**PH13**

**DETERMINATION OF COMMUNITY PHARMACY’S DISPENSING COST IN MALAYSIA**

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**OBJECTIVES:** The main objective of this research is to determine the dispensing cost in community pharmacy and to evaluate the factors that affect the costs. METHODS: This was a cross sectional study on the community pharmacist in Penang Island. Community pharmacy was used whereby 10 community pharmacies in Penang area were selected. A 17 items self administered questionnaire was developed consisting of questions on the type of pharmacy license, pharmacist salary, non pharmacist salary, pharmacy’s area size, dispensing area size, overhead and capital resources in each pharmacy. Dispensing prescription were calculated and Kruskal Wallis test was used to compare the dispensing cost with the type of pharmacy license, postcode, weekly trading hour and availability of pharmacist personal office. RESULTS: The study found that dispensing cost in a community pharmacy is MYR 3.9 (SD = 0.08) per minute. A standard prescription with less than 5 medicines usually takes 10 minutes of dispensing time and this would cost about MYR 39.1 (SD = 0.80). The pharmacist’s salary contributes the highest percentage for the pharmacy dispensing cost which was 38.06% followed by rent (24.92%) and non pharmacist staff’s salary (23.25%). CONCLUSIONS: This study has estimated that the dispensing cost in a community pharmacy for a standard prescription to cost about MYR 3.91 (US$1.18). The major cost drivers in the pharmacy dispensing cost are pharmacist salary, and rent. This study would provide empirical basis for a proper reimbursement structure for pharmacy dispensing service in Malaysia.

**PH16**

**ASSISTED REPRODUCTIVE TECHNOLOGIES: A HEALTH TECHNOLOGY ASSESSMENT PERSPECTIVE**

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**OBJECTIVES:** Internationally, public funding for assisted reproductive technologies (ART) faces constant scrutiny; however the arguments employed—both for and against—rarely consider the procedures from a health technology assessment (HTA) perspective. This project sought to evaluate the impact of female age, male age and cycle rank on the safety, effectiveness and cost-effectiveness of ART through systematic reviews. METHODS: Using an a priori protocol, six databases were searched for relevant primary studies and existing HTAs. After meeting the inclusion criteria, studies underwent appropriate quality assessment and standardized data extraction. RESULTS: The review is currently ongoing. The majority of the 70 included studies consider the impact of female age on the success of treatment; there are little data investigating the contribution of male age or cycle rank to treatment outcome. There are substantial flaws in the evidence base that challenge the application of established HTA methods to ART. There is considerable heterogeneity in the evidence base, and the policy- and patient-relevant outcome of live birth is not well reported, with many studies presenting pregnancy (variously defined) as the primary outcome. Many studies fail to account for inherent sources of confounding within their patient populations, thus rendering outcome estimates unreliable. Despite broadening the scope of the review to include national registry data, there remain key questions that cannot be confidently answered with the existing evidence base. The final findings of the review will be discussed, alongside their implications for policy-making and public funding in this area. CONCLUSIONS: Thirty years of clinical practice in ART has created a disparate evidence base that cannot support the application of an evidence-based assessment (HTA) framework. ART exemplifies the contextual nature of HTA and the challenge to researchers and policy makers in generalizing the evidence from which to localize the decision.

**PH37**

**RELATIONSHIP BETWEEN HEALTH-CARE PROFESSIONALS ND POPULATION HEALTH STATUS: DO NUMBERS COUNT?**

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**OBJECTIVES:** This study aims to assess the relationship between the quantity of health-care providers, a country income and the health status of population. METHODS: This was a cross sectional study on the data collected from World Health Organization (WHO) and World Bank database. Only data from 78 countries between the years 2003–2008 were selected among the 194 listed countries as they provide the most complete data for analysis. Relationship between health-care professionals, country’s income and country contributions to neonatal mortality rate, infant mortality rate, adult mortality rate, health life expectancy and life expectancy were assessed using Spearman correlation analysis in SPSS v15. RESULTS: Most of the countries included can be categorized as low income (n = 36), 23 as middle income countries and 11 as high income countries. Health-care professionals were found to be unrelated with the infant mortality rate of the population except for moderate correlation between environment and public health workers (r = -0.31; P < 0.05). The number of dentistry personnel was moderately correlated with infant mortality rate, healthy life expectancy at the birth of both sexes with P = 0.001 and adult mortality rate with P = 0.02. Country income was however found to have a strong correlation (r = -0.52 to -0.63; P < 0.05) with all assessed health status indicator. CONCLUSIONS: The number of health-care professionals may not play a role as significant as a country income for the population overall health.

**PH18**

**EVALUATING THE HEALTH TECHNOLOGY ASSESSMENT PROGRAM IN THAILAND**

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**OBJECTIVES AND METHODS:** The review aimed to assess the appropriateness and performance of the newly established HTA agency in Thailand. The Health Intervention and Technology Assessment Program (HTAP), a research institute under Thailand’s Ministry of Public Health, was formally established in January 2007. It was responsible for appraising a wide range of health interventions. During November 2008 to March 2009, HTAP vision and mission, as well as the program output were evaluated by domestic and international experts with logistic assistance from HTAP staff. Document reviews, in-depth interviews with key informants, and focus group discussion were employed as evaluation methods. RESULTS AND CONCLUSIONS: The study found that HTAP has been both effective and efficient in building up HTA capacity and delivering related researches to inform policy decisions in Thailand. A key success of HTAP influencing policy decisions was that HTAP developed four interlink strategies, namely 1) establishing national standards and a body of knowledge for HTA in the country; 2) building up researchers’ competence and organizational capacity; 3) conducting comprehensive HTA studies using the standard methodological guidelines and tools developed within the first strategy; and 4) developing HTA systems and mechanisms which are effective, transparent, and acceptable to stakeholders. It could reasonably be argued that these interlink strategies were promising as a means of fillings the major gaps e.g., lack of research capacity and infrastructures for HTA, lack of knowledge (understanding of HTA and mistrust of methods among potential users, lack of timely and good quality of evidence). However these similar problems were also identified in other resource-poor settings, experiences and lessons learnt from HTAP development are likely to be useful for other low and middle income countries interested in setting up HTA agencies.

**INFECTION – Clinical Outcomes Studies**

**PIN1**

**SURGICAL SITE INFECTION IN CHINA: A SYSTEMATIC REVIEW OF THE INCIDENCE AND ECONOMIC BURDEN**

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**OBJECTIVES:** To conduct a systematic review of literature on the epidemiological and economic burden of surgical site infection (SSI) in China. METHODS: A literature search of the EMBASE and Medline databases was conducted. The search was limited to 1995–2010 to ensure the pertinence of the data. Relevant studies were identified using pre-defined inclusion criteria (i.e., reports the rate, risk factors, cost of SSI, conducted in a hospital setting, not an intervention study). Data on the prevalence, incidence, risk factors and cost of SSI were extracted. Searches to identify epidemiological and economic studies were conducted separately. RESULTS: The literature search identified six publications, comprising three studies conducted in Beijing (N = 2126), and two in Guangdong (N = 13,795). The incidence of SSI varied with surgical procedure. High incidence rates of SSI were reported for laryngectomy (21.1%), general surgery (18.8%), thoracic surgery (13.9%) and bone surgery (11.2%), while the rates for pancreas surgery (7.1%), neurosurgery (3%) and caesarean section (0.7%) appeared lower. The included studies found that risk factors such as wound classification, BMI and use of antibiotics significantly increased the risk of SSI. SSI was associated with a significant increase in neoplasm recurrence following laryngectomy (35% vs. 5.3%, P = 0.001), and extended postoperative hospital stay by an average of 33.6 days. The additional cost experienced by patients who developed a SSI was estimated at RMB 17,332/patient. CONCLUSIONS: SSI has the potential to represent a substantial burden on the health-care system in China, mainly attributable to the extended length of stay in hospital and additional cost of treatment required. Interventions aimed at reducing SSI would provide cost-savings to the health-care system and improve its efficiency.

**PIN2**

**SURGICAL SITE INFECTION IN INDIA: A SYSTEMATIC REVIEW OF THE INCIDENCE AND ECONOMIC BURDEN**

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**OBJECTIVES:** To conduct a systematic review of literature on the epidemiological and economic burden of surgical site infection (SSI) in India. METHODS: A literature search of the EMBASE and Medline databases was conducted. The search was limited to 1995–2010 to ensure the pertinence of the data. Relevant studies were identified using pre-defined inclusion criteria (i.e., reports the rate, risk factors, cost of SSI, conducted in a hospital setting, not an intervention study). Data on the prevalence, incidence, risk factors and cost of SSI were extracted. Searches to identify epidemiological and economic studies were conducted separately. RESULTS: The literature search identified six publications, comprising three studies conducted in Beijing (N = 2126), and two in Guangdong (N = 13,795). The incidence of SSI varied with surgical procedure. High incidence rates of SSI were reported for laryngectomy (21.1%), general surgery (18.8%), thoracic surgery (13.9%) and bone surgery (11.2%), while the rates for pancreas surgery (7.1%), neurosurgery (3%) and caesarean section (0.7%) appeared lower. The included studies found that risk factors such as wound classification, BMI and use of antibiotics significantly increased the risk of SSI. SSI was associated with a significant increase in neoplasm recurrence following laryngectomy (35% vs. 5.3%, P = 0.001), and extended postoperative hospital stay by an average of 33.6 days. The additional cost experienced by patients who developed a SSI was estimated at RMB 17,332/patient. CONCLUSIONS: SSI has the potential to represent a substantial burden on the health-care system in India, mainly attributable to the extended length of stay in hospital and additional cost of treatment required. Interventions aimed at reducing SSI would provide cost-savings to the health-care system and improve its efficiency.
approximately 10%. The rates of SSI varied depending on the surveillance period, data collection method, and surgical procedure. The incidence of SSI was high for cardiovascular (5–18%) and gastrointestinal (6–16%) surgery. The rates of SSI appeared lower for neurosurgery (0.8–2.5%), although those studies only considered SSI cases before discharge from hospital. Diabetes and obesity were found to increase the risk of SSI by over 70%. Other significant risk factors identified include surgery duration and wound classification. The most common pathogens in SSIs were Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli. SSIs were found to extend hospital stay by 5–18 days and increase treatment cost by 4–30%. The estimated cost of hospitalization was significantly higher in patients with SSI compared to patients without SSI ($29,000 vs. 16,000 rupees, P < 0.001). CONCLUSIONS: In India, where an estimated 72% of health-care expense is out-of-pocket, the additional cost of treating SSI (treatment, loss of ability to work) represents a significant burden to patients and their families. The increase in hospital stay also lays additional burden to an already resource-constrained health-care system. Interventions aimed at reducing SSI would provide cost-savings and improve the efficiency of the health-care system.

SURGICAL SITE INFECTION IN AUSTRALIA: A SYSTEMATIC REVIEW OF THE INCIDENCE AND ECONOMIC BURDEN

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OBJECTIVES: To conduct a systematic review of literature on the epidemiological and economic burden of surgical site infection (SSI) in Australia. METHODS: A literature search of the EMBASE and Medline databases was conducted. The search was limited to 1995–2010 to ensure the pertinence of the data. Searches to identify epidemiological and economic studies were conducted separately. Relevant studies were identified using pre-defined criteria (i.e., reports the rate, risk factors, cost of SSI; conducted in a hospital setting; not an intervention study). RESULTS: Thirty-five studies were included in this review. Differences in study design (surveillance period, data collection method, surgical procedure) made it difficult to synthesise data to derive a single estimate of SSI in Australia. The overall incidence of SSI in Australia is approximately 5–10%. However, the rate of SSI varied across different procedures: higher rates were seen following gastrointestinal (~11%) and cardiovascular (6–13%) surgery, while the rates for orthopedic (4.7–8%) and gynaecological surgery (2.3–10%) appeared lower. Risk factors identified include diabetes and obesity, which increased the risk of SSI by 1–10%. The National Nosocomial Infections Surveillance System (NNIS) risk index was positively correlated with the risk of developing an SSI. The most common organisms identified in SSIs were Staphylococcus aureus and Pseudomonas aeruginosa. The hospitalization cost attributable to SSI is estimated at approximately AUD$44 million annually. With a large proportion of SSIs occurring after discharge from hospital, the incidence of SSI is likely underestimated. Post-discharge SSI, in turn, increases the burden to community health services. Indirect costs, such as loss of productivity, further add to the economic burden of SSI. CONCLUSIONS: The incidence and cost estimates demonstrate that SSI represents a significant burden to the Australian health-care system. Interventions aimed at reducing SSI would provide cost-savings and improve the efficiency of the health-care system.

ANTIFUNGAL TREATMENT FOR INVASIVE CANDIDIASIS: SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: This study aimed to compare the effects of different antifungal therapies for invasive candidiasis. METHODS: Literature searches through MEDLINE, and the Cochrane Database were performed with the following search terms: names of specific antifungal agents, candidiasis and candidemia, from inception to December 2009. We included all randomized controlled trials (RCT), observational studies, cohort studies and review articles that compared different antifungal agents for the treatment of invasive candidiasis and other form of candidiasis. Then we performed a meta-analysis with extracted RCTs. The primary outcome was treatment success and the secondary outcome was all-cause mortality. Relative risks (RRs) with 95% confidence intervals (CIs) were pooled. RESULTS: Through systematic review (SR), a total number of nine RCTs, four SR and meta-analysis, one observational study was extracted. Meta-analysis included nine RCTs enrolling a total of 1527 patients. For primary analysis of treatment success, we pooled 5 trials comparing fluconazole to amphotericin B, Relative Risk (RR) 0.92 (95% CI, 0.81–1.03). We also pooled two trials of amphotericin B versus echinocandins and yielded a RR of 1.00 (95% CI, 0.90–1.10). One study compared anidulafungin to fluconazole resulting in a RR of 1.26 (95% CI, 1.06–1.51) in favor of anidulafungin. For all-cause mortality analysis, five trials assessing fluconazole to amphotericin B were pooled and yielded a RR of 0.84 (95% CI, 0.64–1.12). The pooled RR of two trials comparing amphotericin B to echinocandins was 0.95 (95% CI, 0.73–1.23). Anidulafungin versus fluconazole resulted in a RR of 0.73 (95% CI, 0.48–1.10). CONCLUSIONS: All assessed antifungal agents showed similar efficacy on treatment success and all-cause mortality, but anidulafungin revealed the significant high rate of treatment success compared to fluconazole.

CLINICAL EFFECTIVENESS OF THE SEASONAL INFLUENZA VACCINE IN HEALTHY INDIAN CHILDREN

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OBJECTIVES: To evaluate the clinical effectiveness of the 2009–2010 seasonal influenza vaccine in preventing Influenza-like illness (ILI) in healthy Indian children of age 6 months to 18 years. METHODS: A prospective observational cohort study was carried out from September, 2009 to February, 2010, at a private outpatient pediatric setting in New Delhi, India. All the enrolled children were followed monthly through telephonic interview of their parents for development of ILI. The visits to physician for an acute respiratory tract infection (ARI) were also recorded. ILI was defined as per ICD-10. Children having one shot and two shots of influenza vaccine were defined as partially vaccinated and fully vaccinated, respectively. Multiple logistic regressions was used to calculate the association between vaccination status and ILI. RESULTS: A total of 294 children, vaccinated cohort (N = 153) and unvaccinated cohort (N = 141) were enrolled in the study. There was a statistically significant reduction in ILI (OR 0.57 [0.33–0.99], P < 0.05) and visits to physician for ARI (OR 0.42 [0.22–0.79]),