P180 IMPACT OF THE LONDON LOW EMISSION ZONE ON CHILDREN'S RESPIRATORY HEALTH: A SEQUENTIAL YEARLY CROSS SECTIONAL STUDY 2008–2014

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Background Low Emission Zones are a novel public health intervention to address the adverse effects of traffic pollution on health. We investigated the association between traffic derived air pollutants and lung function in 8–9 year old children living in London's Low Emission Zone.

Methods Sequential yearly cross-sectional study of 2,297 children aged 8–9 years attending east London primary schools between 2009 and 2014, following the introduction of the Low Emission Zone. We examined the relationship between pollutant exposures (NOx, NO2, PM2.5 and PM10) and lung function. We assigned annual exposures by each child's residential address. In addition, we used spatially resolved estimates of 12-hour, 24-hour, 7-day and annual exposures prior to each child's assessment, allowing us to compare the relative effects of very short-, short-, medium- and long-term pollutant exposures. Primary outcome measure was post-bronchodilator FEV1.

Findings We found inverse associations between exposures of PM10 and PM2.5 in the week prior to children's assessment and FEV1 ($P < 0.05$); and inverse associations between annual exposures of PM10, NOx, and NO2, and FVC ($p < 0.05$); and exposures of PM10 and PM2.5 in the week prior to assessment, and FVC ($p < 0.05$). No associations were seen when shorter term exposure estimates were employed. We found no evidence of improvements in lung function over the duration of the Low Emission Zone.

Interpretation Exposure of children to traffic pollution in central London is associated with decreased lung function and lung volumes. No detectable health benefit followed the introduction of the Low Emission Zone.

P181 TRANSITION ARRANGEMENTS FOR YOUNG ADULTS WITH ASTHMA: UK NATIONAL SURVEY

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Introduction Transition of young adults (YA) from specialist paediatric to adult services is an active process that requires specific management and planning and does not merely represent the transfer of care as a single event. In other chronic diseases (e.g. Cystic Fibrosis; T1DM) it is well acknowledged that clinical outcomes improve when this process is well organised and where this is lacking the risk of non-adherence to treatment and loss of disease control increases. BTS guidelines[1] clearly recommend a coordinated approach when transitioning YA in an asthma setting. Despite the importance of this process, little information is available on transition arrangements in asthma services.

Methods An online survey was sent to 105 trusts with adult asthma services in all parts of the UK to establish their transition arrangements.

Results Of the 43 responding centres (District General Hospital n = 20), only 60% had a designated lead (n = 26) and less than half made any form of specific arrangements for transition (n = 18). University Hospital trusts were more likely to have transitional care arrangements in place (n = 11/22) than District General Hospitals (n = 6/20). In those centres that did run joint clinics (n = 16), in the majority of cases this only involved adult team members attending paediatric clinics (n = 10).

Most centres (n = 25) expected ≤5 patients to transition each year and over 90% (n = 37) did not initiate contact with YA until they were ≥15 yrs old. Only a third of centres delayed transition if YA were not perceived to be ready (n = 15) or remained in full time education (n = 15).

Overall less than a third of respondents (n = 13) were satisfied with their transition arrangements.

Conclusions Our survey reveals for the first time the wide variation in approaches to transition in asthma clinics across the UK. Our data suggests that currently most centres are not committing the recommended resources towards this process, no doubt hampered in part by the relatively small numbers of young adults with asthma transitioning each year.

REFERENCE

1 British Thoracic Society. *BTS/SIGN Asthma guideline*. 2014. https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2014/ (accessed 28 June 2016).

P182 CURRENT CHARACTERISTICS, COPING STRATEGIES AND OUTCOMES OF YOUNG PEOPLE WITH CYSTIC FIBROSIS TRANSITIONING TO ADULTHOOD

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Introduction Transition is a process that addresses the medical, psychosocial and vocational needs of young adults, and it is a crucial stage for patients with CF.

Methods Patients who transferred to the adult service via a transition clinic within the last 5 years underwent an interview with a psychologist using a questionnaire of demographic data, their experience of transition, their concerns and the effect of CF on their lifestyle. They completed the Hospital Anxiety Depression Scale (HADS) and the Ways of Coping Scale. Clinical data, complications and outcomes were noted at transfer and one year later.

Results 45 patients (27 men) participated; mean age at transfer was 17 (range 15–21) years and at interview was 20.7 (17–24) years; 25 (53%) had chronic Pseudomonas infection, 7 (15.5%) were receiving gastrostomy feeding, 9 had diabetes, one had had liver transplantation and one had undergone termination of pregnancy. At the transition clinic 94% attended with a parent but after transfer 33% attended alone and 18% with a partner; 87% felt that the timing of transition was correct and 80% found the transition clinic helpful. Self-reported adherence to treatment declined in 18% and improved in 24%. Life satisfaction was high with 74% reporting that CF had no effect on their social lives, but 52% felt it impacted on work or studies, although 76% were in employment or education. Mean FEV1 remained stable at 76.6 (26.4–119.6)% at transfer and 75.4 (19–111)% one year later, but varied with 15 patients (33%) having a deterioration of >5% and 8 (18%) improving by >5%. Mean BMI changed from 20.8 (16.5–29.7) to 21.2 (17.3–29.2); 11 patients (24%)

improved by >1 kg/m^2, 4 (9%) deteriorated by >1 kg/m^2. Psychological distress was low with 7 (15.6%) having anxiety and 3 (6.7%) depression; 84.4% used 'optimistic acceptance' as their main way of coping, 8.8% used 'avoidance' 2.2% 'distraction', and 2.2% 'hopefulness'.

Conclusion Young people with CF still face daunting problems but are functioning well. There is a need for close monitoring during transition to provide treatment and support to those showing clinical deterioration.

REFERENCE

1 Abott J. *Disability Rehabilitation* 2001;**23**:315.

P183 BURDEN OF ILLNESS IN SCHOOL-AGED PATIENTS WITH CYSTIC FIBROSIS (CF) IN THE UNITED STATES

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Background and objectives The CF disease burden among school-aged children is not well understood. We sought to describe this burden in patients with CF aged 6–17 years in the United States by comparing their healthcare resource utilisation (HCRU) to that of demographically similar controls without CF.

Methods This retrospective study used administrative claims from the Truven MarketScan Medicaid Multi-State (CAID) and Commercial (COMM) databases. Patients with CF aged 6–17 years were identified as having ≥1 inpatient (IP) or ≥2 outpatient (OP) medical claims ≥30 days apart with primary diagnosis of CF (ICD-9-CM: 277.0x) between 2010 and 2014. Other inclusion criteria were ≥12 months of continuous medical and pharmacy coverage and ≥1 CF-related healthcare encounter during the most recent year of data. Patients were matched 1:3 to non-CF controls by age, gender, race (CAID cohort), geographic region (COMM cohort), insurance plan type and enrollment (calendar year). IP admissions, OP visits and medication use from the most recent year of data (2010–2014) were compared between patients and controls, overall and by age group (6–11 and 12–17 years), using bivariate statistics; chi-square tests were used for categorical variables and *t* tests and ANOVA for continuous variables.

Results The CAID cohort included 1264 patients with CF and the COMM cohort 2400; all were matched 1:3 to controls (mean [SD] age of patients and controls: CAID, 11.4 [3.5]; COMM, 11.9 [3.5]). Annual hospitalisation rates were 22-fold (CAID) to 32-fold (COMM) higher in the CF cohorts, with lengths of stay nearly twice that of matched controls (**Table**). Annual OP visit rates were 3.1-fold (CAID) and 3.5-fold (COMM) higher in the CF cohorts, and patients filled 5 times as many unique medications and 10 times as many total prescriptions per year as controls. While patients with CF aged 12–17 years generally had higher HCRU than those aged 6–11, trends and magnitude difference vs controls within each age group were similar.

Conclusion HCRU was higher in patients with CF aged 6–17 years than in demographically similar children without CF, illustrating significant disease burden and a need for better treatment options for this population.

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Please refer to page A272 for declarations of interest in relation to abstract P183.

P184 CALCULATION OF CONDUCTIVE INHOMOGENEITY IN CHILDREN WITH SEVERE CF LUNG DISEASE: WHICH METHOD WORKS?

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Introduction Convection Dependent Inhomogeneity (CDI, a measure of ventilation inequality among larger lung units) quantified by Scond cannot be assessed in subjects with severe

Abstract P183 Table 1

	Total Cases	Total Controls	Age 6–11 y Case	Age 6–11 y Control	Age 12–17 y Case	Age 12–17 y Control
Medicaid (CAID), n	1264	3792	642	1926	622	1866
Proportion with at least 1 IP admission, n (%)	521 (41.2)	107 (2.8)	202 (31.5)	32 (1.7)	319 (51.3)	75 (4.0)
Annual IP admissions, mean (SD)	0.87 (1.49)	0.04 (0.25)	0.55 (1.10) [a]	0.02 (0.17) [a]	1.20 (1.76)	0.06 (0.30)
LOS per admission, mean (SD), days	10.1 (9.0)	6.8 (8.3)	9.5 (6.2) [b]	6.4 (7.7) [b]	10.5 (10.3) [a]	6.9 (8.6) [a]
Annual OP office visits, mean (SD)	9.9 (8.0)	3.2 (3.9)	9.6 (7.6)	3.3 (4.1)	10.2 (8.4)	3.0 (3.7)
Annual total prescriptions filled, mean (SD)	67.3 (52.6)	7.2 (13.4)	65.5 (54.0)	6.6 (11.3)	69.1 (51.1)	7.8 (15.1)
Annual unique prescriptions filled, mean (SD)	15.8 (8.5)	3.2 (4.1)	14.5 (7.3)	3.0 (3.8)	17.1 (9.4)	3.4 (4.3)
Commercial (COMM), n	2400	7200	1075	3225	1325	3975
Proportion with at least 1 IP admission, n (%)	816 (34.0)	107 (1.5)	270 (25.1)	32 (1.0)	546 (41.2)	75 (1.9)
Annual IP admissions, mean (SD)	0.64 (1.21)	0.02 (0.20)	0.40 (0.88) [b]	0.01 (0.10) [b]	0.85 (1.39)	0.03 (0.26)
LOS per admission, mean (SD), days	8.4 (6.3)	4.5 (5.9)	7.5 (4.8)	3.6 (4.2)	8.8 (6.9)	4.9 (6.5)
Annual OP office visits, mean (SD)	9.9 (6.6)	2.8 (3.5)	9.4 (6.0)	2.7 (2.9)	10.3 (7.0)	2.8 (3.8)
Annual total prescriptions filled, mean (SD)	39.8 (31.4)	3.6 (7.0)	37.5 (29.0)	2.9 (5.6)	41.7 (33.1)	4.1 (7.9)
Annual unique prescriptions filled, mean (SD)	11.6 (7.0)	2.0 (2.8)	10.5 (6.1)	1.7 (2.3)	12.5 (7.5)	2.2 (3.0)

P value <0.001 for all comparisons (case vs control), unless otherwise noted. [a]*P* <0.01; [b]*P* <0.02. LOS =length of stay.