Systematic reviews aim to identify, select, synthesize and appraise all high-quality research in relation to a particular research question, and are widely accepted as the gold standard for providing the best evidence for use in decision making. They are essential, routine components of submission data packages. For example, systematic reviews are often the source for clinical evidence used in health economic modelling to evaluate cost-effectiveness. Thus, they represent a substantial investment of resources, and incorrect or incomplete reviews could invalidate the proposed clinical and economic value of a product set out in a health technology submission and result in unfavourable reimbursement decisions and/or delayed market access. There are a number of best practice criteria set down for systematic reviews; the most widely recognised being from the Cochrane Collaboration. However, when carrying out a systematic review for HTA purposes researchers should be aware of the additional requirements set out by each agency. The Cochrane, UK National Institute for Health & Clinical Excellence (NICE) and IQWiG all have different requirements for health technology assessments after adjustment for differences between the populations of the two studies. This targeted comparison requires individual patient-level data (IPD) for at least one of the treatments (the index), and are appropriate when the trials used for the comparison are sufficiently comparable in design and methods, but differ in the profiles of their population in measured risk factors. The differences can be adjusted analytically using IPD via regression equations. This produces endpoint estimates for the index treatment that reflect the profile of the comparator population. This can then be contrasted with published results for the comparator to obtain a measure of difference between treatments. Since only measured risk factors can be included in the adjustment, the potential for residual confounding remains. Another potential bias is a possible "study effect" whereby other differences between studies affect the comparison. This can be assessed using the reference groups of the trials, if these received the same treatment. STCs have been used in HTA submissions, and it is likely that their use and that of other alternative techniques will increase particularly in areas with rapid drug development. In the presence of heterogeneity or incomplete evidence networks, STCs can provide comparative evidence where these may otherwise be deemed unavailable due to limitations of ICTs/MTCs.

PRM25

CAN A MULTI-CRITERIA DECISION (MCD) OPTIMISATION MODEL HELP DECISION MAKERS TO SELECT THE OPTIMAL VACCINE VARIETIES FOR EXPANDING THEIR UNIVERSAL MASS VACCINATION PROGRAMME? THE CASE OF POLAND

Introduction: 1 Standarda B1; Van Bellingen L.A1; Van Vaalderen P1

1GlaxoSmithKline Vaccines, Ware, Belgium, 2CHESS, Ternat, Belgium

OBJECTIVES: The model aims to determine the optimal allocation of financial resources amongst various paediatric vaccines accounting for changes in budget and availability of new vaccines over time. This approach aims to inform decision makers who are seeking to extend their national immunisation programmes about the optimal mix of vaccines and sequence of their introduction, meanwhile accounting for their preferences in clinical and cost outcomes. Method: An MCD optimisation model was developed in Microsoft Excel that considered availability of new vaccines and budget changes over time, optimal mix of vaccines in previous years, budget investment time horizon, cumulative outcomes time horizon, and available vaccine temperature profiles. The model is based on an explicit model of vaccine vaccine within an available portfolio was determined by manually programmed linear optimisation based on a defined objective function and budget constraints. The objective function includes maximisation of prevention of disease cases, GP visits, hospitalisations, deaths, and cost savings in disease management. A multi-criteria approach allows for redistributing weights across clinical and cost outcomes in the objective function. Vaccination against whooping cough, varicella, influenza and pneumococcal disease was evaluated, based on disease incidences and direct medical costs from Poland. Relative risk reductions induced by vaccination were based on randomised controlled trials and population-based surveillance data. RESULTS: Dependent on the definition of objective function, the allocation of budget across a portfolio of vaccines resulted in different recommendations. If deaths-avoided was weighted at maximum, pneumococcal vaccine was ranked first, followed by rotavirus and influenza vaccine. On the other hand, if cost savings received the maximum weight, vaccination against influenza was ranked first, rotavirus second, pneumococcal third, and varicella fourth. The use of a weighted objective function resulted in different vaccine introduction sequences. CONCLUSIONS: The use of an MCD optimisation model provides a tool to inform decision makers about the optimal allocation of financial resources over time.

PRM26

DON’T MAKE ME WAIT: THE VARIANCE REDUCTION TECHNIQUE FOR FASTER MONTE CARLO SIMULATIONS IN COST EFFECTIVENESS MODELS ON WEB

Kotsek G, Kostina M

1Medstat LLC, Kaiserslautern, Germany, 2University of Kaiserslautern, Kaiserslautern, Germany

With the rapid pervasion of internet technologies, demand for making health economic evidence, such as mathematical models, accessible through the web increases. Long running computations such as Monte Carlo simulation can impair acceptance curve. The NMB mean value is calculated based on the deterministic techniques to reduce the computation time of probabilistic cost effectiveness Monte Carlo models. This increases. Long running computations such as Monte Carlo simulation can impair acceptance of web based health economic models with Monte Carlo simulations.

PRM228

DIRECTED TREATMENT COMPARISONS – AN ALTERNATIVE APPROACH TO INDIRECT COMPARISON WHEN STANDARD METHODS ARE NOT FEASIBLE OR APPROPRIATE

Ishak K.T1, Poskrovsky I1, Benedict A1, Chen C2

1Evidera, Dorval, QC, Canada; 2Evidera, Budapest, Hungary, 1Pharago Global Pharmaceuticals, New York, NY, USA

Health technology assessments (HTAs) rely on comparative evidence about new treatments and competing therapies, which are typically derived using indirect or mixed treatment comparisons (ITCs/MTCs). These are not always feasible or appropriate, particularly in rapidly evolving therapeutic areas, like oncology. For instance, some comparisons may not be possible due to incomplete evidence networks; or, heterogeneity between studies due to differences in design or populations may make an MTC inappropriate. There is, therefore, a need for alternative techniques, such as Simulated Treatment Comparisons (STCs). This technique is designed to determine associations between clinical effectiveness, vaccination. If cost savings received the maximum preference, vaccination against another step towards increasing user acceptance of web based health economic modelling to evaluate cost-effectiveness. Thus, they represent a substantial investment of resources, and incorrect or incomplete reviews could invalidate the proposed clinical and economic value of a product set out in a health technology submission and result in unfavourable reimbursement decisions and/or delayed market access. There are a number of best practice criteria set down for systematic reviews; the most widely recognised being from the Cochrane Collaboration. However, when carrying out a systematic review for HTA purposes researchers should be aware of the additional requirements set out by each agency. The Cochrane, UK National Institute for Health & Clinical Excellence (NICE) and IQWiG all have different requirements for health technology assessments after adjustment for differences between the populations of the two studies. This targeted comparison requires individual patient-level data (IPD) for at least one of the treatments (the index), and are appropriate when the trials used for the comparison are sufficiently comparable in design and methods, but differ in the profiles of their population in measured risk factors. The differences can be adjusted analytically using IPD via regression equations. This produces endpoint estimates for the index treatment that reflect the profile of the comparator population. This can then be contrasted with published results for the comparator to obtain a measure of difference between treatments. Since only measured risk factors can be included in the adjustment, the potential for residual confounding remains. Another potential bias is a possible “study effect” whereby other differences between studies affect the comparison. This can be assessed using the reference groups of the trials, if these received the same treatment. STCs have been used in HTA submissions, and it is likely that their use and that of other alternative techniques will increase particularly in areas with rapid drug development. In the presence of heterogeneity or incomplete evidence networks, STCs can provide comparative evidence where these may otherwise be deemed unavailable due to limitations of ICTs/MTCs.

PRM229

THE USE OF EUROPEAN ELECTRONIC HEALTH RECORDS TO INVESTIGATE CANCER TREATMENT PATHWAYS

Langham J, Langham S, Weir S, Ralston S

1PHMR Associates, London, UK

RTCs remain the gold standard for evaluation of drug efficacy and safety. However, the only way of identifying treatment pathways and improving understanding of costs and outcomes at different stages of care is via longitudinal observational studies. Observational data from electronic health records (EHRs) are increasingly used to support robust evidence in real world settings. The availability and quality of UK EHR databases such as the Clinical Practice Research Datalink (CPRD) have improved in recent years, and many papers confirm the validity of data in diagnoses such as cancer. Published data show that recording of cancer diagnosis and mortality in primary care electronic records is generally consistent with Cancer Registry (CR) data in England. The use of “read codes” in CPRD to identify an event (cancer diagnosis or referral to secondary care) and the possible existence of a primary cancer diagnosis. Cancers that are not coded at the time of diagnosis may only be identified later when secondary care is accessed. If the cancer is prevalent at the time of diagnosis and detected during the assessment process, the patient is classified as prevalent. This results in the underestimation of the prevalence of the disease. The NMB mean value is calculated based on the deterministic approach to reducing computation time while obtaining output. By applying the control variate approach we were able to achieve outcome with the same error while performing 50% less simulations as compared to the index PLMT model method. This performance improvement is yet another step towards increasing user acceptance of web based health economic models with Monte Carlo simulations.