P63 ESTABLISHING THE COST OF HOSPITALISED COMMUNITY ACQUIRED PNEUMONIA (CAP): A HOSPITAL EPISODE STATISTICS (HES) ANALYSIS

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Introduction There are two types of pneumococcal vaccine available for adults: polysaccharide vaccine (PPV23) and a conjugate vaccine (PCV13). PCV13 vaccination is efficacious in adults aged 65 and over at preventing both invasive pneumococcal disease (IPD) and pneumonia caused by the serotypes in the vaccine while the evidence is inconsistent for PPV23. The Joint Committee on Vaccination and Immunisation (JCVI) concluded that vaccination of ≥65 years with PCV13 was not cost-effective, and recommended against a national immunisation programme. As part of this analysis, a pneumonia admission (ICD-10 code J18) was costed at £715.

Aim To obtain an alternative estimate of the cost of a hospitalised CAP both during the acute admission and following discharge.

Materials and Methods All patients aged ≥65 years with ICD10 J18 registered in HES between April 1st 2014 and March 31st 2015 were identified and their hospital-based activity tracked for 12 months. All in-patient, out-patient, and A and E attendances for these patients were extracted and the overall volumes and costs of these activities assessed over various timeframes. Costs were derived from the tariff via the Healthcare Resource Group codes.

Results The average cost of the initial in-patient (aged ≥65 years) admission for pneumonia (J18) was estimated at £3256. Over the 1–90 day period following the initial admission 69% of patients registered some additional utilisation of health care at an average cost of £2090.

Conclusion It is important that any cost effectiveness assessment accurately captures the costs averted by the intervention. Our analysis suggests that the cost of a pneumonia admission (J18) is 4-fold higher than that utilised in the 2016 analysis. In addition, significant additional costs may result from exacerbation of any underlying co-morbidities, thereby increasing the cost associated with a CAP infection. Even if only some of these additional costs were due to the original CAP infection, the value used in the original analysis significantly underestimated the cost of CAP.

Please refer to page A258 for declarations of interest in relation to abstract P63.

REFERENCES

P64 PREDICTING THE IMPACT OF TOBACCO PRICE INCREASE POLICIES ON COPD BURDEN IN ITALY

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Introduction and Objective Smoking has a large health and economic burden on populations, much of which is through increased risk of COPD, a major cause of disease, disability and death. COPD is set to rise with population ageing, and smoking initiation rates are increasing in young adolescents across Europe. We used Health Impact Assessment (HIA) analysis to predict the potential impact of tobacco price increase policies, to which youngsters are particularly sensitive, on future COPD burden in Italy, a country with low tobacco price relative to the rest of Europe.

Methods As part of the Ageing Lungs in European Cohorts (ALEC) project (www.alecstudy.org), we used DYNAMO-HIA for a Markov-based modelling approach to HIA analysis. Demographic and smoking data from the Italian population were used, together with data on the effects of smoking and health burden of COPD. A ‘maximum’ and a ‘realistic’ scenario were simulated to reflect different price increase policies: a 138% increase to match UK price (highest in Europe), and a 50% increase. Using published figures for price elasticities, we simulated changes to smoking behaviours over a 40 year period, evaluated their effects on COPD burden, and compared the two scenarios to a ‘business as usual’ scenario.

Results The projected population pyramid confirmed Italy as an ageing population with increasing COPD burden. Over the 40 year period, the maximum scenario showed reduction in smoking prevalence mainly through an increase in never smokers. Compared with ‘business as usual’, this translated in a substantial decrease in COPD incidence and prevalence, with consequent reduction in mortality and increase in average life expectancy. The realistic scenario showed effects of smaller magnitude in the same direction.

Conclusions Tobacco price increase policies would be effective in reducing future COPD burden in Italy. To provide a wider European perspective, we are now extending this work to countries with different smoking behaviours and tobacco prices.

P65 QUALITY OF INPATIENT CARE FOR COPD EXACERBATIONS AND IT’S IMPACT ON CLINICAL OUTCOMES

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High rates of rehospitalisation in the 90 days following COPD exacerbation are a concern internationally due to their unpredictable nature, the impact on patient’s health and the pressures they pose on healthcare systems. Strategies to reduce rehospitalisation have looked to improve inpatient management at the time of the index admission. We assessed the rate of adherence to international acute COPD management guidelines and examined which components of these guidelines have the greatest impact on clinical outcomes. Data from 208 patients hospitalised with an acute exacerbation of COPD was retrospectively collected from the medical chart. Adherence to five key components of COPD management was assessed. These included 1) Arterial blood gas measurement, 2) Administration of Controlled Oxygen therapy, 3) Regular short-acting bronchodilator therapy, 4) Prescription of systemic steroids (oral if suitable) and 5) Prescription of appropriate antibiotics, where applicable. Hospital length of stay (LOS) and readmissions up to 90 days following discharge were recorded. The mean age was 71 years and the majority were female. The mean FEV1 was 48% predicted and the median DECAF score was 1 (2) suggesting a low risk exacerbation. Almost 50% had a co-existent consolidation on chest radiograph. The median
LOS was 8 days; 80% were discharged directly to home. In the majority of cases only 3 of the 5 acute management components were completed. More than 90% of patients received antibiotics but only one-third were prescribed guideline-directed therapy. Intravenous steroids were used in the majority of cases, 67%, in preference to oral steroids. On multivariate linear regression analysis adjusting for exacerbation severity, age, FEV₁, and discharge destination, appropriate prescription of oral steroid therapy reduced LOS by 1.3 days, p=0.023. By day 90, 38% of patients had been readmitted to hospital. The probability of readmission was decreased in those who had received guideline-directed antibiotic therapy, OR 0.35 (95% CI 0.15–0.79) p=0.012. Adherence to acute COPD management guidelines is suboptimal. The greatest improvements in clinical outcomes were associated with prescription of oral steroids, where applicable, and guideline-directed selection of antibiotic therapy. These components should, therefore, be a focus of strategies to improve quality of inpatient care in COPD.

**EXACERBATION TELEMONITORING FOR COPD PATIENT UNDER LONG TERM OXYGEN THERAPY. STEP 1: BREATHING RATE MEASUREMENT VALIDATION**

Introduction and Objectives Recent works shown that it was possible to predict COPD exacerbation based on monitoring of simple parameters, such as an increase of the breathing rate in spontaneous ventilation or under non-invasive ventilation. Continuous breathing rate monitoring of COPD patients could be, by consequence, a pertinent way to follow their state of health, or even to alert for exacerbation situation. We aim to validate the breathing rate measurement of a tele-monitoring solution (TeleOx, SRETT, Boulogne-Billancourt, France) on COPD patients under long term oxygen therapy, as a first step towards this perspective.

Methods Breathing rates of COPD patient under long term oxygen therapy were recorded over a night, simultaneously by TeleOx and by a reference polygraph (Nox T3, Nox Medical Inc. Reykjavik, Iceland). A median breathing rate was extracted every 5 min by TeleOx and compared to the exact same measurement from the reference polygraph. The agreement between the two methods is considered using Passing-Bablok regression on the measured breathing rate points set.

Results Passing-Bablok regression on 1099 measurement points coming from 14 representative patients, comparing TeleOx and polygraph gives, within a confidence interval of 95%, a slope b within [0.976; 1.000] and an intercept a within [−0.217; 0.325].

Discussion The connected tele-monitoring device TeleOx, is capable of measuring the breathing rate of COPD subjects under long term oxygen therapy in excellent agreement with a reference polygraph. It opens encouraging e-medecin perspectives for this patient population.

Abstract P66 Figure 1 Comparison of breathing rate (BR) measurement. Results by TeleOx and polygraph, using Passing-Bablok regression on a set of 1099 valid measurement points. BR measurements by TeleOx and polygraph are materialised in red points. Passing-Bablok regression line is presented in continuous blue line. Identity (red dashed line) and uncertainty envelop (blue) are presented as a guide for the lectors.