health care systems like Austria where out-patient ICD codes are not available the most promising algorithms include illness-related information with special respect to pharmacotherapy data such as ATC (Anatomical-Therapeutic-Chemical) codes. A gold standard for the definition of COPD patients in routine data of statutory health insurance funds is still lacking. Validation studies referring to clinical parameters such as lung function criteria should be encouraged.

PRM66

PROQOLID DATABASE: EVOLUTION OF CONTENT, STRUCTURE, AND FUNCTIONALITIES (2012-2016) - INTEGRATION IN EPROVIDE, A NEW ONLINE PLATFORM DEDICATED TO CLINICAL OUTCOME ASSESSMENT (COA) RESEARCH

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OBJECTIVES: PROQOLID was developed in 2002 to provide researchers involved in health care evaluation with a comprehensive and unique source of information on clinical outcomes assessments (COAs) available on Internet. In 2012, a review of the database (Emery et al. Qual Life Res. 2012;21:55) revealed considerable improvements. The objective of this study is to review the evolution of content, structure, and functionalities of PROQOLID since 2012. **METHODS:** The archives of PROQOLID were searched to retrieve the information gathered in 2012 and to compare its content and structure of May 25 2016. **RESULTS:** The April 2012 database included 714 instruments (100 generic/614 specific). Instruments specific to nervous system diseases were the most frequent (141). The structure had eight categories: contact, conditions of uses, copy of the questionnaire, translations available, descriptive information, content validity documentation, measurement properties, and references. By comparison, the May 2016 database includes 1243 instruments (74% increase with 152 generic and 1091 specific), with an increase of almost 130 instruments each year. Instruments specific to nervous system diseases are still the most frequent (n=221). In terms of structure, changes have been paramount. The information displayed for each instrument is categorized into 16 categories (seven in the free access level and nine in the member access level). Users have also access to all instruments distributed by Mapi Research Trust with the addition of online distribution services for academics. Since March 1 2016, PROQOLID has been integrated in an online platform, ePROVIDE™, which allows cross-searches with other databases such as PROLABELS and PROINSIGHT. The migration process has involved new designs and new connection and subscription modes. **CONCLUSIONS:** In four years, the PROQOLID database has considerably evolved in content and structure. The migration to ePROVIDE™ offers a range of information and services adapted to the evolution of the COA field.

PRM67

MEASURES TAKEN BY THE ROMANIAN MINISTRY OF HEALTH FOR BETTER ACCESS TO ANTI-EGFR DRUGS

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OBJECTIVES: This analysis was design to explore the measures of Romanian Ministry of Health for better access to anti-EGFR in Romania, also regarding their availability in clinical practice. It has been shown that EGFR expression may be reduced at the time of tumor progression when compared to newly diagnosed, untreated disease. **METHODS:** We analyzed the reimbursement lists from 01.01.2015, 01.07.2015, 01.10.2015, 01.11.2015, 01.12.2015 and 01.01.2016. The data was acquiered from the National Healthcare Information system. All anti-EGFR drugs were evaluated, and their prices were compared between the six lists using descriptive analysis. **RESULTS:** The anti-EGFR drugs from the 01.01.2015 were bevacizumab, cetuximab, dasatinib, erlotinib, imatinib, nilotinib, rituximab, ruxolitinib, sorafenib, sunitinib and trastuzumab (from 11 pharmaceutical companies). The manufacturers didn't prefer a flat pricing model (same price for different dosages). Pharmaceutical costs were reduced with percentages from 7% to 29% on the reimbursement list from 01.07.2015. The smallest decreased price was for erlotinib 100mg and the biggest was for dasatinib 20mg. The use of cost-volume/cost-volume-outcome agreements for 2 new anti-EGFRs has involved their pharmaceutical companies bearing some of the costs of reimbursement. It's the case of crizotinib and dabrafenib that were included in the reimbursement list from 01.11.2015. The process of assessing new anti-EGFR for conditional inclusion in the reimbursement list has been started with three INNs: afatinib (350 eligible patients), axitinib (400 eligible patients) and lapatinib (500 eligible patients). **CONCLUSIONS:** Although these measures are a disappointing outcome for the pharmaceutical industry, the inclusion of new anti-EGFRs into Romania's reimbursement system ensures a better access (or not because of the parallel trading) for patients with the latest medical findings, while keeping the expenses within the economic situation.

PRM68

MARKOV MODELS FOR HEALTH ECONOMIC EVALUATION MODELLING IN R WITH THE HEEMOD PACKAGE

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OBJECTIVES: Most Markov models are built using basic spreadsheet software, which has drawbacks: analyses are hard to reproduce and lack of transparency, errors are difficult to spot, track and correct, and graphic capabilities are lacking. The R language can overcome these issues through script-based approaches, but programming models is not a simple matter, which has limited its use in this field. Our main objective was to develop a free and open-source R package for Markov models focused on reproducibility and ease of use. **METHODS:** We developed an R package to compute the models described in the reference textbook "Decision Modelling for Health Economic Evaluation" by Briggs et al. We aimed to facilitate easy and transparent model writing that ensured security and reproducibility. To facilitate model building, a graphical user interface was developed, allowing output of model scripts for peer review. **RESULTS:** The finalized package, heemod, and the graphical user interface were made available for free on CRAN, the public and open-source R package repository. We reproduced in a concise and readable format all the results of the analyses described in "Decision Modelling for Health Economic Evaluation", such as homogeneous and non-homogeneous (with time-varying properties) Markov models, as well as sensitivity and probabilistic uncertainty analysis (where it is possible to specify arbitrary distributions and correlation structures between parameters). **CONCLUSIONS:** This work shows that it is possible to develop complex Markov models easily in the R language without sacrificing transparency, reproducibility or mathematical exactitude. The free and open-source license facilitates code review and improvement of the package by third-party experts. We hope the availability of this package will facilitate the use of script-based approaches to health evaluation modelling and help improve the overall quality and reproducibility of studies in this domain.

PRM69

DEVELOPMENT OF A SEARCH ENGINE FOR THE MEDLINE DATABASE WITH SEARCH RESULTS RANKING FROM THE PERSPECTIVE OF EVIDENCE-BASED MEDICINE

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OBJECTIVES: Medical research quality and reliability level assessment presents a serious problem. The object of this study is the documents containing article abstracts from the MEDLINE database. The aim is to develop a new algorithm for ranking medical research, based on evidence levels. **METHODS:** The method was developed for automatic markup of abstract training set by evidence levels and subtypes of medical interventions. On the basis of Synthetic Minority Over-sampling Technique and Latent Dirichlet Allocation method the problem associated with unbalanced training set was solved. For further classification by evidence levels, such algorithms as Multinomial Logistic Regression and Linear SVM were used. In addition, ensembles of Random Forest, Gradient Boosting Machine, and nonlinear SVM algorithms were trained for further evaluation and selection of a more efficient method. At the final stage the search index was formed and search engine prototype was developed. **RESULTS:** Training was performed on 2,000,000 abstracts from the MEDLINE database for 2006-2013. Some papers were marked by levels of evidence and by subtypes of medical interventions for training the classifier. A high classification result accuracy was achieved for the available data. For instance, for the "randomized double blind" class precision was 0.93, recall – 0.75, and F-measure – 0.82. The developed approach also yielded high classification results for such a hard-to detect class as "nonrandomized single blind studies": precision was 0.92, recall – 0.75, and F-measure was 0.83. It was shown that decomposition of the evidence levels improves results by balancing training sets and choosing the best classification algorithm for each subtask separately. **CONCLUSIONS:** The developed search engine is based on a combination of classifiers that determine the evidence level and subtype of medical intervention for the abstract. Results are sorted in descending order of relevance of an abstract to the query. Implemented search engine is being tested by medical experts.

PRM70

AN INVESTIGATION INTO OPEN-SOURCE MODELLING IN HEALTH ECONOMICS: OPPORTUNITIES AND CHALLENGES

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OBJECTIVES: An open-source health economic model is defined here as one that is freely available to those who wish to access it. In addition to the model and its underlying code, a written report describing its aim, methods, structure and results should be freely available. A culture of open-source modelling allows existing models to be updated to answer new research questions and decision problems, and creates a transparent public arena for model validation, education, collaboration and learning across research, industry and healthcare communities. Despite these benefits, open-source health economic modelling is not standard practice. This research aimed to investigate the perceived benefits of and challenges to open-source modelling, from the perspective of the international health economics community. **METHODS:** A double-blinded short survey of 10 questions was made available to the following LinkedIn groups between 25 April 2016 and 6 May 2016: International Society for Pharmacoeconomics and Outcomes Research; HTA in Europe (maintained by EUnetHTA), and institute for Medical Technology Assessment. **RESULTS:** The survey was undertaken by 46 respondents, whose main sector of work ranged across industry (35%), academia (32%), government (20%) and other (13%). 97% of respondents stated when reviewing information from an economic model that is not publicly available, having access to the model code would be beneficial to them. When asked what the most common reasons for wanting to access the details of a health economic model, 59% of respondents wished to learn the technical aspects for use in a different disease area or decision problem. **CONCLUSIONS:** The potential benefits of open-source health economic models are numerous and recognised by the international health economics community, and this research highlights the value of strategies to promote and facilitate open-source modelling practices.

PRM71

PREDICTION OF COSTS ASSOCIATED WITH THE HOSPITAL MANAGEMENT OF HIV PATIENTS IN FRANCE USING AN ADVANCED DATA MINING APPROACH ON THE FRENCH MEDICAL INFORMATION SYSTEM DATABASE

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OBJECTIVES: The PMSI (medical information system database) is the French national administrative database containing medical information and patients' features for millions of hospital stays. Most medical studies only use descriptive methods to analyze patient cohorts. The objective of this study is to assess the capability