

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 pharmacological and non-pharmacological interventions.

PMC23

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

Müller D¹, Gandjour A²

¹Universität Witten/Herdecke, Köln, Germany, ²Louisiana State University, Baton Rouge, LA, USA

This work addresses the problem that common measures of uncertainty of cost-effectiveness, ie, 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. The Sampson optimization module accepts a surgical waiting list as an input value, and selects a set of patients for treatment in 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 efficiency 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 MIGRAINES: AN ADAPTABLE WEB-BASED METHODOLOGY FOR THE DESIGN, IMPLEMENTATION AND CONDUCT OF A MULTI-NATIONAL SURVEY OF PATIENTS

Payne KA¹, Wilcox TK², Yeomans K¹, Kawata AK³, Varon SP³, Burk CT⁴, Lipton RB⁵, Blumenfeld A⁶

¹United BioSource Corporation, Montreal, QC, Canada, ²United BioSource Corporation, Bethesda, MD, USA, ³Allergan Inc., Irvine, CA, USA, ⁴Caroline Burk 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 documenting 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 in 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, disability and productivity from HIT-6, MIDAS, MSQ v2.1. Validation rules were 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)); 83.6% female; mean age 41 (± 12) years; 499 (5.5%) 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

Huse D¹, Curkendall S²

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 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 Research 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 Medicaid (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 linked 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?

Glanville J¹, Kaunelis D², Mensinkai S²

¹York Health Economics Consortium Ltd, York, North Yorks, UK, ²Canadian Agency for Drugs and Technologies in Health, Ottawa, ON, 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 Specialists' 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 performance 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.