Respiratory epidemiology

S123 EXACERBATION RISK AND CHARACTERISATION OF THE UK'S ASTHMA POPULATION, FROM INFANCY TO OLD AGE

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Introduction and Objectives Few studies have examined the characteristics of a general asthma population; most have focussed on more severe patients or severe exacerbations. We sought to provide the first description of the UK's general asthma population.

Methods Population-based cohort study, April 2007 to September 2015, using linked primary and secondary care electronic healthcare records (Clinical Practice Research Datalink, Hospital Episode Statistics). Four age cohorts: 'Under 5 s', '5 to 17 s', '18 to 54 s', '55+', are described. Exacerbation risk factors, including asthma severity (measured by the 2016 BTS stepwise approach), were assessed using random effects Poisson regression.

Results 4 24 326 patients with current asthma were eligible (N, median follow-up: 'Under 5 s'=17,320, 1 year; '5 to 17 s'=82,707, 3.3 years; '18 to 54 s'=210,724, 4 years; '55 +'=113,575, 5.1 years). Over 60% of the total study population had mild asthma (BTS steps 1/2). There were differences between the cohort's characteristics, including by gender, disease severity and exacerbation pattern. The oldest cohort had the highest proportion, and the '5–17 s' the lowest, on BTS step 3 or higher (figure 1). In the '55+' cohort, 23% also had a diagnosis of COPD. Of the patients who exacerbated, the youngest cohort had the highest proportion of patients that exacerbated more than once a year ('Under 5 s'=54.7%, '5 to 17 s'=13.1%, '18 to 54 s'=18.8%, '55+'=34.1%). The rate of any exacerbations was highest in the oldest cohort and lowest in the '5 to 17 s' cohort (rate per 10 person-years, (95% CI), 'Under 5 s'=4.27 (4.18–4.38), '5 to 17 s'=1.48 (1.47–1.50), '18 to 54 s'=3.22 (3.21–3.24), '55+'=9.40 (9.37–9.42)). In all cohorts, exacerbation rates increased with

increasing asthma severity, after adjusting for potential confounders including gender, socioeconomic status, smoking, BMI, atopy, rhinitis, gastroesophageal reflux, anxiety, depression and COPD.

Conclusions This is the first descriptive study of the UK's general asthma population. The majority of UK asthma patients had mild disease, and did not exacerbate during follow-up. Patients aged ≥ 55 years had the lowest proportion with mild asthma and the highest rate of exacerbations; the opposite was found in patients aged between 5 to 17 years. Increasing BTS step was significantly associated with increasing exacerbation rates across all generations.

S124 TRENDS IN MORTALITY FROM IDIOPATHIC PULMONARY FIBROSIS IN THE EUROPEAN UNION: AN OBSERVATIONAL STUDY OF THE WHO MORTALITY DATABASE FROM 2001 – 2013

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Background Idiopathic pulmonary fibrosis (IPF) is the most common of the idiopathic interstitial pneumonias and is characterised by progressive accumulation of scar tissue in the lungs. It carries a poor prognosis, with a median survival of only approximately 3 years after diagnosis. No previous reports have attempted to describe trends in IPF mortality across the European Union (EU).

Methods Country-level data for IPF mortality, identified in the WHO mortality database using ICD-10 codes for the period 2001–2013. Joinpoint analysis was performed to describe trends throughout the observation period.

Findings Median mortality was 3.75/1 00 000 (IQR, 1.37–5.30) and 1.50/1 00 000 (IQR, 0.65–2.02) for males and females, respectively. IPF mortality increased in the majority of the EU countries with the exceptions of Denmark, Croatia, Austria and Romania. There was a significant disparity in rates across Europe ranging from 0.41–12.1/100 000 for men and 0.24–5.63/100 000 for women. Most notable increases were

Abstract S123 Figure 1 Proportion of asthma patients in each BTS step by age cohort.

Abstract S124 Figure 1 Idiopathic pulmonary fibrosis mortality trends of male and females in 17 European countries. Lines represent result of Joinpoint analyses dashed and continuous lines for males and females, respectively. Squares (males) and circles (females) represent raw data, where symbol is absent data has been imputed for respective year.

observed in the UK and Finland. Rates were also substantially higher in males with gender disparity increasing across the period.

Interpretation Reported IPF mortality appears to be increasing across the EU, however there is substantial variation in mortality trends and overall reported mortality rates between countries. There are likely to be differences in coding practices and reporting levels between countries, particularly with specialist knowledge and equipment required to diagnose IPF.

S125 DEATHS FROM RESPIRATORY DISEASE IN THE UK COMPARED TO EU15+ COUNTRIES: AN OBSERVATIONAL ANALYSIS OF NATIONAL MORTALITY STATISTICS, 1985 – 2013

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Introduction Respiratory disease consistently ranks among the most fatal disease processes globally. Previous reports from Global Burden of Disease have identified higher burden of respiratory disease in the UK compared to similar health systems.

Methods We compared UK to EU15 +countries (i.e., Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and Sweden, Australia, Canada, United States, and Norway) because of similar or higher health expenditure in these countries. We obtained respiratory-related, sex-specific mortality data from

countries of interest from the WHO World Mortality database between 1985 and 2013 and covariate data from the World Bank's Development Indicators DataBank. Age-standardised death rates (ASDR) were computed using the WHO World standard population. We used Joinpoint regression analysis to test changes in trends for respiratory disease. We used Poisson regression to test the difference between UK and EU15 +countries after controlling for smoking and pollution factors.

Results In the UK, there was a significant decreasing trend in respiratory-related mortality between 1985 and 1991 with an estimated annual percentage change (EAPC) of -0.89 and -1.70 , for men and women respectively. Between 1994 and 2013, there was a steady decline in ASDR with EAPC -2.06 and -0.85 , for men and women, respectively. For EU15 +men, there was a decreasing trend in ASDR between until 1999 with EAPC -0.81 and from 1999 onwards the EAPC was -2.14 . For EU15 +women, there was an increasing trend in ASDR until 2002 with EAPC of $+1.48$ which was followed by overall decreasing trend with EAPC -0.44 until 2013. After multivariable adjustment for pollution exposure and smoking prevalence in each country there was a persistent significant difference in ASDR with approximately 20% higher mortality in UK compared to EU15+ ($p=0.009$).

Conclusion There was significantly greater mortality from respiratory-related illnesses in UK compared to EU15 +over the period from 1985 to 2013 after controlling for smoking and pollution exposure. System-level and population-level factors may contribute to this difference and additional investigations are necessary to further explain these differences.

REFERENCE

1. Murray *et al. Lancet* 2013;997.