education to increase the acceptance of NIPT while controlling the price of NIPT.

OP366 Characterizing The Population At Risk Of Chronic Obstructive Pulmonary Disease In China Using A Real-World Population Survey

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Introduction. Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality in China. However, early identification of patients with COPD in the community is challenging. This study used a real-world survey of the Chinese urban adult population to estimate the prevalence of COPD diagnosis or COPD-risk, examine the health outcomes and healthcare resource use of these groups, and investigate the sociodemographic factors associated with these statuses.

Methods. Respondents to the 2017 National Health and Wellness Survey in China (n = 19,994) were classified into: COPD (diagnosed), COPD-risk (undiagnosed), and control (undiagnosed, not at-risk) using their self-reported diagnosis and Lung Function Questionnaire (LFQ) score. These groups were compared by healthcare resource use and health outcomes (EuroQol [EQ-5D] and Work Productivity and Activity Impairment questionnaires). Factors associated with being in these groups were investigated using pairwise comparisons (t-tests and chi-square tests) and multivariable logistic regression.

Results. In total, 3,320 respondents (16.6%) had a suspected risk of COPD but did not report receiving a diagnosis. This was projected to 105.3 million people (16.9% of urban adults). Relative to the controls, COPD-risk and COPD-diagnosed respondents had higher healthcare resource use, lower productivity, and lower health-related quality of life (HRQoL) ($p < 0.05$). Age, smoking, alcohol consumption, weight, exercise, comorbidities, gender, education, employment, and air pollution were associated with increased odds of COPD-risk relative to the controls ($p < 0.05$).

Conclusions. A substantial group of individuals, undiagnosed, but with a risk of COPD, have impaired HRQoL, lower productivity, and elevated healthcare resource use. A range of sociodemographic factors are predictive of COPD risk, which may support targeted screening. Case-detection tools such as the LFQ may offer a convenient approach for identifying individuals for further definitive testing and appropriate treatment in China.

OP380 A Review Of The Methodology Used To Synthesize Continuous And Time-To-Event Outcomes For Clinical And Cost-Effectiveness

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Introduction. Synthesis of continuous and time-to-event outcomes is often complicated by the use of multiple outcome scales and heterogeneous reporting of outcomes across trials. Simple methods of evidence synthesis for clinical effectiveness can fail to account for these issues and result in a reduction of the evidence base, which can be further reduced at the cost-effectiveness stage as common outcome measures, such as standardized mean differences, cannot easily be incorporated into the economic decision model. Recent methodological advances for synthesizing continuous and time-to-event outcomes aim to include a greater proportion of the available evidence base within a single coherent analysis.

Methods. To assess the statistical methods commonly used in health technology assessment (HTA) and establish whether recent advances in synthesis methods have been adopted in practice, we conducted a review of HTA reports and guidelines published in the United Kingdom (UK) between 1 April 2018 and 31 March 2019 reporting a quantitative meta-analysis (MA), network meta-analysis (NMA) or indirect treatment comparison (ITC) of at least one continuous or time-to-event outcome.

Results. Forty-seven articles were considered eligible for this review. Fifty-one percent of eligible articles reported at least one continuous outcome and 55 percent at least one time-to-event outcome. Twenty-nine articles reported NMA or ITC and twenty-seven reported MA of a continuous or time-to-event outcome. Forty articles included a decision model, of which twenty-seven incorporated evidence from a synthesis of a continuous or time-to-event outcome with eleven informed by a single trial (despite synthesis being conducted).

Conclusions. Uptake of methods to include a greater proportion of the available evidence base within a single coherent analysis in UK HTA reports has been slow. Evaluating health technologies using an evidence-based approach often results in better outcomes for patients. Therefore, HTA analysts and decision modelers must be aware of the expanding literature for synthesis of continuous and time-to-event outcomes and appreciate the limitations of simpler approaches.

OP388 17-Year Disease Reduction Predicted By A Transmission Dynamic Model After Pneumococcal Conjugate Vaccine Introduction In The United States

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Introduction. After the introduction of the seven-valent pneumococcal conjugate vaccine (PCV7) in the United States (US) in the year 2000, the incidence of invasive pneumococcal disease (IPD) caused by the seven vaccine serotypes declined by 80 percent in vaccinated children and 30 percent in unvaccinated adults. A transmission dynamic equation model developed in 2009 captured the direct and indirect effects of vaccination in the early years after vaccination. Subsequently, the vaccine program switched to the 13-valent PCV and adult PCV13 vaccination. This work explores the accuracy of the mathematical model to predict long-term IPD due to changes in US immunization practices.

Methods. The model simulates the acquisition of asymptomatic carriage of pneumococci and the development of IPD among

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individuals aged <2, 2–4, 5–17, 18–49, 50–64, and ≥65 years. Pneumococcal serotypes were stratified into three categories: PCV7-type (4, 6B, 9V, 14, 18C, 19F, and 23F), PCV6-type (1, 3, 5, 6A, 7F, and 19A), and non-PCV-type (all others). Model parameters were calibrated using US IPD surveillance data from 1998–2006. Model results were compared to observed epidemiology.

Results. The model was previously shown to predict observed IPD well through 2007. After adjusting model parameters for PCV13 efficacy and adult vaccine coverage, modeled IPD closely replicated observed IPD. Observed baseline pre-vaccine incidence for children <2 years of age was 192 cases/100,000 and 13.5 cases in 2016, versus 18.5 cases estimated by the model. Similarly, observed versus modeled cases in the ≥65-year-old age group were 24 and 23.6 cases.

Conclusions. This epidemiologic model accurately simulates the observed US IPD surveillance data 17 years after initial introduction of PCV, highlighting the direct and indirect benefits of vaccination. Well-constructed mathematical models can accurately replicate real-world scenarios. Key input parameters of these models can then be modified to predict the impact of alternate scenarios, providing insights to inform public health policy-making.

OP407 Network Meta-Analysis Of Prolonged Release Calcifediol And Paricalcitol

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Introduction. Secondary hyperparathyroidism (SHPT) is a consequence of non-dialysis chronic kidney disease (ND-CKD), causing disturbances in metabolic parameters including increased phosphate and parathyroid hormone (PTH) and reduced calcium serum level, which can cause bone disease, extra-skeletal calcification and increased cardiac disease risk through vascular and visceral calcification. According to Kidney Disease Improving Global Outcomes (KDIGO) guidelines in 2017, treatment with paricalcitol is no longer recommended in early stage CKD due to increased risk of hypercalcemia. Prolonged release calcifediol (PRC) has been developed as a novel treatment for SHPT in ND-CKD. The objective of this study was to compare the efficacy and safety of PRC versus paricalcitol by assessing biomarkers such as PTH, calcium and phosphate.

Methods. To identify relevant randomized control trials (RCTs) to be included in the network meta-analysis (NMA), a systematic literature search was performed in PubMed. All analyses were performed with a frequentist random-effects NMA. Comparisons were made between the overall treatment effects of the two drugs (including all studies, with fixed and titrated dosage regimens), and between low fixed doses (PRC: 30 µg/day, paricalcitol: 1 µg/day) and high fixed doses (PRC: 60 µg/day, paricalcitol: 2 µg/day).

Results. Nine RCTs, comprising a total of 1,426 patients, were included in the analyses. No statistically significant differences in PTH reduction were found. Paricalcitol showed significantly larger increases in calcium when overall effects and high doses were analyzed. No differences in effects on phosphate were observed. Although effect sizes and statistical significance levels vary somewhat across analyses, the general pattern of similar PTH reductions and larger increases in calcium from paricalcitol are observed in all analyses.

Conclusions. The non-inferiority shown by PRC in lowering PTH and the tendency to increase calcium serum levels observed with paricalcitol treatment indicates that PRC might be used as an equally effective but potentially safer alternative to paricalcitol in treating patients with SHPT.

OP410 Real-World Benefit Of Endovascular Repair Of Abdominal Aortic Aneurysms - Comparison Of GORE® Global Registry for Endovascular Aortic Treatment And National Institute for Clinical Excellence 2018 Guidance

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Introduction. Endovascular aneurysm repair (EVAR) is routinely used for treatment of abdominal aortic aneurysm (AAA). In 2018, draft guidance from the National Institute for Clinical Excellence (NICE) suggested EVAR was not cost-effective compared to open surgical repair. The analysis was driven by clinical inputs from randomized control trials which may not reflect current clinical practice. Data from registries may inform more robust economic modelling. The Global Registry for Endovascular Aortic Treatment (GREAT) was initiated to collect contemporary real-world data on the performance of GORE® aortic endografts and includes long-term data on survival, re-interventions and resource use. This study compares the real-world values for mortality and resource use following elective EVAR as collected by GREAT with the 2018 NICE AAA draft guidance.

Methods. A total of 1,348 patients (88.7% men; mean age 73.1 years) undergoing elective AAA repair with the GORE® EXCLUDER device. Mortality, re-intervention and resource use was compared with the economic inputs for 2018 NICE draft guidance cost-utility analysis.

Results. All patients survived EVAR compared to the 0.4 percent mortality indicated in the NICE analysis. All-cause mortality was lower through 1, 3 and 5 years with values of 6.9, 14.8 and 16.2 percent respectively compared to the NICE base case. The average length of stay was 3.7 days in GREAT compared to 8.34 days in the NICE analysis. Short- and long-term re-interventions were also lower with real-world data (3.6% versus 7.3% and 5.5% versus 8.3%).

Conclusions. GREAT provides conflicting data on survival and resource use associated with EVAR compared to inputs of the 2018 NICE draft guidance These differences are likely to significantly alter incremental cost-effectiveness ratios. Robust cost-effectiveness modelling in health technology assessments should consider contemporary data, as it is likely more reflective of current clinical practice and more informative for clinical and economic decision making for AAA.

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