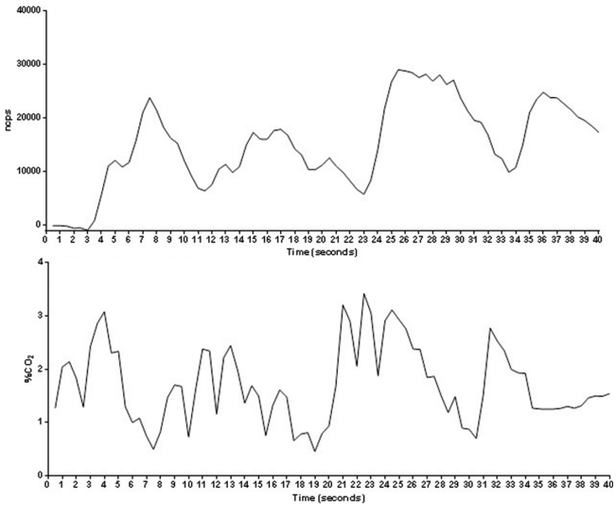

Abstract P92 Figure 1 Spectrum for m/z 59 (1a) and capnography trace (1b). ncps = number of counts per second

Discussion The comparability of the traces for the spectrum of m/z 59 and capnography suggests that real-time PTR-ToF-MS is detecting eVOC which relate to end-tidal breathing. The traces are likely offset due to the lag between end-tidal exhalation and the sample reaching the apparatus. This feasibility study has demonstrated that real-time analysis of eVOC is possible in preschool children in an acute setting. Further work is needed to determine the most accurate way of analysing the spectra to be able to apply this novel, non-invasive method of investigating airway inflammation and pathology in preschool children.

REFERENCE

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P93 THE PRACTICALITIES OF USING ALLERGEN-IMPERMEABLE BED COVERS IN CHILDREN WITH MITE ALLERGIC ASTHMA

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Objective As part of a randomised double-blind placebo-controlled study in children with mite-allergic asthma, mite-impermeable bedding encasings were evaluated in terms of reduction in allergen exposure and patient/parent acceptability.

Methods Physician diagnosed asthmatic children (3–17 years) were recruited following an exacerbation of asthma. Mite-sensitised children were randomised to either mite-impermeable encasings for the mattress, pillow and duvet (Astex Pristine; ACP solutions, Gloucestershire, UK) or placebo encasings (100% polycotton; Musbury fabrics, Rossendale, UK), in a double-blind manner. Vacuumed dust samples were collected from the child's mattress prior to fitting the encasings and at 12 months, stored at -20°C, then analysed for mite allergen content (Der p1) by enzyme-linked immunosorbent assay (Indoor Biotechnologies, Cardiff, UK). Questions aimed at assessing the practicalities of using the encasements were asked of parents by an interviewer blind to their allocation, 8–12 months later.

Results 284 children (mean age 7.7 years; 65.8% male) were randomised (146 active; 136 placebo). There was an 84% decrease in Der p 1 levels in child's mattress in those using the mite-impermeable encasings, which was not seen in the Placebo group ($p < 0.001$). Data on 'use of bedding encasements' were obtained from 232 participants. Significantly more families in the active group reported that the duvet slipped within its cover, compared to the placebo group (32.2% vs 5.3% respectively, $p < 0.001$) and that it was "noisy" (14.4% active vs 0.9% in placebo, $p < 0.001$). Some reported the extra covers made them too warm (3.4% active vs 1.8% placebo, $p = 0.64$). Overall 31 (26.3%) using the mite-impermeable encasings rated them as "uncomfortable" compared with 2(1.8%) in the placebo group ($p < 0.001$). Furthermore, 30(25.4%) children in the mite-impermeable group said they would prefer to have the encasings removed, compared to 3(2.6%) in the placebo group ($p < 0.001$). There was no difference in the numbers of families who stated that they would continue to use the encasings if it were of benefit to the child, (87.3% mite-impermeable vs 89.35% placebo $p = 0.68$)

Conclusions Mite-impermeable encasings can significantly reduce mite allergen levels in the bed. Despite some practical issues, most families are willing to use this intervention if it is of benefit to their child's asthma.

P94 EFFECT OF HYDROXYUREA ON NOCTURNAL AND AWAKE OXYGEN SATURATION IN CHILDREN WITH SICKLE CELL DISEASE

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Introduction Sickle cell disease (SCD) causes lifelong morbidity and reduced life expectancy. Resting hypoxaemia and intermittent nocturnal oxygen desaturation are often seen in children with SCD, which may contribute to morbidity associated with vaso-occlusive episodes. Treatment with hydroxyurea reduces the frequency and severity of vaso-occlusive episodes[1] but the impact of hydroxyurea on oxygen saturation and sleep apnoea is unknown.

Objective To look for any difference in baseline oxygen saturation asleep and awake and the frequency of intermittent nocturnal desaturation after starting hydroxyurea in children with SCD.

Methods A retrospective review of children who were commenced on hydroxyurea between March 2006 and July 2014 attending two UK sickle-respiratory clinics. Data was collected from overnight sleep studies and averaged pulse oximeter spot check recordings in clinic notes when awake from a) 6 months before starting hydroxyurea and b) up to 2 years after. Lung function and haemoglobin changes were also noted over the same time periods.

Results Forty six children (25 male) with a median age of 10 years (range 5–19 years) were started on hydroxyurea. Haemoglobin and HbF rose significantly on hydroxyurea as expected (Table 1). After starting hydroxyurea the average overnight oxygen saturation increased from median of 93.5% to 95.2% ($p = 0.01$) and the median daytime spot oxygen saturation rose from 93.5% to 96.3% ($p = 0.001$). There was no significant change in the median intermittent nocturnal 3% oxygen desaturation index (ODI), nocturnal PCO_2 or spirometry.