Conclusions Parents wanted to participate in research with non-invasive sampling/salvage of waste. This provided valuable samples over extensive time periods. This could be used in other vulnerable groups. Bio-banking of such valuable samples may provide important opportunities for future research, avoid additional invasive sampling, and be time efficient.

481 MITIGATION OF THE ALLERGIC ACTIVITY OF OVOMUCOID BY ELECTROLYSIS

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Ovomucoid (OMC) is the most prominent allergen causing egg allergy, and contains disulfide (S-S) bonds that may be responsible for its allergic action. As S-S bonds may be reduced during electrolysis on the cathode side, this study was undertaken to evaluate modulation of the allergic action of OMC after electrolysis. A current of 30 mA/cm^2 was applied. The allergic action was evaluated by means of skin prick tests (SPT) with egg-allergic patients, and the modification of OMC was examined by MALDI-ToF-MS after tryptic digestion. The total free SH groups in 1% OMC solution were increased on the cathode sides after electrolysis for 30 minutes (14.8 nmol/ml) as against those of untreated OMC (1.2 nmol/ml) and OMC on the anode side (2.8 nmol/ml). Significant mitigation of the wheal reactions by 22% were observed in the SPT with OMC on the cathode when compared with those for untreated OMC, however, the wheal reactions on the anode side did not differ from those for untreated OMC. The MALDI-ToF-MS results for untreated OMC or OMC on the anode side showed two peptide fragments suspecting potential S-S bonds (residues 63L-85S, 358A-379R) but, on the contrary, OMC on the cathode side did not give the fragments suspecting potential S-S bonds. The allergic action of OMC can be mitigated during electrolysis on the cathode side, being simultaneously formed intramolecular free SH groups. This study was supported by the Kieikai, Tokyo, and a Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science.

482 PROSPECTIVE MULTICENTER SURVEY OF COW'S MILK ALLERGY IN NICU NEONATES

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Background and Aims Food hypersensitivity is a common cause of digestive symptoms in neonates. To confirm the diagnosis of neonatal cow's milk allergy (CMA), an oral food challenge (OFC) test should be conducted. However, many neonatologists in Japan avoid OFC because of excessive anxiety regarding induction of severe symptoms and continue to feed babies therapeutic formula without an accurate diagnosis. We conducted a prospective multicenter survey in which the standardized OFC was required in neonates with mild symptoms suggesting CMA.
Methods Neonates presenting with digestive symptoms suggesting CMA and who underwent OFC were enrolled between April 2010 and September 2011. Neonates with severe complications, inborn disorders or severe symptoms at the onset, such as anaphylaxis, mass gastrointestinal bleeding, or perforation, were excluded. This study was conducted as a multicenter survey of major NICUs in Japan.
Results OFC was performed in 52 neonates and positive inductions of symptoms were seen in 23 (44%) of the challenged neonates. The majority had mild digestive symptoms which disappeared immediately after elimination of the causal milk. According to the results of OFC, the sensitivity, specificity, and positive predictive value of milk-specific IgE were 0%, 93%, and 0%, and those of the allergen-specific lymphocyte stimulation test were 61%, 76%, and 67%, respectively.
Conclusions Diagnostic OFCs for CMA were safely carried out in neonates. The discontinuation of certain foods as part of an elimination diet can lead to appropriate nutrition management. In NICUs, OFC should be carried out more aggressively with careful observation.

483 REGIONAL REVIEW OF PAEDIATRIC RADIOALLERGOSORBENT TESTS® (RAST) OVER 5 YEARS IN IRELAND: AN EPIDEMIOLOGICAL STUDY IN A DEFINED BIRTH COHORT

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Background and Aims RAST and related in-vitro tests assist in diagnosing childhood allergies.
Aims 1. To analyse paediatric RAST results and determine local prevalence of sensitivities, 2. To develop guidelines towards recetly introduced ImmunoCAP® test panel selection incorporating local sensitivity prevalence in Ireland.
Methods RAST requests from 0–16 year population in Mid-West of Ireland were analysed between January 2004 to February 2009, excluding those not born in the Regional Maternity Hospital, to gain true birth cohort reflection of sensitivity patterns. Both total and allergen specific IgE levels were tabulated.
Results Total of 3033 successful sample requests for RAST (Immulite 2000) during the 62 month study period qualified for analysis. Standardised classification system for allergen specific allergy levels showed mean total IgE of study population at 314.75 kU/L and median of 52kU/L (expected elevated levels in a possible symptomatic patient sample). 76.8% of tests originated in hospitals and 23.2% from primary care. Most commonly tested allergen was house dust mite (1595) followed by Timothy grass (1155) and at 3rd place food panel 5 comprising egg white, milk, cod fish, wheat, peanut & soya bean. With standardised cut-off levels high and very high levels were noted frequently for egg 5.5%, dust mite 19%, timothy grass 14% followed by Horse, Cat and Dog. Our ImmunoCAP test guidelines incorporated information from RAST audit.
Conclusion Our paediatric RAST analysis provided regional allergen specific sensitivity pattern in Ireland thus assist ing clinicians in choosing appropriate allergens to be requested thus reducing cost and enhancing clinical relevance.

484 CAN RESPIRATORY QUESTIONNAIRE COMPLETION BY PARENTS OBVIATE THE NEED FOR OUTPATIENT ASSESSMENT?

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Background and Aims Continuing care of asthmatic children is traditionally provided in outpatients settings. This study evaluated the effectiveness of both asthma and upper airway cough syndrome assessment by questionnaire and its acceptability to parents.
Methods The parents of children aged 4–13 years, attending an asthma clinic, were requested to complete the Asthma Control Test (ACT) and Respiratory Assessment Proforma (RAP). The RAP

assessed the symptoms of upper airway cough syndrome, asthma medication use and associated risk factors. Parents were asked their views of these assessments as an alternative to attending clinic utilising a Likert questionnaire cuing at 1 not at all and at 6 a lot. All children performed pulmonary function tests at the clinic and these were compared to the ACT scores. The RAP was compared to Physician assessment of Asthma and associated co morbidities.

Results One hundred and nine questionnaires were distributed with 102 fully completed. The M: F was 1.8:1. The mean age was 9.1. Asthma severity was mild in23 (23%), moderate in 59(59%) and severe in 18 (18%).The positive predictive value of ACT versus pulmonary function tests was 89%. The RAP identified 19 (18.6%) children with good asthma control but significant UACS symptoms. Fifty six (55%) parents would utilise the questionnaire to obviate a clinic visit, if rapid access to the clinic was available.

Conclusion Questionnaire assessment can adequately identify the absence of asthma and UACS symptoms in children and is acceptable to more than half of parents attending an asthma clinic.

485 REGULATORY T CELLS SUBSETS IN CHILDREN WITH SLE

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In the case of SLE, Treg deficiencies have been described in mouse models of SLE. However, there are somehow conflicting data in the literature on whether Treg cells in human SLE are numerically and/or functionally impaired. We aimed to quantify CD4+CD25+Foxp3+ T cells in children with SLE and to correlate these findings with their disease activity scores and drug therapy. We enrolled 37 pediatric SLE patients and 20 healthy children. The disease activity was assessed by measuring serum levels of anti-dsDNA antibody and by using scores of SLEDAI. The CD4+CD25+, CD4+CD25^{bright} and CD4+CD25^{dim} cells in patients were significantly increased than controls. There was no significant difference in the FoxP3% gated on CD4+CD25^{bright}, CD4+CD25^{dim} and CD4+CD25-cells in patients and controls and between different grades of activity, different lines of treatments and patients outcomes as regards all studied values. There was no significant correlation between any of studied parameters with SLEDAI score except gated lymphocytes which have significant negative correlation. The increase of CD4+ CD25+ T cells in pediatric patients with active SLE may be a result of increased usage of corticosteroids that affect the phenotype of the T cells without affection on its regulatory suppression function indicated by FoxP3.

486 PRENATAL ALLERGEN EXPOSURE FACILITATED AIRWAY REMODELING BY AIRBORNE ALLERGEN STIMULI IN POSTNATAL LIFE

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Background Murine asthma models are mainly created through adulthood sensitization, but lack airway remodeling hallmarks.

Aims This study aimed to examine airway remodeling in the prenatally-sensitized murine asthma model.

Methods FVB/N fetuses were exposed to aluminum-free ovalbumin (OVA) of 50 μg on gestational day 14, and subjected to aerosolized OVA challenge in their postnatal life. Lung sections were examined after hematoxylin-eosin, periodic acid-Schiff, and Masson's trichrome stainings.

Results Following prenatal OVA sensitization, neither the neonate nor the adult showed any evidence of inflammatory cell infiltration and airway remodeling. Postnatal aerosolized OVA stress elicited extensive peribronchial and perivascular eosinophilic inflammation. The allergic airways were plugged by exfoliated epithelia and mucus. We identified two distinct patterns of epithelial desquamation: complete denudation of airway epithelia, exposing fragmented basement membrane; and peeling of columnar epithelia, leaving a single layer of basal cells adherent to basement membrane. There was subepithelial collagenosis in extrapulmonary airways and smooth muscle hyperplasia was evident in terminal airways. Prenatally OVA-primed mice had no mucin-positive goblet cells in intrapulmonary airways as normal mice, but showed goblet cell metaplasia in large intrapulmonary airways even following mechanical saline stress. However, goblet cell metaplasia spread distally towards small terminal airways after aerosolized OVA challenge. Asthma models through adulthood sensitization only exhibited peribronchial or perivascular inflammation and goblet cell metaplasia.

Conclusions Fetal OVA exposure intensified airway responsiveness to airborne OVA stimuli in postnatal life to cause pathognomonic structural alterations in the lung.

487 THE INFLUENCE OF INHALED CORTICOTHERAPY ON THE GROWTH AND DEVELOPMENT IN ASTHMATIC CHILDREN

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Background Inhaled corticotherapy is the main anti-inflammatory controller type therapy in asthmatic children. Impaired growth as a result of long-term corticotherapy remains a disputed issue of topical interest for both endocrinologists, pneumologists and pediatricians.

Objective The study evaluates the influence of long term small dose inhaled corticotherapy on growth and somatic development in asthmatic children.

Methods Observational analytical study on 2 samples of subjects. The study group: 100 asthmatic children with small dose inhaled corticotherapy (beclomethasone dipropionate Becotide 200–400 μg/day or fluticasone propionate Flixotide 100–300 μg/day), for 24 months therapy. The control group: 100 healthy children. Both groups were divided in 5 homogeneous age subgroups, between 5–19 years of age. For both groups the relevant anthropometric landmarks for assessing growth were measured in dynamics at every 6 months, in a 2 years follow-up: body height, shank and plant length growth; thorax, skull, hip, shank and arm circumference growth. The statistical SPSS software was utilized and the index t-test was calculated ($p>0.84$).

Results Comparative evaluation of anthropometric indices after 1 year, respectively 2 years of medication in all age subgroups revealed a minimum reducing of the growth rate in the study group without statistical significance.

Conclusions Inhaled corticotherapy in small doses in a long term therapy (2 years) doesn't significantly affect growth and somatic development in asthmatic children.

488 THE DEFICIT IN IMMUNOGLOBULIN A, AUTOIMMUNITY RISK

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Introduction and objectives The immunodeficiencies (ID), by the subsequent impairing of the immunoregulation, may be at the origin of certain autoimmune diseases (AID).

The deficit in immunoglobulin A is one of the most frequent ID associated with AID.