costs calculation in economic evaluations, measures used to calculate indirect cost, and difficulties while performing indirect costs estimation. Questionnaires were handed out to participants of the 3rd International Symposium Evidence-Based Health Care in Cracow, mailed to the Polish Pharmaceutical Society members and distributed directly to the interviewed pharmacoeconomists, health economists and decision-makers returned completed questionnaires. Mean age of respondents 33.3 ± 7.6 years; mean experience in health economics 4.7 ± 5.2 years; 43% (23/54) of responders had no economic background, 41% (22/53) respondents indicated that indirect cost could not be calculated in pharmacoeconomic studies (strongly agree 58%, agree 40%). Experts pointed out that indirect cost were calculated in only 24% of reports and represented on average 22% of total costs. Twenty three (i.e. 45%) responders indicated human capital approach as the best method to estimate costs from societal perspective. The cost method came second best 11% (6/53); 42% (22/53) responders had no opinion. The doers of economic evaluations pointed to GDP per capita (11/18), average salary (1/18), and costs of sick pay or injury benefit (1/18) as measures which should be used to calculate productivity losses. CONCLUSION: Indirect costs are considered im- portant but seldom executed component of economic evaluations of health care interventions in Poland. The lack of consensus and widely accepted methods for indirect cost evaluation support further research.

ANALYSIS OF TRANSFERABILITY TOOLS FOR COST-EFFECTIVENESS DATA AND COsideration IN KOReA SETTINGs

OBJECTIVES: Through the increase of economic evaluation studies in Korea, the question of transferability from different settings is becoming more and more import- ant. However, there are few factors that may limit the transferability of study results such as variations in the epidemiology, relative pricing and the availability of health care resources. Already published by Welte, Boulenger and Urdahl, transferability tools are useful and easy to check the transferability among countries. This study assessed the transferability with these tools from other settings to Korea settings.

METHODS: With three selected articles conducted in Belgium, Sweden and USA, we evaluated the transferability to Korean settings using 3 methodologies (Welte, Boulenger and Urdahl) and then identified those factors that can be appropriate to adapt in Korea settings. RESULTS: In case of Welte, Belgium and US study showed low correspondence for disease incidence like 0.4% vs. 0.01% in THR. And Sweden study showed different case mix that the average age of TKR patients were higher than THR but Korea case was opposite. According to Boulenger method, the scores for Belgium, Sweden and US studies were 51.5, 51 and 75 respectively. Low scores came from the discount and cost mainly due to insufficient description. With Urdahl method, three studies well expressed for decision maker, but Belgium and Sweden studies did not describe the clinical research enough. The United States study explained in detail for the transition probabilities and modeling but the unit price and resource use were not related to Korea setting directly due to different pricing system. CONCLUSIONS: Through this evaluation, disease incidence, unit cost and resource use showed low transferability in order to transfer to Korea. We could find out that data and methods should be presented in a transparent way to improve transferability.

EVALUATING AN ONLINE INCREMENTAL COST-EFFECTIVENESS CALCULATOR STRUCTURED AS A DECISION ANALYTIC TREE THAT IMPLEMENTS MONTE CARLO SIMULATIONS OF KEY VARIABLES

McGahan WF, Willey VJ, Peterson AM, Marke AA, Patel DD, Ajmera MR, Patel TB

University of the Sciences, Philadelphia, PA, USA

OBJECTIVES: To evaluate an online, freeware, incremental cost-effectiveness calcula- tor that generates and plots results from a decision tree that utilizes Monte Carlo simulations for the variables related to the success probabilities, costs and utilities. METHODS: An online cost-effectiveness calculator and plotter were developed that incorporates a decision tree structure with Monte Carlo simulations to compare two treatments. This decision analysis calculator is available at www.healthstrategy.com, this online tool uses JavaScript algorithms and was based on an MS Excel model description published by Hughes D. His spreadsheet can be downloaded from www. liv.ac.uk/pg/model.xls. For this evaluation, the spreadsheet structure was modified slightly to match the more basic online tool. Log-normal and beta distributions are generated from variable inputs that can be modified in the online web-based software that cover costs, utilities and probability of both success and failure for two treatment alternatives. RESULTS: The online calculator functions on most computer operating systems with JavaScript enabled browsers. The web-based tool creates a scatter plot that generates a cost-effectiveness acceptability curve. Although the min-max range of the cost-function is interpreted as a function of the distribution of prescriptions, price effects can be shown by adjusting the distribution. This is equivalent to shifting pre- scriptions from specific drugs to others within a cluster. To legitimize this new method, the volume component of each sickness fund is normalized to the average level of prescriptions per beneficiary (ATC level 2), considering the fund’s distribution of pre- scriptions in lower ATC levels. The process of clustering starts with substitutable drugs according to the national eco-list. After that these clusters are combined to groups at first ATC level 5 and then ATC level 4. Within these groups the distributions of the funds’ drug use is adjusted to the benchmarked distribution. RESULTS: In case of the clustering process we used various approaches, like the use of the eco-list or substitu- tion of drugs by similar agents, to affect the price component. Moreover, the new method evaluates the prescription behaviour of contract physicians for each fund. CONCLUSIONS: The original method and shows that a savings potential of the calcula- tion on an aggregate level. The new method provides a more detailed, step-by-step analysis and allows to identify—combined with medical quality assurance—possible fields of action.

REAL AND THEORETICAL COST OF ABSENTEEISM IN POLAND

Macioch T, Hermanowski T, Jakubczyk M, Wrona W, Golić D, Niwieda M

Medical University of Warsaw, Warsaw, Poland

OBJECTIVES: Absenteeism costs estimated based on amount of mean sick pay data (provided by Social Insurance Institution—ZUS) were calculated for approximately €2.3 billion in 2007. The aim of this study was to evaluate the difference between absenteeism costs estimated either as mean sick pay or on gross value added in Poland in 2007. METHODS: Sickness absence data were derived from ZUS. Alternatively to ZUS data, absenteeism cost was estimated based on gross value added and structure of employed persons by sectors in sections of national economy derived by Central Statistical Office (GUS). Based on ZUS and GUS data we calculated value of missed day per employed in specific sector of the economy. The analysis was based on an assumption that number of missed days included only working days (252 days per year). Human capital approach was used to estimate the absenteeism costs. Values are presented in Euro and PLN (5.05 PLN = 1 Euro). RESULTS: Absenteeism costs were estimated to amount of €12 billion. Cost of missed days of work due to illness per person employed in mining and quarrying (2062) was more than 5 times higher than cost per person employed in education (380). Mean cost of absenteeism was estimated to amount of €612 per employee. Mean cost of absenteeism based on gross value added was more than 6 times higher than those estimated based on amount of funds spent on sick pay (€154 per employee). CONCLUSIONS: Given that ZUS data on amount of mean sick pay seem to provide reliable absenteeism costs in Poland, it would seemed that either data based on wages are underestimated or some compensative mechanisms exist in economy that limit indirect cost of sickness absence.

DEVELOPMENT OF A SENSITIVE RESOURCE USE QUESTIONNAIRE


Chuv, Lausanne, Switzerland. "Parthéon-Sorbonne (Paris I) University, Paris, France, Lundbeck SAS, Paris, France, Université Victor Segalen (Bordeaux 2), Bordeaux, France. Alcoholism is a chronic disease and the evaluation of its burden usually focuses on long-term co-morbidity and mortality. Clinical Trials evaluating new interventions for alcohol-dependent patients rarely last more than 12 to 24 months. OBJECTIVES: Develop a questionnaire capable of capturing principal resource use yet sensitive enough to show short-term economic benefit of drugs designed to reduce consumption in alcohol-dependent patients. METHODS: Comprehensive Medline literature search using keywords: Alcohol-related disorders, economics, cost of illness. Further, experts panel discussions provided additional data. RESULTS: Two key cost drivers, hospitalisation and sick leave were identified by the literature review. Expert findings related to costs of social consequences were incorporated. These three important resources were included in the questionnaire in addition to standard medical resource use consumption input. Finally, the following items were included: consultation visits, hospitalisations, sick leaves and working situation, living situation, social environ- ment, accidents, arrests and domestic violence. The recall period is 3 months. DISCUS- SION: A great deal of information is collected in this questionnaire in order to capture all relevant resources. Tests to validate the questionnaire in a real-life setting will be conducted (face validity, concurrent validity, and test-retest) in a cohort of dependent

benefit as a basic educational tool for students and health professionals interested in exploring these analytical approaches.
patients initiated at Lausanne University hospital (Switzerland). Items not sensitive enough to capture short-term costs and consequences will be removed. Translation into other major languages and adaptation to different settings after cultural validation is planned. CONCLUSIONS: Publication of this tool should facilitate additional knowledge about resource utilisation at the patient level and enable evaluation of short-term economic impact of pharmaceutical and non-pharmaceutical interventions.

PMC23

UNDERESTIMATION OF UNCERTAINTY IN COST-EFFECTIVENESS ACCEPTABILITY CURVES AND EXPECTED VALUE OF INFORMATION ANALYSES

Müller D, Gandjour A
1Universitätsklinikum rechts der Isar, München, Germany, 2University of British Columbia, Vancouver, BC, Canada, 3Northwestern University, Evanston, IL, USA

This work addresses the problem that common measures of uncertainty of cost-effectiveness, i.e., cost-effectiveness acceptability curves and the expected value of perfect information (EVPI), may be biased by overestimating clinical effectiveness and underestimating uncertainty. Reasons are small randomized controlled trials (RCTs) as the underlying source of effectiveness data and the overoptimistic, albeit implicit, assumption that the prior probability of the null hypothesis being false is 50%. If clinical evidence is based on small RCTs with sensitivity and specificity of 65% and 70%, respectively (LeLorier 1997), the maximum probability of cost-effectiveness decreases to 68%, irrespective of the willingness to pay. If, in addition, a 10% prior probability of effectiveness is assumed (Sterne 2001), the maximum probability of cost-effectiveness drops to 19%. Similarly, the EVPI increases 8-fold if low sensitivity and specificity of small RCTs as well as a 10% prior probability of effectiveness are considered. Therefore, traditional CEACs and EVPI analyses based on small RCTs and an implicit 50% prior probability of the null hypothesis being false should be reassessed.

PMC24

SAMPSON: A HYBRID SIMULATION AND OPTIMIZATION MODEL FOR MANAGING SURGICAL RESOURCES AND REDUCING WAITING TIMES

Walker HD, Anderson MN
Walker Economics, Kingston, ON, Canada

OBJECTIVES: to optimize the selection of surgical patients for treatment in a given time period, subject to the extant resource allocation scenario and constraints on the utilization of those resources. METHODS: Sampson is a software tool that uses a quantitative, goal oriented approach to optimize the utilization of health care resources. Sampson optimization module accepts a surgical waiting list as input value, and selects a set of patients for treatment within a given time period that will keep waiting times below target Maximum Acceptable Waiting (MAW) times, subject to alternative allocation of health care resources. These resources include operating room (OR) time, Special Care Unit (SCU) time, OR nursing time, anesthetist time, surgical cost and aftercare cost. Additional determinants of system performance which are factored into the Sampson patient selection process are changes in staff availability, patient care policies and MAW values by surgical procedure. Evaluation of Sampson’s predictions of system performance under different resource allocation scenarios and policy sets is intended to provide decision support to system managers. Furthermore, the use of the Sampson patient selection set is intended to optimize efficacy within a potentially complex organizational structure, including health regions, hospitals, surgical divisions and surgeons. The surgical waiting list used as an input by the Sampson optimization module may be extracted from a surgical center’s operational data systems, or may be produced by a patient arrivals simulation process. The arrivals simulation is based on the historical arrival pattern and expected future changes to that pattern. RESULTS: An example scenario is presented which compares the predicted outcomes of three different resource allocation options for a two hospital surgical system. CONCLUSIONS: The results have significant implications for policy makers and health service researchers interested in optimization of resource allocation decisions and minimizing the waiting time for surgical treatment.

PMC25

CLINICAL HISTORY, RESOURCE UTILIZATION, AND OTHER PATIENT-REPORTED OUTCOMES (PROS) IN MIGRAINEURS: AN ADAPTABLE WEB-BASED METHODOLOGY FOR THE DESIGN, IMPLEMENTATION, AND CONDUCT OF A MULTI-NATIONAL SURVEY OF PATIENTS

Payne KA, Wilcox TK, Yeomans K, Kawiska AK, Varon SP, Burkh CTT, Lipton RB
Blumenfeld et al
1United BioSource Corporation, Montreal, QC, Canada, 2United BioSource Corporation, Bethesda, MD, USA, 3Allergan Inc., Irvine, CA, USA, 4Carolina Bio Inc., Laguna Beach, CA, USA, 5Albert Einstein College of Medicine, Bronx, NY, USA, 6The Headache Center of Southern California, Del Mar, CA, USA

OBJECTIVES: Migraine is a common and disabling condition. Real-world health care resource utilization and patient reported outcomes data are important for document- ing the burden of illness and are necessary inputs for economic models. An efficient and adaptable methodology for the conduct of international health economic and PRO data gathering is described. METHODS: An IRB approved, web-based, cross-sectional survey of headache sufferers was conducted in 9 countries (US, Canada, Australia, UK, Germany, France, Spain, Italy, Taiwan). Registered panelists received email invitations to their country’s language and provided consent from a web link option; non-migraineurs were excluded on the basis of reported symptoms, and eligible subjects were classified as either chronic (>15 headache days per month), episodic (1–14), or potential migraineurs (migraine-like symptoms). Survey enrollment was rolled out in waves and completed when targeted sample of chronic migraineurs was obtained. Survey outcomes included sociodemographic, headache symptoms, resource utilization, and productivity from HIT-6, MIDAS, MOS, NAVIGATE, and pre-programmed to enhance data quality. RESULTS: Of 63,001 survey invitees, 20,987 responded. A total of 9118 completers (14.5%) comprised the final cohort (n = 516 (Australia)—1597 (US); 85.6% female; mean age 41 (±12) years; 499 (3.5%) chronic migraineurs. Mean study period across countries was 12.6 days; results were available within 3–5 days after study completion. The core survey required minimal adaptation for international use beyond translation, permitting both country-specific and pooled analyses. Main challenges included adapting questionnaires to a web-based format and predicting eligibility rates for countries without pre-screened headache survey candidates. Despite inherent limitations of on-line studies, particularly generalizability, the observed proportion of chronic to episodic migraineurs within a headache population was consistent with other published reports using mailed questionnaires. CONCLUSIONS: International, web-based, patient-reported surveys are a method of collecting clinical, resource utilization and PRO data, while minimizing time and cost.

CONCEPTUAL PAPERS & RESEARCH ON METHODS – Databases & Management Methods

PMC26

LINKING PERSON-LEVEL INPATIENT DATA TO LONGITUDINAL RECORDS

Curkendall SM
1Thomson Reuters, Cambridge, MA, USA, 2Thomson Reuters, Washington DC, DC, USA

OBJECTIVES: Link person-level inpatient drug and service utilization data with pre-admission and post-discharge histories, using nationally-representative hospital discharge databases and managed care claims databases. METHODS: Linkages were developed from two de-identified health care databases: 1) discharge summaries and detailed billing data for the complete census of discharges from 171 US hospitals; 2) claims for inpatient services paid to these hospitals by private and public health plans that contribute to the MarketScan commercial Databases. Hospital discharge records were sorted by hospital name, patient year of birth, sex, principal diagnosis, date of admission, and date of discharge, and cases were identified that were uniquely identified by these variables. Paid claims were then searched for matching records with the same combination of the six variables. These were considered to be the same patient, given that each combination of matching variables was unique within the hospital census. To understand how this convenience sample relates to the universe of discharges from US hospitals, linked discharges were compared to the 2006 National Inpatient Sample (NIS). RESULTS: For 2006 there were 77,277 linked discharges. Compared with NIS, more were in Medicare (52% v. 20%) and fewer in Medicare (20% v. 37%) or commercial (29% v. 34%) health plans, reflecting the payer mix of the claims database. They were younger (44 v. 48 years) and more female (67% v. 58%) than NIS. Average length of stay was 4.6 days in both samples. Of the top 10 most frequent DRGs in NIS, accounting for 31% of US discharges, 8 were also in the top 10 of the sample. CONCLUSIONS: Patient-level hospital discharge data can be enhanced by linking it to longitudinal histories from health plan administrative data. Judicious use of this resource for outcomes research requires understanding potential selection biases.

PMC27

IDENTIFYING ECONOMIC EVALUATIONS IN MEDLINE AND EMBASE: HOW WELL DO PUBLISHED SEARCH FILTERS PERFORM?

Glavina I, Kaunelis DP, Mensinkski S
1York Health Economics Consortium Ltd, York, North Yorsh, UK, 2Canadian Agency for Drugs and Technologies in Health, Ottawa, Ontario, Canada

OBJECTIVES: Health care decision makers assessing the cost-effectiveness of health care technologies seek evidence from economic evaluations. As well as searching economic evaluation databases such as NHS EED and HEED, researchers often search MEDLINE and EMBASE, using sets of search terms or search filters whose current performance is unclear. We tested the performance of search filters in identifying economic evaluations from MEDLINE and EMBASE. METHODS: A reference standard set of economic evaluations was identified from NHS EED published in 2000, 2003 and 2006. The MEDLINE and EMBASE records corresponding to those evaluations were retrieved. Search filters were identified from the InterTASC Information Special-ists’ SubGroup website and from Canadian Agency for Drugs and Technologies in Health (CADTH) staff and reviewers. The sensitivity and precision of search filters in retrieving the reference standard records from MEDLINE and EMBASE were tested. RESULTS: A total of 2070 full economic evaluations were identified from NHS EED. Of these 1955 had matching records in Ovid MEDLINE and 1873 had matching records Ovid EMBASE. 13 MEDLINE and 8 EMBASE filters were identified. 3 filters achieved greater than 0.99 sensitivity in MEDLINE and four in EMBASE. Filters demonstrated low precision. CONCLUSIONS: This research provides new perform-ance data on search filters to identify economic evaluations in MEDLINE and EMBASE and indicates which filters may assist dependent on searchers’ priorities. It remains difficult to identify economic evaluations reliably whilst achieving reasonable levels of precision.