Spoken sessions

release was also reduced after exposure to TNF α /IL1 β in those who later wheezed compared to non wheezers (0.09 [0.01, 0.72] versus 0.67 [0.32, 1.48] $p = 0.014$). Neonatal AEC release of IFN γ and IL-6 were not associated with later wheeze. Maternal asthma was not associated with AEC IL-8 release.

Conclusions These results suggest that an abnormality which is present at birth in AEC response to infection is important to asthma causation.

Abstract S70 Figure 1

S71 DO CHILDREN WITH TROUBLESOME PRESCHOOL WHEEZE HAVE EVIDENCE OF FUNGAL SENSITISATION?

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Introduction Preschool wheeze is very common and can be troublesome necessitating frequent hospital admissions and trials of preventer medications. It has been suggested that fungal sensitisation is associated with severe childhood asthma (Vicencio 2014), however it is unclear when this sensitisation occurs and whether fungal sensitisation is associated with preschool wheeze. We aimed to assess whether children attending our clinic due to preschool wheeze were sensitised to fungi and whether fungal sensitisation is associated with troublesome wheezing.

Methods Preschoolers attending our clinic due to wheezing investigated for allergic sensitisation to a panel of aeroallergens (*D. pteronyssinus*, cat, dog, timothy grass and tree pollen) and fungi were identified. Evidence of sensitisation was determined by a raised specific IgE (sIgE) > 35 kU/L detected by fluorescent enzyme immunoassay. Sensitisation to fungi was determined either by raised sIgE to a 'mould screen' (comprising *Penicillium notatum*, *Cladosporium herbarum*, *Aspergillus fumigatus*, *Candida albicans*, *Alternaria alternata* and *Helminthosporium halodes*) or to specific fungi including those in the mould screen and *Malassezia spp*. Data on the number of hospital-recorded admissions due to an exacerbation of wheezing within the preceding 12 months and currently prescribed medications, hence BTS treatment step, were collected.

Results Table 1 displays the demographic features of the 51 children identified, the number of children with a raised total IgE and evidence of sensitisation to aeroallergens and fungi. Six

(24%) children with a raised total IgE and 4 (31%) sensitised to aeroallergens were sensitised to fungi. Whilst we found a positive correlation between age and serum total IgE (0.364, $r^2 = 0.13$, $p < 0.01$ – Spearman's rank) there was no significant correlation between age and sIgE to the mould screen or specific fungi. We found no significant differences in the age, number of hospital-recorded admissions due to wheeze or BTS treatment step between those preschoolers sensitised and not-sensitised to fungi. **Discussion** Our preliminary data suggests that a) few children with preschool wheeze attending clinic have evidence of fungal sensitisation and b) fungal sensitisation does not appear to be associated with hospitalisation frequency or required medications. Further exploration is required to determine, if any, the relationship between fungal sensitisation and preschool wheeze.

Abstract S71 Table 1 Demographic data, evidence of sensitisation and clinical parameters

Male, n (%)	30 (59)
Median (range) age in months	39 (8–71)
Serum makers of allergic sensitisation	
Raised total IgE (> 52 kU/L), n (%)	25 (49)
Evidence of sensitisation to aeroallergens, n (% of those with raised total IgE)	13 (52)
Evidence of sensitisation to fungi, n (% of those with raised total IgE)	6 (24)
Evidence of sensitisation to fungi, n (% of those sensitised to aeroallergens)	4 (31)*
Number of hospital-recorded admissions due to wheezing in one year	
≥2 admissions (n = 14)	2 (14) †
Number sensitised to fungi, n (%)	
<2 admissions (n = 37)	4 (11) †
Number sensitised to fungi, n (%)	
BTS treatment step[#]	
BTS step 3 or above (n = 11)	2 (18) †
Number sensitised to fungi, n (%)	
BTS step below 3 (n = 40)	4 (10) †
Number sensitised to fungi, n (%)	

*Those children sensitised to aeroallergens were more likely to be sensitised to fungi than those not sensitised to aeroallergens, $p < 0.05$ (Pearson chi-square). †There was no statistically significant difference between the number of children sensitised and not-sensitised to fungi and the number of hospital-recorded admissions or required asthma medications, $p > 0.05$ (Pearson chi-square). [#]BTS treatment step (BTS/SIGN 2014 guidelines on the management of asthma).

S72 IMMUNOMODULATORY EFFECTS OF CARBON PARTICULATES ON MACROPHAGE HANDLING OF STREPTOCOCCAL INFECTIONS

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Background and objective Airway macrophages are key to a successful immune response to pulmonary infections. Smoke exposure has been previously shown to result in particulate loading of alveolar macrophages and subsequent impaired macrophage responses to infection with *Streptococcus pneumoniae*.¹ Rheumatic heart disease (RHD) is an autoimmune disorder that follows an airway infection with *Streptococcus pyogenes* in some individuals. Little is understood about the aetiological factors predisposing the development of RHD but smoke exposure from combustion of solid fuels has recently been epidemiologically linked to RHD.

In the context of this epidemiological observation, we hypothesised that smoke exposure would affect macrophage handling of