Conclusion New arrhythmia complicating CAP is a recognised phenomenon that carries morbidity and mortality. Notably, no research has been reported on how best to manage this complication – reflected by the guidelines for the respective diseases in isolation. The next step is to look at how this complication is managed and identify the best approach to improve patient outcomes.

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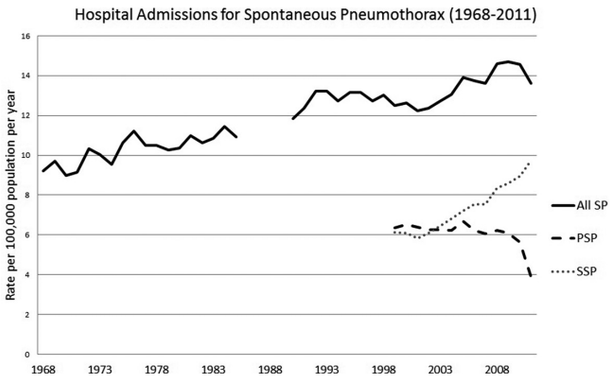

Abstract P215 Figure 1

Epidemiology in lung disease

P215 THE EPIDEMIOLOGY OF PNEUMOTHORAX IN ENGLAND (1968–2011)

RJ Hallifax, R Goldacre, NM Rahman, M Goldacre. *University of Oxford, Oxford, UK*

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Introduction and objectives Spontaneous Pneumothorax (SP) is a common pathology. Incidence rates are quoted as 16–24 and 1.2–6 per 100,000 cases per annum for males and females respectively, based on two studies in single centres (45 years ago, USA; 30 years ago, Sweden) and 4-year periods of national data in UK (1991–4) and France (2008–2011).

The aim of this study is to determine the incidence and recurrence of spontaneous pneumothorax in a larger dataset in England.

Methods An all-England Hospital Episode Statistics (HES) dataset from 1968–2011 was used to determine the incidence of Spontaneous Pneumothorax using International Classification of Diseases codes as the main diagnosis in a hospital admission. A record-linked HES dataset (only available from 1999–2011) was used to distinguish between Primary and Secondary Spontaneous Pneumothorax (PSP and SSP) and to determine the risk of a second pneumothorax within specified time intervals. SSP was defined as the patient having a diagnosis of a chronic lung disease (e.g. COPD, emphysema, lung malignancy, asthma, bronchiectasis, sarcoidosis) made at any time covered by the linked data.

Results and discussion From 1968–2011, in a population of 50 million, there were a total of 246,534 episodes of spontaneous pneumothorax (no data for 1986–89). In 1999–2011, the average annual incidence was 9.1 per 100,000 males and 3.2 per 100,000 females for PSP; 11.9 and 4.7 for SSP; and 21.0 and 7.9 for SP overall. The incidence of SP appears to be increasing (Figure 1): it was 12.5 (95% confidence interval 12.2–12.8) in 1999 and 13.6 (13.3–13.9) in 2011. It is unclear whether this reflects a true rise in new cases, better reporting or increasing recurrence rates.

The overall risk of recurrence is 13.5% within 1 year (18.7% within 5 years). Recurrence is more common in SSP than PSP at 1 year (16.1% vs 10.6%) and 5 years (21.2% vs 14.7%).

Conclusions This is the largest epidemiological study of pneumothorax to date. These data only cover hospitalised pneumothorax, and therefore may be a conservative estimate of the true burden of disease. Pneumothorax appears to be increasing in incidence.

P216 DURATION OF TOTAL AND EXCLUSIVE BREASTFEEDING, TIMING OF SOLID FOOD INTRODUCTION AND RISK OF ALLERGIC DISEASES: A SYSTEMATIC REVIEW AND META-ANALYSIS

[1]V Garcia-Larsen, [2]D Ierodiakonou, [3]J Leonardi-Bee, [4]T Reeves, [2]J Chivinge, [2]Z Robinson, [2]K Jarrold, [2]N Geoghegan, [2]E Andreou, [5]N Tagiyeva-Milne, [6]U Nurmatov, [1]S Cunha, [2]RJ Boyle. *[1]Respiratory Epidemiology, Occupational Medicine and Public Health Group, NHLI, Imperial College London, London, UK; [2]Department of Paediatrics, Imperial College London, London, UK; [3]Division of Epidemiology and Public Health, School of Medicine, University of Nottingham, Nottingham, UK; [4]Central Library, Imperial College London, London, UK; [5]University of Aberdeen, Aberdeen, UK; [6]Centre for Population Health Sciences, University of Edinburgh, Edinburgh, UK*

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Background Allergic diseases are the leading causes of chronic illness in children and young adults in the UK.

Aim To undertake a comprehensive review of the evidence on the effect of breastfeeding (BF) duration and timing of solid food introduction (SFI), on the risk of wheeze, atopic dermatitis, rhino-conjunctivitis, food allergy, allergic sensitisation and measures of lung function or bronchial hyper-responsiveness.

Methods We carried out a systematic review following the PRISMA guidelines (International Prospective Register of Systematic Reviews [PROSPERO] CRD42013003802). We included intervention, cohort, case-control and cross-sectional studies. Following literature searches (July 2013), study eligibility, data extraction and risk of bias assessments were conducted independently by two investigators. Random effects meta-analyses were used to pool results. Five levels of comparison of total or exclusive BF duration were used to assess disease risk in children at age 0–4 yrs, 5–15 yrs or 15+yrs: 'never vs ever','≥1–2 months vs. <1–2 months', '≥3–4 months vs. <3–4 months', '≥5–7 months vs. <5–7 months', and '≥8–12 months vs. <8–12 months'. Exclusive BF (EBF; BF without formula or solid food supplementation) was categorised as '≥0–2 months vs. <0–2 months', '≥3–4 months vs. <3–4 months' and '≥5+ months vs. <5+ months', and SFI as '≥3–4 months vs. <3–4 months'. Publication bias was assessed using Egger's asymmetry test.

Results Of 16,289 identified studies, 564 met the inclusion criteria and were eligible for analysis. We found reduced risk of wheezing in children aged 5–14 yrs with longer BF or EBF duration, which was dose-dependent, but there was evidence of publication bias (BF and odds of recurrent wheezing P = 0.007). Similar results were found for recurrent wheeze at age 5–14 yrs but not in other ages. Measures of lung function were also increased with increased BF or EBF duration. We found no

evidence that BF duration influences other allergic outcomes, and no evidence that timing of SFI influences any of the outcomes assessed.

Conclusion Longer breastfeeding duration may protect against wheezing later in childhood. Any effect is likely to be through effects on lung function rather than allergic sensitisation. Other allergic outcomes do not appear to be influenced by breastfeeding duration.

P217 CHRONIC MUCUS HYPERSECRETION MAY REPRESENT A BIOMARKER OF AIRWAYS DISEASE ACTIVITY RATHER THAN SIMPLY A PHENOTYPE: A LONGITUDINAL STUDY OF A NATIONALLY REPRESENTATIVE BRITISH BIRTH COHORT

[1]JP Allinson, [2]R Hardy, [1]GC Donaldson, [3]SO Shaheen, [2]D Kuh, [1]JA Wedzicha. *[1]National Heart and Lung Institute, Imperial College London, London, UK; [2]MRC Unit for Lifelong Health and Ageing at UCL, University College London, London, UK; [3]Centre for Primary Care and Public Health, Barts and the London School of Medicine and Dentistry, London, UK*

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Introduction Chronic mucus hypersecretion (CMH) is associated with COPD development and progression. CMH presence across adult life is dynamic, influenced by factors such as smoking behaviour. CMH is usually considered a binary phenotype and the potential influence of longitudinal CMH pattern on concurrent FEV_1 decline has not been explored. We investigated how longitudinal prevalence of CMH relates to concurrent FEV_1 decline.

Methods The MRC National Survey of Health and Development consists of a sample of men and women born in one week in March 1946 within England, Scotland and Wales. Smoking behaviour, MRC questionnaire defined CMH, height, weight and pre-bronchodilator spirometry were recorded at three ages: 43, 53 and (60–64) years.

We used the number occasions that CMH was positively reported (0–3) as a measure of longitudinal prevalence of CMH. Multilevel models adjusted for sex were used to analyse the relationship between longitudinal prevalence of CMH and concurrent FEV_1 decline (between ages 43 and (60–64)), allowing both intercept and slope to vary according to the longitudinal prevalence of CMH score. Height, weight and mean FEV_1 at age 43 years were then included in the model. Smoking status (current, ex and never-smoker) and number of cigarettes smoked daily were included as time-varying covariates capable of influencing both intercept and slope.

Results 1960 individuals contributed data to the multilevel model: 46% male; 59% ever-smoker and mean FEV_1 at age 43 years = 3.00 L. 13% reported CMH $\geq$ once between ages 43 and 60–64 years. After full adjustment, longitudinal prevalence of CMH was significantly associated with both a lower FEV_1 at age 43 (intercept $p < 0.001$) and a faster decline (slope $p = 0.003$) (See Table 1). For each additional occasion CMH was reported there was an additional 3.2 ml/yr decline in FEV_1 ($p = 0.003$) i.e. presence of CMH on all three occasions was associated with an additional 9.6 ml/year FEV_1 decline compared with those without CMH on any occasion.

Conclusion Longitudinal prevalence of CMH is associated with concurrent FEV_1 decline independent of concurrent smoking history. Rather than CMH being solely an airway disease phenotype, the longitudinal course of CMH may represent a biomarker of concurrent disease activity.

P218 THE EPIDEMIOLOGICAL, HEALTHCARE AND SOCIETAL BURDEN AND COSTS OF ASTHMA IN THE UK AND MEMBER NATIONS: ANALYSES OF NATIONAL DATABASES

[1]M Mukherjee, [1]A Stoddart, [2]R Gupta, [3]B Nwaru, [4]M Heaven, [5]A Farr, [5]D Fitzsimmons, [4]A Bandyopadhyay, [6]C Aftab, [3]C Simpson, [4]R Lyons, [7]C Fischbacher, [8]C Dibben, [9]M Shields, [5]C Phillips, [2]D Strachan, [10]G Davies, [1]B McKinstry, [3]A Sheikh. *[1]Edinburgh Health Services Research Unit, Centre for Population Health Sciences, The University of Edinburgh, Edinburgh, UK; [2]Population Health Research Institute, St George's, University of London, Cranmer Terrace, London, London, UK; [3]Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and Informatics, The University of Edinburgh, Edinburgh, UK; [4]Farr Institute, College of Medicine, Swansea University, Singleton Park, Swansea, UK; [5]Swansea Centre for Health Economics (SCHE), College of Human and Health Science, 2nd Floor Vivian Tower, Swansea University, Singleton Park, Swansea, UK; [6]The Royal College of Surgeons of Edinburgh & the University of Edinburgh, Nicolson Street, Edinburgh, UK; [7]Information Services Division (ISD), NHS National Services Scotland, Room 111, Gyle Square, 1 South Gyle Crescent, Edinburgh, UK; [8]School of Geography & Geosciences, Department of Geography & Sustainable Development, The University of Edinburgh, Edinburgh, UK; [9]Centre for Infection and Immunity, School of Medicine, Dentistry and Biomedical Sciences, Health Sciences Building, Queen's University Belfast, 97 Lisburn Road, Belfast, UK; [10]Asthma & Allergy Group, Institute of Life Science, Swansea University Medical School, Singleton Park, Swansea, UK*

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Abstract P217 Table 1 The association between longitudinal prevalence of CMH (number of occasions CMH reported) and FEV_1 between ages 43 and 60–64 years. Multilevel model includes 1960 individuals

		FEV_1 intercept (mls) at age 43 years		FEV_1 linear change per year (mls/year) between ages 43 and (60-64) years	
		Coefficient (95% CI)	p value	Coefficient (95% CI)	p value
Per occasion CMH reported between ages 43 and (60-64) years (0 - 3 occasions)	Minimally adjusted†	-90.0 (-46.8 to -133.3)	0.001	-10.2 (-12.8 to -7.7)	<0.001
	Fully adjusted‡	-143.4 (-104.1 to -182.8)	<0.001	-3.2 (-1.1 to -5.3)	0.003

† Adjusted for sex and age

‡ Adjusted for sex, age, height at age 43 years, weight at age 43 years, smoking status and smoking intensity at ages 43, 53 and (60-64) years