CONCEPTUAL PAPERS

CP1 THE EVALUATION OF ECONOMIC METHODS TO ASSESS THE SOCIAL VALUE OF MEDICAL INTERVENTIONS FOR ULTRA-RARE DISORDERS (URDs)

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OBJECTIVES: To develop a set of criteria to critically appraise the strengths and weaknesses of existing economic methods for the systematic evaluation of therapeutic options for ultra-rare disorders (URDs). METHODS: An international group of clinical and health economic experts met in conjunction with the Annual European ISPOR Congresses in Berlin/Germany and Dublin/Ireland, November 2012 and 2013, to develop a set of criteria to critically appraise the strengths and weaknesses of existing economic methods for the systematic evaluation of therapeutic options for ultra-rare disorders (URDs). RESULTS: The group identified a broad set of potential criteria, which may be grouped according to the following dimensions: theoretical foundations (normative premises, i.e., links to moral and economic theories, including but not limited to – non-utilitarian consequentialist and deontological reasoning, definition and treatment of core concepts of economic thinking such as opportunity costs and efficiency), empirical underpinnings (social preferences related to attributes of the health condition or of the person afflicted with it), pragmatic aspects (feasibility of implementation and potential for bias and misuse). For each of the dimensions, a set of criteria has been agreed upon, which in turn will need further scrutiny and justification. CONCLUSIONS: Previously, a need had been identified for modifications or alternatives to the conventional logic of cost-effectiveness analysis to be considered. This paper describes the methods guide will be published in March 2014, and consultation ran for 12 weeks. It is anticipated that, following a discussion at the meeting of the Working Party on the implementation of the methods guide will be considered by the NICE Board in advance of the ISPOR conference. RESULTS: Key points drawn from the discussion at the working Party on the implementation of the methods guide will be considered by the NICE Board in advance of the ISPOR conference. The conclusions from this latest amendment of the Guide to Methods of Technology Appraisal to incorporate value assessment will be published in a forthcoming NICE ‘position’ in the world of health technology assessment and appraisal.

CP2 VALUE IN THE MAKING: HARVESTING THE VALUE OF COMPLEX MEDICAL INNOVATIONS IN PRACTICE

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Rapid development of medical innovations in the face of rising health care costs have been calling for a more value-conscious adoption and diffusion of innovations. This conceptual paper departs from swift adoption of the da Vinci surgical robot in the Netherlands. It describes three challenges facing health care systems to evaluate promising, yet complex and often expensive medical innovations. Firstly, they are often relatively new to prior users and likely to have short payback periods. Secondly, formal evaluation frameworks are somewhat detached from the dynamics of and incentives for adoption and diffusion of these innovations. Third, the real risks and benefits of these innovations are not easily amenable to an experimental design. Unlike pharmaceuticals, whose impact is intrinsic to its biochemical components and thus can be subject to experiment, the value of surgical complex devices, imaging equipments, or targeted therapy interventions are inseparable from actual patterns of use. Among the strategies analyzed only three resulted cost-effective for the diagnosis of significant CAD in patients with intermediated pre-test likelihood. METHODS: Significant CAD was defined as invasive coronary angiography (ICA) as >50% stenosis in the left main or >70% stenosis in a major epicardial artery. RESULTS: In the ITT analysis, 1-3 non-invasive imaging tests (CTCA as first line test and then stress ECHO, CMR or PET) followed by ICA in the case of positive test results were more cost-effective. All ICERs were obtained using per-patient data collected throughout the EVINCI multicentre European study. Strategy costs were calculated using examination country-specific reimbursements, while effectiveness was defined as the percentage of correct diagnosis. All costs were converted to Euro 2012 and adjusted using PPP. The proportion of the test result was used in the analysis and 95%CI were obtained with non-parametric bootstrap. RESULTS: Among the strategies analyzed only three resulted cost-effective for the diagnosis of significant CAD. These included stress ECHO and CTCA as single non-invasive test, CTCA first then ECHO, CTCA first and then stress PET, all followed by ICA when required. Stress ECHO approach was the least costly but also the least effective, while CTCA alone [ICER: 2345 (2287-2400)] or in combination with PET [ICER: 5227(5161-5296)] had increasingly higher effectiveness for a willingness to pay (WTP) exceeding 2,000 Euro and 5,000 Euro, respectively. CONCLUSIONS: Results from the health-economic analysis of the EVINCI study showed that stress ECHO guided diagnostic strategy could be cost-effective when the WTP is low. Strategies involving CTCA alone or as first line exam followed by ICA when required. Stress ECHO approach was the least costly but also the least effective, while CTCA alone [ICER: 2345 (2287-2400)] or in combination with PET [ICER: 5227(5161-5296)] had increasingly higher effectiveness for a willingness to pay (WTP) exceeding 2,000 Euro and 5,000 Euro, respectively.

DIAGNOSTIC RESEARCH STUDIES

D1 COST-EFFECTIVENESS (CE) OF IMAGING-GUIDED STRATEGIES FOR THE DIAGNOSIS OF CORONARY ARTERY DISEASE (CAD): RESULTS FROM THE EVINCI STUDY

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To evaluate the cost-effectiveness (CE) of imaging-guided strategies for the diagnosis of significant coronary artery disease (CAD) in patients with intermediate pre-test likelihood. METHODS: Significant CAD was defined as invasive coronary angiography (ICA) as >50% stenosis in the left main or >70% stenosis in a major epicardial artery. RESULTS: In the ITT analysis, 1-3 non-invasive imaging tests (CTCA as first line test and then stress ECHO, CMR or PET) followed by ICA in the case of positive test results were more cost-effective. All ICERs were obtained using per-patient data collected throughout the EVINCI multicentre European study. Strategy costs were calculated using examination country-specific reimbursements, while effectiveness was defined as the percentage of correct diagnosis. All costs were converted to Euro 2012 and adjusted using PPP. A propensity score adjustment was used in the analysis and 95%CI were obtained with non-parametric bootstrap. RESULTS: Among the strategies analyzed only three resulted cost-effective for the diagnosis of significant CAD. These included stress ECHO and CTCA as single non-invasive test, CTCA first then ECHO, CTCA first and then stress PET, all followed by ICA when required. Stress ECHO approach was the least costly but also the least effective, while CTCA alone [ICER: 2345 (2287-2400)] or in combination with PET [ICER: 5227(5161-5296)] had increasingly higher effectiveness for a willingness to pay (WTP) exceeding 2,000 Euro and 5,000 Euro, respectively.

D2 THE VALUE OF RISK-STRAITIFIED INFORMATION IN THE NATIONAL LUNG CANCER SCREENING TRIAL

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OBJECTIVES: Clinical guideline recommendations are generally informed by population-based evidence. However, interventions that are (cost-)effective on average may not be appropriate or (cost-)effective for subgroups. One way to address this is to assess the value of risk-stratified recommendations for lung cancer screening among current or former smokers between the ages of 55 and 74 compared to a screen-all policy. METHODS: Using data from the National Lung Screening Trial (NLST), we calculated the costs and QALYs for low-dose computed tomography (CT) versus chest radiography (XR) by empirically observed health states and 6 years life expectancy. Based on Kovalich’s risk of lung cancer death prediction model, we stratified 5,645 NLST trial patients into quintiles. The expected value of individualized care (EVIC) was calculated to
quantify the value of using stratified information over population-based information. RESULTS: The incremental cost-effectiveness ratio (ICER) of CT versus X-ray was €31,942 per QALY, for the "average" trial patient, indicating that CT would be a preferred option at a cost-effectiveness threshold of $50,000 per QALY. However, when stratified into quintiles, CT is dominated for the lowest risk quintile (i.e., X-ray is the preferred option for patients in quintiles 1 to 5). The EVIC was calculated at around €180 per person for cost-effectiveness thresholds of $50,000 per QALY and higher.

CONCLUSIONS: Tailoring screening strategies to avoid CT scan in the lowest risk quintile of patients appears to be a superior strategy compared to population-wide CT scan screening, although results were sensitive to the cost-effectiveness threshold and the level of granularity of the analysis. This study shows the value of considering the risk-based heterogeneity of cost-effectiveness in clinical guideline recommendations and policy decisions.

D13 EFFECT OF SELF-MONITORING OF BLOOD GLUCOSE ON GYCEMIC CONTROL, CLINICAL OUTCOMES, AND HEALTH CARE COSTS IN DIABETIC PATIENTS USING INSULIN: A RETROSPECTIVE ANALYSIS

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OBJECTIVES: Self-monitoring of blood glucose (SMBG) may improve diabetes management. We analyzed the effect of SMBG on glycemic control, clinical outcomes and health care costs among insulin-users diabetic patients in a clinical practice setting. METHOD: A retrospective analysis using data from the administrative databases, clinical registries containing laboratory results and medical devices data bases including SMBG strips data of two Italian Local Health Units was performed. Insulin-users were defined if they had at least one prescription of insulin agents from November, 2009 and April, 2011. The first prescription was selected as index-date. Patients were divided into two groups based on testing frequency of SMBG during the 18-months follow-up period: group A (≥3608 patients with SMBG use) and group B (≤2 tests per day). We calculated incidence rates to estimate the risk for fasting blood glucose levels <70 mg/dl and for diabetes-related hospitalizations or deaths during the 18-months follow-up period. Total annual direct costs included hypoglycemic therapy and the direct costs due to diabetes-related hospitalizations and outpatient services. RESULTS: We identified 394 insulin-users patients with no SMBG use and 1350 with SMBG performed more than twice per day. Compared with non-SMBG use group, patients using SMBG showed a significant reduced risk of glucose levels <70 mg/dl (adjusted rate was 10.6 vs 27.3 per 100-person-years, p<0.001) and of diabetes-related hospitalizations or death (30.0 vs 60.8 per 100-person-years, p=0.001). The higher hospitalization rate resulted in higher hospitalization costs per patient (€2.419 vs €1.512 of those using SMBG use) and consequently higher total annual direct costs per patient (€3.006 vs €2.738 of those using SMBG). CONCLUSIONS: Results indicate that patients using SMBG, compared with non-SMBG patients, are associated with better glycemic control and reduced risk of diabetes-related hospitalizations and consequently with lower overall total annual cost per patient.

D14 DIAGNOSING ANXIETY DISORDERS IN PRIMARY CARE: A SYSTEMATIC REVIEW AND META-ANALYSIS


OBJECTIVES: Anxiety and mood disorders are highly prevalent in Primary Care but research shows that general practitioners (GPs) fail to diagnose up to half of cases. In this study the ability of GPs to identify anxiety disorders and anxiety disorders with and without any help from diagnostic (assisted vs unassisted diagnostic) was assessed in Primary Care community samples. We excluded studies from general population and those addressing specific physical or mental disorders, along with vignette and case-series studies. Two authors independently performed abstract and full-text reviews and data extraction. Study was assessed with the QUADAS-2. Coupled forest plots summarized estimated studies' sensitivity and specificity and 95% confidence intervals. We fitted random-effects meta-analysis models and undertook a bivariate meta-analysis to construct a summary Receiver Operator Characteristic curve (sROC). RESULTS: From a total 1796 detected papers, 443 were included for full text review. So far, we have analyzed 111 papers, out of which 8 studies were included with N= 3608 patients with pooled anxiety prevalence 26% (CI=25-27%). Preliminary results show an overall ROC curve with lower GP diagnostic accuracy when performing unassisted diagnoses for a total diagnostic accuracy 80% (CI=79-840) with overall sensitivity 45% (CI=45-53), and specificity = 92% (CI=90-94). GP's accuracy was higher with assisted diagnoses (86.7%, CI=85-89%) than unassisted diagnoses (45.5%, CI=43-47.3%). Specificity was lower in assisted (89.15%), CI=87-90.4) than unassisted diagnosis (92.5%, CI=91-93.1). RESULTS: Low diagnostic sensitivity and specificity are related with the lack of time to properly carry out the primary care. RESULTS: Suggest that detection might be improved by using diagnostic tools. Results for all included articles will be presented.

H1 HEALTH CARE EXPENDITURE STUDIES

H1 CATEGORIZERS OF INCREASING THE LIKELIHOOD FOR A POSITIVE DRUG REIMBURSEMENT RECOMMENDATION IN SCOTLAND

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OBJECTIVE: A binary reimbursement prediction model was previously developed for the Scottish Medicines Consortium (SMC) between 2006 and 2014. The objective of this study is to build on the previous model by identifying factors that influence the different levels of SMC recommendation, defined as “recommend”, “restrict” or “not recommend” pharmaceutical technologies. METHODS: A multivariate (logistic) regression analysis was performed to estimate the impact of the following factors on the odds of being recommended (OR): the submission was performed by a big company, the number of submissions, the number of different scenarios tested. RESULTS: Out of 463 applications, 115 received positive recommendation (25%), 150 received restricted recommendation (32%) and 198 (43%) were not recommended. Univariate analyses showed that 14 variables significantly affected the SMC decision. The multivariate analyses showed (p=0.05) between the following factors: (1) a product demonstrating cost savings and QALY gains (OR=6.11), (2) a product not being cost-effective (ICER<€20,000/QALY) (OR=0.50), (3) a non-superior efficacy outcome versus placebo (OR=0.15), (4) the product’s therapeutic indication (nervous system OR=0.51), blood forming organs (OR=2.29), (5) whether the product was indicated for non-chronic use (OR=1.48) and (6) whether the submission was performed by a big company (OR=1.86). The proportional odds assumption was not violated, providing the appropriateness of the current model. The present model yielded similar results with the previously developed binary logistic model, one further ensuring face validity, yet this approach is considered to better fit the multidimensional nature of SMC’s decision and increase the predictive power of the model. CONCLUSIONS: This study identified superior efficacy using an active comparator as well as a beneficial cost-effectiveness outcome to increase the likelihood of receiving a positive recommendation by the SMC.

H2 BIOSIMILARS VERSUS BRANDS FOR RHEUMATOID ARTHRITIS: EU5 PAYER S AND PHYSICIANS PREFERunce PLACEBOS THERAPY


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OBJECTIVES: We examined the potential impact of biosimilars for rheumatoid arthritis (RA) has generated a lucrative market. However, amid ongoing economic constraints, the EUS (France, Germany, Italy, Spain, and the UK) must tighten their health care belts. As biosimilars versions of key brands appear on the market, the decision’s impact on the expected impact of these cheaper options on reimbursement and prescribing for RA in each country. METHODS: Across the EU5, 254 rheumatologists were surveyed regarding their views on biosimilars for RA and on current and expected prescribing patterns. In addition, 15 payers who influence reimbursement at national or regional level were interviewed. RESULTS: Considering 54-week Phase III data, >80% of surveyed rheumatologists in each country believe CT-P13 (biosimilar infliximab) has similar efficacy to branded Remicade, however, respondents are concerned about biosimilar safety. Furthermore, >80% of respondents in most countries are willing to prescribe biosimilars of infliximab, and of etanercept and rituximab, though largely not before branded biologics. Unsurprisingly, given likely price discounts, interviewed payers would somewhat encourage biosimilar uptake. However, excluding those in Germany, consensus is that discounts offered on biosimilars will not significantly impact their budgets. German payers, however, report that additional rebates to statutory insurers are expected as a condition for physicians prescribing biosimilars, but manufacturers may consider robust uptake will compensate for hefty discounts. CONCLUSIONS: Available data have inspired prescriber confidence in biosimilars efficacy, although significant concerns, including concerns about biosimilar manufacturing and lack of long-term safety data, will ensure continued brand uptake, at least initially. Furthermore, the expected modesty of biosimilar discounting in most countries will somewhat curb payers’ policy promoting use of such products. However, as prescribers become more familiar with the products, the full extent of cost savings are revealed, increasing uptake of biosimilars is probable.

H3 PREFERENCES FOR PRIORIZING PATIENTS WITH RARE DISEASES: A SURVEY OF THE GENERAL POPULATION IN SWEDEN

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OBJECTIVES: Incentives are offered to pharmaceutical companies in order to increase the number of treatments for patients with rare diseases. As a consequence, a number of new drugs have been introduced on the market—drugs that often fail to meet traditional cost-effectiveness criteria. This study aims to investigate if there are societal preferences for treating patients with rare diseases differently in priority setting situations compared with common diseases. Moreover, psychological mechanisms that potentially could explain such preferences are explored. METHODS: A postal questionnaire in three versions was sent out to a representative sample of the general Swedish population. Respondents were asked to choose to give treatment to a patient with a rare or a common disease in eight different scenarios. Rarity of the disease, different alternative costs, and group/individual level decisions was investigated. Psychological aspects in the presented scenarios were related between the same scenario for each group, the identifiability of the patient, pseudo-ineffectiveness and if the scenario was expressed in priority or rationing terms. RESULTS: Response rate was 41% (n= 1239). For equal non-superior efficacy outcome versus placebo (42.3 % were indifferent; 57.7% chose the current treatment), 42.3 % chose to prioritize the rare disease and 33.4 % the common disease. When questions were framed to be on an individual as opposed to a group level respond- ents were significantly more likely to be indifferent. Proportion increased in individuals’ preferences for rare diseases. Rarity of the disease and pseudo-ineffectiveness had no major effect on respondents’ choices. CONCLUSIONS: All else equal we see no strong support that a societal preference for rarity exists. However, we observe psychological effects influencing the judgments individuals make when setting priorities related to rare diseases. Whether or not these should