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COST ANALYSIS OF HOME-BASED MEDICATION REVIEWS IN A MULTI-ETHNIC ASIAN POPULATION: A PILOT STUDY

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OBJECTIVES: To evaluate the feasibility and cost of conducting home-based medication reviews (HBMR) among community-dwelling multi-ethnic Singaporeans and permanent residents. **METHODS:** In this cross-sectional study, Chinese, Malay and Indian aged 40 and over and on at least 5 medications were referred by their general practitioners (GPs) for HBMR. Patients completed a survey on sociodemographic and clinical information. Pharmacists' time spent on HBMR and preparing visit reports were captured and assigned a cost based on pharmacists' average hourly wages. Drug related problems (DRP) were evaluated using the Westerlund DRP classification system, reported to and followed up with the GPs. **RESULTS:** Of 14 participants referred, 9 consented (64.3%; 6 women; 6 Chinese, 2 Malays, 1 Indian; mean (SD, range) age: 69.3 (10.6, 52 – 86 years). Seven out of the 9 patient were under the care of at least two physicians. Dyslipidemia, hypertension and diabetes are the main condition affecting the participants (100%, 88.9%, 66.7%, respectively). A total of 12 DRP were detected: underuse of medication (n=7, of which 2 were due to non-compliance), overuse of medication (n=1), incorrect timing (n=2) and therapy failure (n=2). Pharmacists spent an average 3.5 hours per home visit. Total programme cost was $787.5 (9 visits x $25/hr x 3.5hr/ visit). Hence, cost per DRP detected was estimated at $65.63. One of the DRP detected was vertigo without treatment. Hence, programme cost may be potentially offset by the savings from avoiding an episode of hospitalization due to fall. **CONCLUSIONS:** DRP is prevalent and potentially preventable but were undetected in this primary care sample. Hence, there is a role for HBMR. We are currently conducting a longitudinal randomized controlled trial to evaluate the cost-effectiveness of providing and not providing HBMR by collecting direct and indirect costs, health services utilization and health-related quality of life outcomes at baseline and 6-months.

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FACTORS MAY INFLUENCE PATTERN OF MEDICINE'S USE

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OBJECTIVES: Pharmacists have a remarkable role in rational use of drug by presentation of drug information as patient educator, explanation, assessment and performance of drug orders, contribution in drug selection and utilization as physician consultant, drug utilization review and participation in patient outcomes in ambulatory settings.The aim of this study is to evaluate pharmacists' opinion about the factors affecting rational drug use. **METHODS:** In a cross sectional survey, questionnaires of the study were completed in Convenient Sampling by pharmacists who had been attended in rational use of drug congress in Tehran. **RESULTS:** A total of 147 pharmacists were enrolled to the study and the highest priorities in irrational use of drug by pharmacists were revealed including 39% lack of appropriate cooperation and communication between physicians and pharmacists, 34% pharmacists' low tariff and economic issues, 45% lack of public knowledge about drug use and 15.8% lack of regulations. **CONCLUSIONS:** Lack of public knowledge and awareness about appropriate use of medicines was found the most important factor in promoting irrationality in drug use. Dissemination of rational use of drug ideas, compiling of diverse strategies in education, management, regulation and finance can be very efficient due to a strong relationship between drug policies and performance of regulations and supervisions as well as drug services methods.

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A 3-YEAR FOLLOW-UP STUDY ON NATIONAL HEALTH INSURANCE REIMBURSEMENTS AMONG ATRIAL FIBRILLATION PATIENTS WITH/WITHOUT STROKE IN TAIWAN: A POPULATION-BASED STUDY

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OBJECTIVES: To evaluate the 3-year National Health Insurance reimbursements among atrial fibrillation (AF) patients with and without stroke in one year in Taiwan. **METHODS:** The data were retrieved from the Taiwan Longitudinal Health Insurance Database, which consists 1,000,000 Taiwanese people's claimed data from 2005 to 2008. The study cohort consisted of 17,427 patients with newly diagnosed AF in 2005 and 537 occurred stroke in 2006. Each patient was individually followed-up for 3 years period from 2006 to 2008. The generalized linear model (GLZM) was used to estimate the health care reimbursements and the risk to hospitalize among AF patients. **RESULTS:** The estimated incidence rate of atrial fibrillation was 1.74% per person year. Besides, among AF patients, the estimated incidence of stroke was 3.08% per person year. After adjusting for age and sex, AF patients with stroke had statistically significant higher outpatient reimbursement (NTD$44, 941 vs 38,078/person-year) and inpatient reimbursement (NTD$ 1,630,222 vs. 960,702/person-year) than AF patients without stroke. Also, the results of GLZM revealed a statistically significant hazard ratio to be hospitalized in AF patients with stroke (HR=1.93; 95% CI=1.73-2.15, p-value<0.001). AF patients with stroke, however, did not have statistically significant difference of annual outpatient visits from AF patients without stroke (33 vs 32 times/person-year). **CONCLUSIONS:** This study demonstrated that AF patients with stroke were found to utilize significantly more national health insurance reimbursements than AF-alone patients and also to be at a significant higher risk of hospitalization during a 3-year follow-up period after diagnosis.

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MAKING MONEY WORK FOR IMPROVEMENT OF PATIENT CARE: SUCCESS AND SHORTCOMINGS OF PAY-FOR-PERFORMANCE PROGRAM IN TAIWAN

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OBJECTIVES: Pay-for-Performance (P4P) program was introduced in Taiwan in 2001 for treatment of breast cancer (BC), diabetes mellitus (DM), tuberculosis (TB), asthma, and cervical cancer. Although P4P is increasingly being implemented, there remains insufficient evidence to support the belief that the P4P incentive design improved the outcomes of care. **METHODS:** Embase® and MEDLINE® were searched from 2001-2012 using the key terms "pay-for-performance" and "P4P" for studies published in English. **RESULTS:** Of the 1413 screened, 14 studies assessing P4P program in Taiwan were identified. Studies assessing P4P in patients with asthma and cervical cancer were not retrieved. The BC-P4P enrolees received better quality care (p=0.001), resulting in better 5-year overall survival (odds ratio [OR]: 5.99; p=0.003) and less recurrence (OR: 2.70; p=0.002) when compared to non-enrolees. The effect was more pronounced in low-volume hospitals (OR: 1.38; [95%CI: 1.08 - 1.77]) and non-medical centres (OR: 1.62; [95%CI: 1.24 - 2.11]). Among TB-P4P enrolees, cure rate within 12 months of treatment significantly increased (OR, 1.338; [95%CI: 1.159 - 1.544]), whereas default rate from treatment significantly decreased (OR, 0.904; [95%CI: 0.702 - 0.973]) compared to non-P4P enrolees. In DM-P4P enrolees, the cost of diabetes-related physician visits was higher (5731 NT$/patient), however, costs of diabetes-related hospitalisations (-5099 NT$/patient) and overall expenditures on health services (-10 543 NT$/patient) were considerably lower compared to non-enrolees. Hospitals in cities with low-income levels were more likely to participate in P4P programs compared to hospitals in high-income level cities (OR: 4.53; [95%CI: 2.87 - 7.16]). The results illustrated that older patients and patients with high co-morbidity/severity were prone to be excluded from P4P programs. **CONCLUSIONS:** Patients enrolled in the P4P program received a better quality of care and demonstrated better outcomes than the non-enrolled patients. However, benefit of P4P can be extended by including older patients and those with higher disease severity and co-morbidities.

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SUBMISSION OF NEW DRUG REIMBURSEMENT AND PRICING APPLICATIONS TO NATIONAL HEALTH INSURANCE (NHI) OF TAIWAN, MEETING OUTCOMES OF THE DRUG BENEFIT COMMITTEE

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OBJECTIVES: The Drug Benefit Committee (DBC) appraises the value of new drug and categorises it as class 1 (substantial improvement), 2A (moderate improvement) or 2B (similar) according to relative treatment effect of new drug compared with the exiting treatment(s), and pricing method link to the category is decided. When DBC considers more information is required the application will be further discussed in extension meeting, and appeal could be entered if the license holder did not agree upon the result. We analyzed the features of new drug applications and corresponding DBC meeting outcomes in 2007 and 2008. **METHODS:** Data were abstracted from the applications and DBC meeting minute. **RESULTS:** There were 82 applications during the study period, 51 were submitted by the multinational companies and 31 by domestic companies; 6 applied for class 1; and 70 were single-compound. By end of 2008, 63 (77%) were reimbursed; for the unreimbursed, 7 were withdrawn by the applicants and 12 were denied by the DBC. 20 new drugs received unconditional recommendation, 43 with conditional coverage. 31 (38%) submissions entered appeals, 22 for price and 9 for reimbursement decision. Appealed successfully in 22 (71%), but double the duration to reach final result. The final reimbursed prices were 81% to 91% of the applied price in class 1, and 55% to 73% in class 2. The feature of company (foreign or domestic) and the ratio of applied to the first DBC decided price had influence on the decision of company to enter an appeal. **CONCLUSIONS:** The reimbursement and price process is evolving continuously. How to justify the value of treatment to the community, scientific sound methods for assessment and appraisal, and transparency of the process and outcomes are the important considerations. The cumulative experience is valuable for future improvement.

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EVIDENCE REQUIREMENTS FOR PRICING AND REIMBURSEMENT DECISION MAKING FOR ORPHAN DRUGS IN ASIA

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OBJECTIVES: Due to high unmet needs and low prevalence, orphan drugs can be approved by regulatory authorities based on evidence demonstrated through single-arm study designs; indeed, randomized studies in rare diseases may not be feasible. As part of a health technology assessment (HTA) evidence package, however, value demonstration through comparison to existing therapies or supportive care is always required. This study aimed to explore the value perceived by reimbursement authorities for an orphan therapy in a single-arm trial evidence package, and to understand any supplementary evidence requirements for value demonstration. **METHODS:** Fourteen experts in HTA, pricing and reimbursement (P&R) decison makers, and influencers in China, South Korea, Taiwan, and Thailand were recruited and interviewed, following a comprehensive discussion guide. The responses were further analysed to identify the key challenges in value demonstration and what clinical and economic evidence the respondents found acceptable in evaluating orphan drugs. **RESULTS:** In all countries, payers valued innovative therapies for rare diseases and were understanding towards limitations

in study design and the availability of evidence for value demonstration. Systematic reviews and retrospective database studies investigating the efficacy and safety of existing therapies or supportive care, which allow for qualitative comparisons against the new therapy, were generally expected by most of the respondents. Cost-effectiveness analysis was required in some of the countries, with the rest expecting only a budget-impact analysis based on local epidemiological data. Findings were similar for therapies for diseases with low prevalence but without orphan drug designation. **CONCLUSIONS:** Unmet needs in rare diseases are high, and effective new therapies are welcomed and valued by payers in these key reimbursed markets in Asia. Decision makers are willing to show a degree of flexibility in their evidence requirements for these kinds of products.

PHP77

PHARMACEUTICAL BENEFIT ADVISORY COMMITTEE ACCEPTABILITY THRESHOLD RESULTS 2005-2011

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OBJECTIVES: To examine the indicators of success in reimbursement application in Australia made by the Pharmaceutical Benefit Advisory Committee (PBAC), and describe the rationale behind it. Of interest is whether or not listing on the Pharmaceutical Benefit Scheme (PBS) is recommended based on the clinical evidence, the cost-effectiveness outcomes, political will, and whether there is clarity in the recommendations made for the subsidisation of drugs on the PBS. This examination is conducted in order to shed light on the basis of decision making and the impact of economic evaluations. **METHODS:** The method used in this analysis was to differentiate the medicines into those that have never been subsidised, those that are currently subsidised and those seeking listing of a new indication. Subsequently the rationales for a positive or negative recommendation for a PBS listing are reviewed and assessed using Public Summary Documents (PSD's). A the least squares linear regression analysis was undertaken in order to determine which variable impacted significantly on the PBAC's recommendation. **RESULTS:** In 2007, following 1 years worth of PSD's, the recommendations made by the PBAC were analysed and presented at the European iHEA. Five years later this paper presents a follow-up to that initial research and explores the recommendations made by the PBAC and the incremental cost-effectiveness ratios (ICER) which have factored into the reimbursement recommendations. Changes in the thresholds are explored and discussed. **CONCLUSIONS:** The PSD documents are now providing researchers with an opportunity to appreciate the decision making process and what influences bare upon a key decision maker, the PBAC. It sets an example of explicit decision making. The question that remains, however, is how transparent are the rules and whether the outcomes confirm the perceived league table.

PHP78

SIMILAR HTA, DIFFERENT ACCESS OUTCOME? COMPARISON OF ORPHAN ONCOLOGY DRUG ASSESSMENT IN SOUTH KOREA, AUSTRALIA AND THE UK

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OBJECTIVES: In general, demonstrating cost-effectiveness for orphan drugs including orphan oncology agents is challenging. Reasons include high incremental cost per QALY and insufficient clinical evidence. Even in an established Health Technology Assessment (HTA) system such as the UK, orphan oncology agents are often rejected as they are not cost-effective. In Asia-Pacific, South Korea and Australia employ a similar HTA system. HTA recommendations between the countries, however, are not always comparable. This research aims to understand the drivers for positive recommendations and implications for improved patient access to oncology treatments. **METHODS:** Review HTA recommendations in UK, Australia and South Korea for sunitinib, dasatinib, lenalidomide, imatinib and rituximab. Compare and contrast prices, level of clinical evidence and reimbursed patient populations in the context of the specific assessment criteria in each country. Identify drivers for positive recommendations. **RESULTS:** Of the selected drugs, more have received positive recommendations in South Korea and Australia than UK. A drug that receives a positive recommendation is usually priced lower in South Korea than Australia or the UK. Between Australia and UK, Australia tends to reimburse at a lower price. The level of clinical evidence has less impact on evaluations in South Korea. In the UK, if NICE recommends an orphan oncology drug, usually a patient access scheme is included. **CONCLUSIONS:** While pricing is not dictated by NICE in the UK, access remains highly regulated. Manufacturers often need to set up patient access schemes in order to prove their orphan oncology drugs cost-effective and optimize patient access. On the other hand, in South Korea, the HTA process is less defined and more driven by minimizing costs. While cost-effectiveness is the main driver for a positive recommendation, formal price negotiation processes in South Korea and Australia lead to access more consistently.

PHP79

REVIEW OF RESEARCH GUIDELINES FOR ECONOMIC EVALUATION PROPOSED BY THE GOVERNMENT AND GOVERNMENT-FUNDED RESEARCH GROUPS IN JAPAN

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OBJECTIVES: In Japan, introduction of economic evaluation of health policy issues such as pricing and reimbursement of drugs and medical devices is gaining attention; several research guidelines have been proposed for the same. We compared the key features of these guidelines and obtained suggestions for future research. **METHODS:** We reviewed literature using the Ichushi database (Japanese medical literature database) and the database on government-funded research reports, and also contacted investigators and experts for related information. **RESULTS:** Four guidelines were identified: Shiragami (2004) and Kamae (2007) groups, funded by the Ministry of Health and Welfare, Japan, proposed two guidelines on pharmaceutical pricing. The task force of the Ministry of Economy, Trade and Industry, Japan (2007) proposed one guideline on medical device policy. The Hirota group (2011), funded by the Ministry of Health and Welfare, Japan, proposed one guideline on vaccination strategy. Although the headings and structures of all guidelines were almost similar, significant differences were identified among them. For example, two guidelines recommended societal perspective, while the other two recommended consumer's perspective. In terms of outcome measures, QALYs were preferred in three guidelines, whereas one recommended "the proportions of patients who achieved target clinical results within 2 years." Trial use was not conducted to verify the feasibility of guidelines, except for the Hirota guideline for vaccination policy. In addition, some recommendations had a serious problem in terms of scientific rationality. **CONCLUSIONS:** There are significant variations in the key features among all four abovementioned guidelines, and even between the two sets of guidelines for pharmaceutical pricing decisions. To use an economic evaluation to aid rational resource allocation, official guidelines should be established with scientific rigor and integrity, and future discussions about feasibility are needed among various representatives from government, academia and industry.

HEALTH CARE USE & POLICY STUDIES - Health Care Research & Education

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EFFECTIVENESS OF MULTIDISCIPLINARY PERSPECTIVE INTERVENTION WITH COMMUNITY INVOLVEMENT IN DECREASING ANTIBIOTIC SALES IN VILLAGE GROCERIES IN THAILAND

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OBJECTIVES: To evaluate a Multidisciplinary Perspectives Intervention with Community Involvement (MPI&CI) which was implemented to reduce antibiotics sales in village groceries which were illegal based on Thai Drug Act (1967). **METHODS:** MPI&CI was developed based on information obtained from focus groups that included multidisciplinary stakeholders. The intervention consisted of 1) communication about antibiotic knowledge; 2) investigation of availability of antibiotics in groceries; and 3) informing grocery owners when antibiotics were found for sale in their groceries. Community leaders in the intervention group were trained in a one-day workshop to implement MPI&CI in their villages. A quasi-experiment with pretest posttest measurement was conducted to assess the effect of MPI&CI. Data were collected from 20 villages in one district in Mahasarakham Province (intervention group), and in another 20 villages in a different district in the same province (comparison group). A generalized linear mixed model poisson regression with repeated measures was used to evaluate the effectiveness of MPI&CI. **RESULTS:** The results indicated that the intervention was effective at reducing the number of antibiotics available for sale in groceries. Groceries in the intervention group had 87% fewer antibiotics available at post-intervention compared with pre-intervention (relative rate 0.13, 95% CI 0.07, 0.23), while the control group had only an 8% reduction in antibiotic availability (relative rate 0.92, 95% CI 0.88, 0.97) between the two time periods. **CONCLUSIONS:** This study suggested that community involvement during development and implementation of the intervention is an effective approach for reducing antibiotics sales in village groceries in Thailand. Further study should be developed to assess the sustainability and long-term effectiveness of MPI&CI.

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FACTORS INFLUENCING INTERPROFESSIONAL COLLABORATION: A LITERATURE REVIEW FROM 2004-2011

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OBJECTIVES: Interprofessional collaboration and team-based care have been regarded as important approaches to improve health care. Factors enhancing and prohibiting interprofessional collaboration in practice settings, however, are not fully understood. This study provides an updated literature review on factors influencing interprofessional collaboration from 2004-2011. **METHODS:** Databases including ABI/INFORM Global, CINAHL Plus, MEDLINE, PsycINFO, Sociological Abstracts, and ProQuest Dissertations & Theses were searched using keywords such as collaboration, team, interprofessional, interdisciplinary, determinant, and factor; and subject headings such as interprofessional relations (MeSH) and multidisciplinary care team (CINAHL). Only empirical studies conducted in patient care settings examining interprofessional collaboration were retained. Due to the large number of hits, article titles were screened prior to abstract screening and retrieval of full articles. Salient systematic, organizational, and interactional factors identified from the articles were summarized respectively. **RESULTS:** Over 7000 article titles were screened, 680 abstracts were retrieved, and 110 articles were retained. A wide range of qualitative (N=66), quantitative (N=34), and mixed methods (N=10) were used in these studies. The main systematic factors included regulatory and economic incentives, as well as professional culture differences and dominance of medical power. Organizational factors included leadership, physical space, staffing, and team training. Interactional factors, which have been studied the most extensively, included communication, team climate, shared purpose, awareness and respect. Additional factors included complexity of patient cases and team