Outputs We provided *Pseudomonas* eradication therapy (previously published – White *et al*. 2012) and have piloted a home intravenous antibiotic service providing treatment for exacerbations which saved 497 hospital bed days in 2013. Twenty one patients received 37 home intravenous courses; of these, 17 courses were self-administered. Overall we reduced annual bronchiectasis admissions by 30% when comparing with 2011–12, equivalent to 23 fewer admissions over the year.

We have developed an online database and clinical record tool which can be shared and updated by hospital and community alike. As well as allowing rapid communication, the database shows trend analysis, logging of microbiology/antibiotic use and is a valuable audit and research resource.

We held a recent workshop comprising CCG, community partners and hospital stakeholders. We developed a new dynamic care pathway showing a combined "community/hospital hub" which will work with partners in primary and secondary care (Figure 1). We propose that such shared care working represents a useful model for broad application elsewhere.

Getting to grips with paediatric lung disease

P96 A NEW INTERACTIVE GAME DEVICE MAY IMPROVE COMPLIANCE WITH SPACER DEVICES IN VERY YOUNG CHILDREN

[1]CS Murray, [2]S Shakir, [1]T Aslam. *[1]University of Manchester and Central Manchester University Hospitals NHS Foundation Trust , Manchester, UK; [2]Penine Acute Hospitals NHS Trust, Manchester, UK*

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Background The use of spacers in young children is not always easy and can result in distressed children and parents. We aimed to develop and assess an interactive electronic game to improve ease of use and potentially compliance with inhalers in young children.

Methods The Respiratory Aid For Inhalers (RAFIhaler) consists of an electronic sensor adjacent to the outflow valve of a spacer mask, providing input every 0.1 seconds to a custom designed android application on a smartphone that is mounted, in full view of the child, on top of the spacer. The application displays on-screen characters designed to respond to correct breathing as part of a game storyline, for example by blowing away characters unfriendly to the hero (RAFI) or blowing his boat across a river. The RAFIhaler was developed through iterative testing and multiple redesigns of hardware and software until a satisfactory final module was completed.

This module was tested on 14 children admitted to hospital with acute wheeze by an independent researcher, along with a survey to assess the child's reaction and the parent and child's perceived benefit from RAFIhaler. Open-ended questions allowed further feedback.

Results Fourteen children (2–7 yrs, 7M:7F) participated; 13 children and 14 parents completed the survey. All children stated they enjoyed the activity. Eleven children responded further; 10 (91%) felt the RAFIhaler helped them taking medication. All but one parent felt that RAFIhaler helped their child use the spacer. Of the thirteen parents who felt the RAFIhaler helped, three felt their child previously really struggled with the inhaler. Some benefits of RAFIhaler voiced by parents were: enjoyable (3); good distraction (3); made child calmer (2); helped in breathing/inhalation technique (3); would be useful at home (1). One parent felt RAFIhaler was not of benefit as they felt their child already took their inhaler well.

Conclusions Children universally found using the RAFIhaler with their spacer enjoyable. The majority of parents felt the RAFIhaler helped their child take their medicine. The RAFIhaler may be of use both in encouraging young children to use their inhaler/spacer, and in combatting anxiety and stress associated with their use.

P97 DIVERGING TRENDS IN PREVALENCES OF ASTHMA, ECZEMA AND HAYFEVER IN CHILDREN AGED 9–12 YEARS

M Barnish, N Tagiyeva, L Aucott, G Devereux, S Turner. *University of Aberdeen, Aberdeen, UK*

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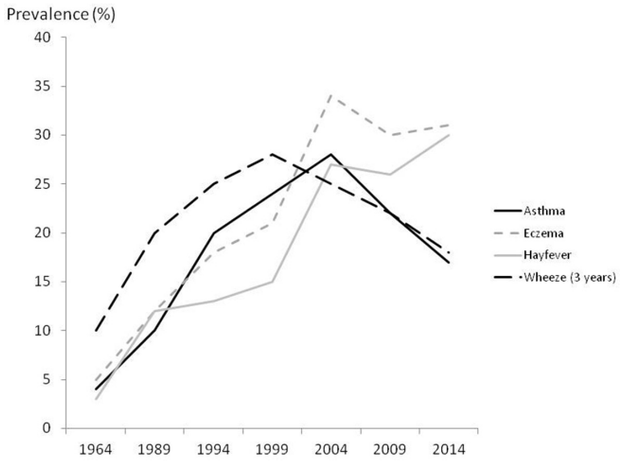
Introduction The prevalences of childhood asthma, eczema and hayfever have been recorded in our local population since 1964. The prevalence of a lifetime history of asthma rose from 4% in 1964 to a peak of 28% in 2004 before falling back to 22% in 2009. Wheeze in the past 12 months fell from 19% in 2004 to 16% in 2009. Lifetime prevalences of eczema and hay fever were approximately 5% in 1964 and had risen to 30% and 25% in 2004 and 2009. Here we present the results of our 2014 survey where we tested the hypothesis that eczema and hayfever prevalence will have followed the earlier trend for asthma and fallen since 2009.

Methods Children aged 9 to 12 years attending local primary schools were eligible. The questionnaire used in previous surveys was distributed to children by teaching staff, completed by parents at home and returned directly to the researchers.

Results Forty-seven schools were invited to participate of whom 41 took part. There were 4175 questionnaires distributed and 1378 returned (33%). The mean (SD) age was 10.9 (1.1) and 50% were boys. A lifetime history of asthma was reported in 17%. Lifetime prevalences of eczema and hay fever were 31% and 30% respectively. Wheeze in the past 12 months was reported in 13%.

Conclusions The proportion of children with a history of ever having had asthma and of recent wheeze continues to fall in our population at a time when the prevalences of eczema and



Abstract P97 Figure 1

hayfever remained static (see Figure). There was a low response rate in this survey and the results should be interpreted with some caution but the findings suggest different underlying mechanisms for asthma and other "allergic" conditions.

P98 A QUESTIONNAIRE SURVEY OF PARENT EXPERIENCES AND PERSPECTIVES IN CHILDREN DIAGNOSED WITH INTERSTITIAL LUNG DISEASE (ILD)

[1]C Gilbert, [2]A Bush, [3]S Cunningham. *[1]ChILD Lung Foundation, Wirral, UK; [2]Royal Brompton and Harefield Trust NHS, London, UK; [3]Royal Hospital for Sick Children, Edinburgh, UK*

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Background and objectives Paediatric ILD is rare, so even clinicians in large centres will see very few cases. We aimed to report the experience of parents of children diagnosed with ILD in order to inform current clinical practice, and future planning of health care.

Methods Between February 2014 and March 2014, UK based families with children given a diagnosis of ILD completed an anonymous comprehensive web-based survey developed by the chILD Lung Foundation. The survey consisted of mainly closed questions, with some open qualitative questions.

Results Of the 37 families who completed the questionnaire, 70% of participants reported that they were very happy/happy with the overall management of their child. Diagnoses: unknown 38% (n = 14), neuroendocrine hyperplasia of infancy 16% (n = 6), *ABCA3* mutations 8% (n = 3), obliterative bronchiolitis (OB) 24% (n = 9), follicular bronchiolitis 3% (n = 1), pulmonary interstitial glycogenosis 3% (n = 1), surfactant protein C mutations (*SP-C*) 5% (n = 2) and chronic bronchiolitis 3% (n = 1). Median age at diagnosis was 35 weeks (range 1 week to 8 years), with 25 weeks the median time from first symptoms to diagnosis (range 1 week to 8 years). Areas of concern were (a) communication; care plans/treatment strategies were provided by a respiratory consultant in only 19 of 37 cases, (b) written information: >50% families could not recall receiving any written information on ILD or their child's specific disease after diagnosis or information on their child's prognosis, (c) psychological support; 91% of respondents reported significant/moderate anxiety, however psychological services were reported as offered to only 7 of 37 families, (d) feeding issues; reported by 77% of families (which is not a feature of ILD described in the literature) and these persisted in 35%, mostly long-term gastrostomy dependency and oral aversion. Qualitative responses included requests for better written communication between hospitals and training for smaller hospitals, and improved specialist nurse support of children with ILD.

Conclusion These data provide a broader understanding of parent experiences and perspectives, which should be important now for professionals looking after children with ILD as well as for those planning of future services.

P99 COMPARISON OF MULTIPLE BREATH WASHOUT USING A COMMERCIAL DEVICE AND A MASS SPECTROMETER IN SCHOOL AGE CHILDREN WITH CYSTIC FIBROSIS

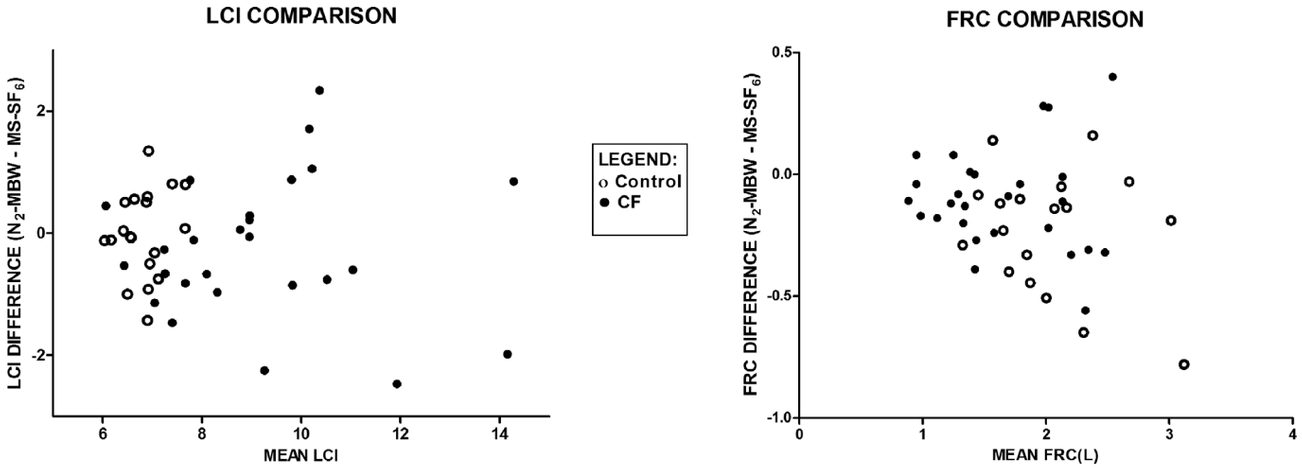
[1]JA Duncan, [1]E Raywood, [2]A Bush, [3]J Stocks, [1]P Aurora. *[1]UCL Institute of Chi Ld Health and Great Ormond Street Hospital for Children, London, UK; [2]Imperial College and Royal Brompton and Harefield Hospital NHS Foundation Trust, London, UK; [3]UCL Institute of Child Health, London, UK*

10.1136/thoraxjnl-2014-206260.240

Background Lung clearance index (LCI) measured by multiple breath washout (MBW) is a sensitive indicator of early lung disease in Cystic Fibrosis (CF).[1] MBW using sulphur hexafluoride (SF_6) and mass spectrometry (MS) is currently the gold standard, but equipment is limited to a few centres. Although commercial devices based on SF_6 have been developed, use of SF_6 is expensive and restricted in some countries. Commercial devices using nitrogen (N_2), which is cheaper and widely available, have been developed recently to increase accessibility of this test in research and clinical practice but have yet to be validated in children. The aim of this study was to compare values of LCI and Functional Residual Capacity (FRC) in children using the N_2-MBW EasyOne Pro® LAB system (ndd Medical Technologies) and the MS (AMIS 2000, Innovision ApS).

Methods School-age children with CF and healthy controls completed MBW in triplicate on both the EasyOne Pro® and MS in random order on the same occasion. Within-subject agreement between devices for LCI and FRC was assessed by Bland-Altman analysis.

Results Of the 50 children recruited, all completed testing using MS, while 5 failed quality control on the EasyOne Pro® LAB. Paired results from both devices were obtained in 26 children with CF (mean age [range]) (13.3y[7.8y-17.4y]) and 19 controls



Abstract P99 Figure 1 Bland-Altman comparison of LCI and FRC between MBW devices. Limits of agreement not shown as variability of the differences are proportional to mean values