effects of prophylactic theophylline on reducing kidney dysfunction in neonates with asphyxia. Due to the small number of studies included in the analysis, however, a future meta-analysis including more RCTs is warranted to verify these findings.

##### PRS4

#### EVIDENCE SYNTHESIS OF ASSOCIATION OF HLA-B\*1502 ALLELE AND CARBAMAZEPINE -INDUCED STEVENS JOHNSON SYNDROME AND TOXIC EPIDERMAL NECROLYSIS: A SYSTEMATIC REVIEW

Tangamornsuksan W<sup>1</sup>, Chaiyakunapruk N<sup>2</sup>, Somkrua R<sup>3</sup>, Lohitnavy M<sup>4</sup>, Tassaneeyakul W<sup>5</sup>

<sup>1</sup>Center of Pharmaceutical Outcomes Research, Muang, Phitsanulok, Thailand, <sup>2</sup>Center of Pharmaceutical Outcomes Research, Muang, Phitsanulok, Thailand, <sup>3</sup>Kasemrad Sriburin Hospital, Muang, Chiangrai, Thailand, <sup>4</sup>Center of Excellence for Environmental Health & Toxicology, Muang, Phitsanulok, Thailand, <sup>5</sup>Research and Diagnostic Center for Emerging Infectious Diseases, Muang, Khon Kaen, Thailand

**OBJECTIVES:** Despite some studies suggesting a possible association between human leukocyte antigen (HLA), HLA-B\*1502 and carbamazepine induced Stevens - Johnson syndrome (SJS) and Toxic Epidermal Necrolysis (TEN), the evidence of association and its magnitude remain inconclusive. This study aims to systematically review and quantitatively synthesize the association between HLA-B\*1502 allele and carbamazepine -induced SJS/TEN. **METHODS:** A comprehensive search was performed in databases including Pubmed, Embase, CINAHL (Cumulative Index to Nursing and Allied Health Literature), IPA (International Pharmaceutical Abstract), HuGENet (Human Genome Epidemiology Network), Cochrane library and reference lists of studies, without language restriction. Databases were searched from their inception to July 2011. All studies were extracted by two independent authors. The primary analysis was the carrier frequency of HLA-B\*1502 comparison between carbamazepine -induced SJS/TEN case and carbamazepine tolerant control. The summary odds ratios were calculated using a random-effects model. **RESULTS:** From 349 articles identified, 13 studies were included; 8 studies with 150 SJS/TEN cases and 498 matched-controls (carbamazepine tolerant control) and 5 studies with 45 SJS/TEN cases and 2,464 population-controls (general population). We found a statistically significant association between HLA-B\*1502 allele in both groups of studies with matched-control (odds ratio (OR) = 124.18, 95% confidence interval (CI) = 47.48 - 324.77) and population-control (OR = 66.42, 95% CI = 9.20-480.04). Subgroup analysis in matched-control studies according to ethnicity yielded similar and significant findings (Han-Chinese odds ratio (OR) = 236.24, 95% confidence interval (CI) = 71.72 - 778.11; Thai odds ratio (OR) = 54.43, 95% confidence interval (CI) = 16.28 - 181.96). **CONCLUSIONS:** We found a strong and significant association between HLA-B\*1502 and carbamazepine -induced SJS/TEN. Therefore, HLA-B\*1502 allele screening should be considered in population with high risk of SJS/TEN.

#### RESPIRATORY-RELATED DISORDERS - Cost Studies

##### PRS5

#### COST ANALYSIS OF CHILDHOOD ASTHMA IN IRAN: A COST EVALUATION BASED ON REFERRAL CENTER DATA FOR ASTHMA & ALLERGIES

Rezvanfar MA<sup>1</sup>, Kebriaeezadeh A<sup>2</sup>, Moeini M<sup>3</sup>, Nikfar S<sup>4</sup>, Gharibnaseri Z<sup>3</sup>, Abdollahi-Ah A<sup>3</sup>

<sup>1</sup>TUMS, tehran, Iran, <sup>2</sup>Tehran University of Medical Sciences, Tehran, Iran, <sup>3</sup>TUMS, Tehran, Iran, <sup>4</sup>Tehran University of Medical Sciences, Tehran, Tehran, Iran

**OBJECTIVES:** Asthma as the most common chronic disease in childhood reduces the quality of life of children and their families. We aimed to estimate the cost of managing childhood asthma in Iran and to examine its variability depending on asthma severity. **METHODS:** The cost of asthma was estimated by building a cost assessment model regarding the factors that influence the cost of asthma in children including: age and sex distribution, prevalence of disease severity, level of resource utilization depending on disease severity (3 groups of controlled, partly controlled and uncontrolled were defined). The model was comprised of both medical (cost of medication, physician visit and respiratory tests) and nonmedical costs (transportation and hoteling). Furthermore the average family income in each category was figured and the share of asthma managing costs from the average income was calculated in different groups. **RESULTS:** According to the model, the total cost of childhood asthma in Iran was around 468 million dollars. Moreover, direct medical cost represented 45% of the total costs, among which 66% accounting for medication cost. Direct nonmedical costs, was estimated 55% with the majority (93%) expended on transportation. Additionally, the mean annual cost per child was approximately 541 dollars. In addition the results indicate the vast majority of patients (46%) are categorized in the uncontrolled group. **CONCLUSIONS:** The cost of childhood asthma in Iran is extremely high comparing to the average income of Iranian families in all categories of asthma severity. Considering the high amount of transportation cost, the accessibility of asthma treatment does not appear to be acceptable. The major source of costs is considered with the health care system expenditures that does not necessarily result in a well-controlled disease status.

#### RESPIRATORY-RELATED DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

##### PRS6

#### SELF-REPORTED ADHERENCE TO INHALED CORTICOSTEROIDS AND BELIEFS ABOUT MEDICINES IN ASTHMA PATIENTS: A STUDY FROM EMERGENCY ROOM OF A CHEST HOSPITAL IN DELHI, INDIA