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BRITISH SOCIETY FOR ALLERGY AND CLINICAL IMMUNOLOGY (BSACI) ABSTRACTS OF THE 2020 ANNUAL MEETING

ORAL ABSTRACTS – ADULT CLINICAL

O01 | Effectiveness of nurse-led new patient allergy clinic

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Objectives: The allergy service at Broomfield Hospital receives approximately 800 new referrals annually. The service includes two weekly nurse-led clinics where new patients and follow-ups are assessed. We collected data relating to patient outcomes in order to determine the effectiveness of this service.

Method: We reviewed clinic letters for new patients seen between July and September 2018 and 2019. We collected data pertaining to waiting times, provisional diagnosis and management. We also determined how many patients were subsequently discussed in our allergy MDT and required consultant review.

Results: 97 new patients were seen. The median age was 39. The average waiting time was 232 days. Thirty eight patients were diagnosed with angioedema and/or urticaria and 30 with food allergy. A further six were diagnosed with food anaphylaxis. Less common diagnoses were scromboid toxic poisoning and hereditary angioedema.

Forty eight patients were prescribed and given information about antihistamines, which was the most common intervention. Twenty five were prescribed and trained in the use of an adrenaline autoinjector. Four were referred for further complex interventions (immunotherapy, C1-esterase inhibitor and Omalizumab).

Twenty nine patients were discussed at the allergy MDT, and two were subsequently reviewed by a consultant.

Outcome	2018	2019
Discharged	13	28
Followed up and subsequently discharged	13	1
Ongoing follow-up	16	19
Referred for complex interventions	1	3
Reviewed by consultant	1	1
DNA after first follow-up	0	1
Total	44	53

Conclusions: The nurse-led allergy clinic is an effective service with patients requiring further consultant review infrequently fulfilling a key role in reducing consultant workload and increasing service capacity. Discharge rates at first appointment increased over time reflecting increasing confidence in independent working. Additional benefits include confirming diagnosis, therapeutics and patient education in one single visit. Allergy nurse specialists can be encouraged to develop their clinical skills to improve service responsiveness.

O02 | Compliance with NAP6 recommendations for investigation of general anaesthetic allergy in a nurse-led small centre setting

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Objectives: Since 2013, we have developed an increasing service for the investigation of GA anaphylaxis in a nurse-led drug challenge setting supported by an allergy MDT. We aimed to assess outcomes from this service against NAP6 in the 12 months post-publication of recommendations.

Method: We reviewed notes pertaining to 17 cases referred to the allergy service following perioperative reactions.

Results: 17 cases were referred during the 12 month period. Time intervals in the patient pathway were calculated: acute event to referral range 1-76 days (median 18 days); referral received to initial assessment range 1-284 days (median 46 days); receipt of anaesthetic notes range 14-250 days (median 76 days); referral to completion of testing range 12-388 days (median 174 days). Six percent (1/17) had a completed AAGBI form. Acute tryptase levels were sent in 59% (10/17) of cases. All patients had spIgE testing, skin prick and intradermal testing. Twenty nine percent (5/17) had injection challenge; 24% (4/17) had oral challenge. Hundred percent (17/17) of cases were discussed in MDT.

Four cases were felt to have alternative diagnoses to anaphylaxis (urticaria x 2; bronchospasm; pneumoperitoneum). Of the remaining 13 cases of confirmed anaphylaxis, causes identified were: patent blue dye (5/13); atracurium (4/13); co-amoxiclav (2/13); diclofenac (1/13); and unexplained (1/13). Out of these 13 cases, 77% (10/13) had completed drug allergy notifications; 85% (11/13) had a drug allergy letter compliant with NAP6 standards; 54% (7/13) had a yellow

card report. All patients had electronic and paper documentation of allergy with medic alert advice given.

Conclusions: We have demonstrated that with MDT and regional network support a nurse-led service can provide appropriate assessment, investigation and diagnosis of drug allergy. Areas requiring improvement are being addressed within the service and with the re-design of the referral pathway following the merging of our three Trusts.

O03 | Anaphylaxis in Emergency Department Unit: Before and during COVID-19

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Objectives: After the declaration of COVID-19 as a global health emergency, its impact has been observed on all aspects of healthcare at an alarming speed. In this study, we aimed to assess the effect of COVID-19 on anaphylaxis by evaluating data from patients admitted to the emergency department with symptoms and laboratory findings suggestive of anaphylaxis before and during the pandemic.

Method: We retrospectively analysed data for patients attending University Hospitals Leicester Emergency Department (EDU) with clinical findings of a systemic allergic reaction and mast cell tryptase (MCT) elevation (≥11.4 μg/L) in the first half (January to June) of 2019 and compared it with those from the same period in 2020. The subjects have been categorized according to severity of their presentation (Brown Classification), possible trigger for anaphylaxis (food, drug, venom), MCT values analysed during the acute reaction and their management strategies in the EDU.

Results: There was a substantial reduction in the number of patients attending EDU with a probable diagnosis of anaphylaxis from 62 in the first half of 2019 to 10 in 2020. The Brown classification was significantly different between years with a predominance of Brown Grade 1 (52%) in 2019 and Brown Grade 2 (80%) in 2020 ($P = 0.04$). The mean MCT value was 19.1 ± 8 μg/L in 2019 and in 20.8 ± 12 μg/L in 2020. The existence of an obvious culprit allergen was higher during COVID ($P = 0.04$) and was drug related in 60% of cases.

Conclusions: Our study found a significant reduction in the number of patients attending EDU with anaphylaxis after the start of the COVID-19 pandemic, but the severity of anaphylaxis was increased. This change may suggest the reluctance of patients to attend the hospital even in a life-threatening situation. Therefore, tertiary prevention strategies should be enforced for reducing the unfavourable outcome of this pandemic on anaphylaxis.

O05 | Mapping outcomes of supervised open food challenges to a clinical risk stratification model in a specialist UK regional allergy service

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Objectives: Supervised open food challenge (SOFC) is used to exclude type-1 hypersensitivity in patients with suspected food allergy (FA) with a negative or high probability of a false-positive allergy test.

Aim: To characterize patients who underwent SOFC and map outcomes to a clinical risk stratification model.

Method: Retrospective chart review; patients classified as: group-1 (likely IgE mediated), group-2 (likely non-IgE mediated), group-3 (food allergy unlikely) and group-4 (indeterminate history)—adapted from our study on penicillin allergy de-labelling (Mohamed O et al, JACI IP 2019).

Results: N = 206 patients (mean age: 35.8 ± 31.1 years; males 27%); group-1 (n = 102[50%]), group-2 (n = 5[2%]), group-3 (n = 59[29%]) and group-4 (n = 40[19%]). 43(21%) clinical presentations met WAO diagnostic criteria for anaphylaxis; 74(36%), 43(21%) and 10(5%) cases presented with history of mild, mild-moderate and severe allergic reactions respectively (Brown's classification). Co-morbidities: allergic rhinitis (35%), asthma (30%), eczema (17%), chronic spontaneous urticaria (12%) and cardio-respiratory (6%). Skin prick test and/or serum specific IgE (component test where relevant) with relevant allergen/s were performed. Allergy tests were positive in 52(25%) patients. Allergens involved were tree nuts (19%), peanut (17%), seafood (18%), wheat (7%), milk (8.5%), egg (7%), fruits (7%), vegetables (6%), seeds (5%) and others (6%). SOFCs outcomes: negative = 197(96%), positive = 7(3%) and inconclusive = 2(1%). There were no cases of SOFC-induced anaphylaxis and none required adrenaline. Negative predictive value (NPV) of allergy tests: (a) whole cohort = 96% (b) groups 1-4 = 94%, 100%, 100%, 96%, respectively.

Conclusions: FA tests carry a high NPV. A combination of risk stratification and FA tests may safely circumvent the need for SOFCs and facilitate implementation of guided home challenges in vast majority of cases. This approach, however, needs to factor in patient preferences and requires validation prospectively in a multicentre study.

ORAL ABSTRACTS—ALLIED HEALTH

O06 | Evaluation of a pilot dietetic-led 'invest-to-save' rapid access cows' milk allergy service

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Objectives: The presentation of cows' milk allergy (CMA) overlaps with other common infant conditions. This complicates diagnosis, often leading to high healthcare utilization and incorrect usage of specialist infant formula. A 12-month invest-to-save dietetic-led rapid access service for infants with suspected CMA was launched in 2019. The aim of this study is to evaluate the service against financial, activity and prescribing outcomes.

Method: A twice-weekly outpatient clinic was established, in which infants with suspected mild-moderate CMA are seen by a paediatric dietitian after referral from primary care. The clinic aims to assess infants within 14 days, diagnose and propose a management plan as clinically indicated, follow-up to advise on complementary feeding and reintroduction, as required. Data were collected using patient records, outpatient statistics and primary care medicines management records over a 10-month period in 2019 and compared to data from the same timeframe in 2018.

Results: Compared to 2018, there was an 80% increase in referrals for CMA in 2019 (298 versus 165). Forty three percent of infants referred were seen within 14 days, compared to 14.1% in 2018. In infants <2 months old, the average time from referral to first contact was 11 days in 2019, including weekends. The non-attendance rate for clinic appointments decreased from 20.5% to 13.3%. Overall, the total spends on specialist formula for CMA decreased by 26.9%, an annualized saving of £101,073.48, against an investment of £23,000 (339% return). The majority of the cost savings (83.6%) were attributed to a decrease in inappropriate prescribing of amino acid formula.

Conclusions: This dietetic-led pilot project demonstrated reduced delays in first patient contact, improved attendance rates and a >300% annualized return based on salary investment. Patient experience data will be used to further develop the service, which has been funded for another year.

O07 | Preventing peanut allergy in East London—Audit of early peanut introduction among high-risk infants at The Royal London Hospital

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Objectives: LEAP study allergy prevention supports introducing peanut <1 year old, particularly in high-risk infants. Early introduction advice (EIA) is routinely given at Royal London Hospital but unclear if adopted by families. We assessed EIA peanut consumption compliance in high-risk infants and influencing factors.

Method: 29 identified patients (22 clinic letters, seven challenge database) participated. Inclusion criteria: <1 year old, eczema +/- egg allergy, baseline visit January '19 – March '20, peanut skin prick test (spt), not eating peanut at baseline, challenged (home (spt 0mm)/ hospital (spt 0–<5mm). EIA post-outpatient appointment or after passing hospital challenge. Telephone calls captured consumption and compliance data.

Results: Participants—16/29 (55%) female, 21/29 (72%) Asian ethnicity and 65% had diagnosed egg allergy. Mean age at EIA—8.4 months, median duration between EIA and telephone data collection—7 months. 23/29 (79%) attempted regular peanut consumption (includes all hospital challenges), 15/23 (65%) still eating regularly, 12/15 (80%) eating at least 1x/week with median consumption 4 g/week peanut protein. Products used—13/15 (92%) peanut butter, one crushed peanut, one *Bamba*. Post-hospital challenge all patients tried regular consumption, six home challenges did not (4 'too anxious', 2 'forgot the advice'). Of those that did try but stopped (8/23)—5 cited 'taste' and three reported delayed reactions (all three home challenges). No home challenge acute reactions reported. Almost half (14/29) of respondents recalled the primary allergy prevention reason for early peanut introduction, 2/29 said it was for diet variety and 13/29 could not remember a reason.

Conclusions: Home peanut introduction in this patient group was high and safe. Many continued regular consumption as per EIA. Offering more opportunities/time to discuss the importance of early intervention may help increase home challenge rates. Support with taste options could further improve consumption compliance post-challenge.

ORAL ABSTRACTS—UNDERGRADUATE

O08 | Validation of blinded recipes in children for use in double-blind placebo-controlled food challenges with egg, peanut and milk

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Objectives: Double-blind placebo-controlled food challenge (DBPCFC) is considered the gold standard method for the diagnosis of food allergy[1]. It is hard to successfully blind allergens, and validated recipes may contain salt and sugar as a disguise. This study aimed to validate recipes for milk, peanut and egg in a paediatric population subscribing to current recommendations on nutrition.

Method: Three schools in Exeter agreed to participate in prospective food tastings. Children underwent random allocation to receive either a chocolate orange shake, sweetcorn fritter or sliced bread; further double-blind randomization occurred to allocate samples. Using a triangle test, participants had to identify the odd one out. A 9-point visual Hedonic scale was used to evaluate the smell, taste and texture of an unblinded sample.

Results: One hundred and thirteen children participated (49.6% male) with a mean age of 10.8 years. The co-morbidities included asthma (6.2%), atopic dermatitis (8.8%) and seasonal allergic rhinitis (10.6%).

In the peanut group, 54.1% correctly guessed the 'odd' bread slice (P = 0.007). In the cow's milk group, 33.3% correctly guessed the 'odd' chocolate orange shake (P = 0.559). In the hen's egg group, 54.1% correctly guessed the 'odd' fritter (P = 0.007).

With regards to palatability, the average score [SD] for each food for taste was: peanut 7.0 [1.0], egg 6.2 [1.7], milk 6.2 [1.8]. Texture scores were as follows: peanut 6.7 [1.4], egg 6.4 [1.8] and milk 6.2 [1.9]. Smell the scores were as follows: peanut 6.4 [1.4], egg 6.8 [1.3] and milk 6.2 [1.4].

Conclusions: We used sensory testing to validate cows' milk, and savoury hen's egg and peanut recipes for use in DBPCFC in a real-world environment on a paediatric population. Cow's milk was well blinded, however, peanut and egg were identifiable. While the savoury egg and peanut recipes were well-tolerated savoury options for open challenges, the milk recipe would be suitable for a DBPCFC.

ORAL ABSTRACTS—ALLIED HEALTH

O09 | Coping strategies of parents of children with food allergy are more adaptive than parents of children with no long-term conditions: a multi-national study

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Objectives: Food allergy has been shown to affect the quality of life and mental health of parents of children with this condition, but less research has focused on how parents cope. The use of adaptive coping strategies can result in more effective condition management and better mental health and quality of life. This study aimed to compare coping strategies used by parents of children with food allergy compared to parents of children with no long-term conditions, in a multi-national sample.

Method: A cross-sectional online survey was used to gather information from parents of children who are still living at home and aged 0-17 years, with either medically diagnosed food allergy (FA group) or with no allergy or other diagnosed long-term condition (control group). Demographic and food allergy information was collected, the Brief COPE was used to measure coping strategies used by parents.

Results: A total of 1178 parents completed the survey: 835 parents of children with food allergy, 314 parents of children with no long-term condition. The majority (80%) were mothers. Participants were from the UK (45.9%), USA (14.9%), Australia and New Zealand (22.5%) and Canada (14.5%). The FA group reported significantly greater use of active coping, planning, acceptance and instrumental support compared to the control group. They reported significantly less use of distraction, substance use, behavioural disengagement, religion and humour (all $P < 0.05$ to $P < 0.001$).

Conclusions: Coping strategies used by parents of children with food allergy appear to be more adaptive than those used by parents of children with no long-term conditions. Adaptive strategies have been shown to relate to better condition management, quality of life and mental health across several different conditions such as diabetes and asthma. Whether such strategies relate to better outcomes for parents of children with food allergy needs to be explored to see if these strategies should be promoted.

ORAL ABSTRACTS—PAEDIATRIC CLINICAL

O10 | Covid-19: Allergen-free shopping during a pandemic

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Objectives: Shopping for allergen-free products for children with allergies can be challenging. The global spread of coronavirus disease 2019 (COVID-19) caused sudden changes in shopping habits with many stockpiling food and food availability shortages. We investigated the impact this had for parents of children with food allergies.
Method: We successfully contacted 29 of 30 randomized patients receiving allergy follow-up at West Hertfordshire Hospitals NHS Trust. A series of questions were asked, including details of allergies, other atopic co-morbidities, changes to shopping habit, and concerns around allergy reactions and their management during the lockdown period. Data were collated and analysed using Microsoft Excel spreadsheet.
Results: The cohort was aged between 1 and 15 years (median age 5 years). Eighty three percent had more than one allergy and 42% had multiple atopic co-morbidities. Prior to lockdown, 83% of parents shopped at supermarkets. This reduced to 55% during lockdown with a corresponding increase of 21% in online shopping. Twenty seven percent had difficulty obtaining allergen-free products and 17% bought an alternative unfamiliar product. Fourteen percent of the cohort experienced mild allergic reaction; 1 child reacted to a substitute product. No anaphylaxis was reported. Ninety seven percent of parents felt that their child was either at the same or less risk of having an allergic reaction.
Conclusions: Our data show that some families had difficulty in sourcing familiar allergen-free foods. Most families did not feel the risk of an allergic reaction was higher than prior to lockdown—due to increased control over child's diet and confidence with allergy management. Although families felt safer, one child had a reaction as a result of an alternative product. With the possibility of a second wave, we recommend providing robust dietary advice for families of children with allergies with accessible advice from a dietitian. We also welcome initiatives from supermarkets to support those with dietary restrictions.

O11 | Paediatric allergy transition clinics: A service evaluation

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Objectives: Allergic diseases diagnosed in childhood often persist into adulthood. Transition adolescent clinics support young people to progress to confident and safe, independent management of their allergic diagnoses. Evaluating our specialist clinic pathway will facilitate further development of this vital and evolving service.
Method: A retrospective data review was performed of patients attending our Transition clinics between January 2018 and July 2019. Demographic data, clinical characteristics, patient flow and outcome data were reviewed.
Results: 128 children (52% male, Median age 16 years; range: 12 – 18 years) were seen over 18 clinics. Seventy percent of patients seen were over 16 years old. Thirty four percent of patients were referred directly from primary care. Fifty three percent were only seen by a paediatric allergist during their consultation and 30% were seen by both an adult and paediatric allergist. Uptake for a concurrent additional consultation with our psychology team was low (6% and 16% had a dietician review. Fourteen percent were seen twice during this review period. Twenty two percent were discharged to GP, 42% were transitioned to adult allergy and 34% were offered further review within the paediatric service. Ninety one percent of those referred for transitioning to adult clinic were over 16 years old. Of those seen in adult clinic 3% were then discharged to GP after the first consultation.
Conclusions: A large proportion of children seen within this Transition clinic were not able to meet with an adult allergist due to the large volume of patients requiring transition. Most patients had multiple, complex allergic conditions. Psychology input was rare but useful for selected patients. Further evolution of this service is ongoing to meet the patient group's needs.

O12 | Food Protein-Induced Enterocolitis Syndrome is under recognized by Paediatricians in the UK and Republic of Ireland

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Objectives: Food protein-induced enterocolitis syndrome (FPIES) is a delayed type food allergy, most often seen in infancy. There are no biomarkers for FPIES, so the diagnosis relies entirely upon clinical recognition of symptoms and signs. FPIES' global incidence has been reported at 0.015 to 0.7%.(1). We undertook the first prospective epidemiologic survey of FPIES in the UK and Ireland in order to estimate the incidence and determine other features of this important condition.

Method: This was a prospective epidemiological survey of paediatricians using the British Paediatric Surveillance Unit (BPSU) between 01/2019 and 02/2020. Using the BPSU methodology, all consultants were sent an electronic monthly 'orange card' to notify us of new cases of FPIES. A completed questionnaire in relation to the case was requested.

Results: 204 cases were reported, of which 98 (48%) met the final epidemiological case definition, giving an incidence in England (91 cases) of 0.6 per 10000 births per year. We were unable to calculate incidence in other participating countries due to under-reporting (only 4 cases reported). In 74.2% of cases, the diagnosis of FPIES was made by a healthcare professional with expertise in allergy. Average distance from home to diagnosing hospital was 10.9 miles. The most common primary food trigger was milk (32.7%), followed by fish (15.3%) and egg (14.3%). In 26 cases (26.5%), multiple foods triggered FPIES reactions. In 42.2% of cases, the implicated food had been ingested three or more times prior to diagnosis. Fifty one percent of cases were admitted or observed during an FPIES reaction.

Conclusions: The incidence of FPIES was much lower than expected outside England. Reporting in England was clustered around allergy centres, suggesting significant under-recognition or under-reporting of FPIES by general paediatricians, primary care and emergency departments.

O13 | The rise of telemedicine in a tertiary paediatric allergy service—how often and for which patients?

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Objectives:

- To review our use of face-to-face (FTF) and telemedicine (telephone and video) outpatient consultations over June 2020
- To examine follow-up patterns after FTF and Telemedicine appointments
- To determine patient groups for whom FTF or Telemedicine consultations are more appropriate.

Method: Allergy outpatient appointments were identified from outpatient data systems. Those with incomplete data were excluded. Follow-up plans were obtained from patient records and random samples of patients had detailed clinical records review.

Results: 581 allergy outpatient appointments were booked. Seventy nine were excluded (records unavailable or 'was-not-brought'), leaving 502 for analysis (128 new patients, 374 follow-ups). There were 75 FTF appointments (18 new, 57 follow-up) and 427 telemedicine (110 new, 317 follow-up). Thus, telemedicine comprised 85% of clinic activity overall. Following their appointment, 65% of FTF and 77.5 % of telemedicine patients had F2F follow-up booked. Eighteen percent of telemedicine patients required early follow-up (<4 weeks). In new patients, this rose to 46%, of which 76% were FTF. Fourteen percent of FTF patients were booked early follow-up (38% of new patients), 100% were booked telemedicine consultations. Ten percent and 16% of patients were discharged following telemedicine and FTF appointments, respectively. In the telemedicine group booked for further telemedicine follow-up, sampling showed conditions including idiopathic urticaria/ angioedema, asthma/eczema/ hayfever and food allergy predominant. The FTF patients booked telemedicine follow-up comprised food allergy predominantly (77%) alongside idiopathic urticaria/ angioedema.

Conclusions: Telemedicine consultations can work well for patients with idiopathic urticaria/angioedema, asthma, eczema and hayfever. They are useful in some food allergy patients, particularly following FTF consultations, and of particular benefit as an alternative method of early review. However, ultimately the majority of the paediatric allergy population needs a FTF consultation. Around half of all new patients need early (within 4 weeks) FTF appointment following an initial telemedicine consultation, making FTF appointments the consultation of choice in these patients.

O14 | Penicillin-based antibiotic provocation tests—is there scope to switch to single-dose challenge?

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Objectives: Direct drug provocation tests (DDPT) are gaining favour in paediatric antibiotic allergy diagnostics when delayed reactions are reported. Different protocols (ranging from incremental 4-dose DDPT to single-dose DDPT) exist, with wide variations in practice. We reviewed our penicillin-based antibiotic (PBA) allergy referrals and assessed the scope for moving towards pragmatic single-dose DDPTs.

Method: We conducted a retrospective review of PBA DDPTs performed in 2019 at the Children's Allergy Service, St Thomas' Hospital, UK.

Results: Data from 40 children (55% male, 11 months – 9 years) were analysed. Amoxicillin was most frequently the index drug (50%). Eighty percent of patients reported isolated skin symptoms. Urticaria/angioedema was noted in 40% of histories. Where symptom onset times were recorded, reactions occurred within 1 hour of the dose in only 24%. Thirty eight percent of patients tolerated the first dose, reacting further into their treatment course. Of all DDPTs 7.5% were positive. Sixty eight percent of patients underwent a 4-dose DDPT; the rest received abbreviated DDPT (1-2 doses). All positive DDPT occurred during the 4-dose schedule and in patients with a history of delayed urticaria/angioedema. Reactions were characterized by mild skin macular-papular eruptions at the 2nd or 3rd dose and in one case, 24 hours later (all treated with a single antihistamine dose). All patients with histories of immediate reaction (<1 hour post-dose) passed the DDPT. No significant difference between those undergoing incremental or abbreviated DDPT protocols was noted.

Conclusions: Most children with a history of mild delayed reaction to PBA are still referred for incremental DDPT. History of urticaria is a driving factor for referrals for incremental DDPT despite it being a delayed symptom in many cases. Most children with a history of urticaria to PBAs pass DDPT. There is potential for increased implementation of single-dose DDPT and comparison of both protocols in a larger data-set is warranted.

O15 | South Asian mothers' views and experiences of accessing paediatric allergy services in Sheffield for their babies and/or young children

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Objectives: To explore South Asian mothers' views and experiences of accessing paediatric allergy services.

Method: Semi-structured interviews were undertaken with purposive sample of 10 mothers of Pakistani, Indian or Bangladeshi heritage with a child under 5 years with a known or suspected food allergy. Participants were recruited at Sheffield Children's Hospital allergy service and community venues attended by South Asian women. Interviews, conducted by multi-lingual researchers in participants' homes, were audio-recorded, translated, transcribed in English and thematically analysed. The themes were 'recognition'; 'help-seeking'; 'using health services'; 'caring for child'; 'and 'community perspectives'. The study received Health Research Authority approval and took place in Sheffield (UK) in 2018-19.

Results: 9 mothers in the sample had a child with delayed first attendance at allergy services; and 4 of these were 2 years or longer after first food reaction. This represents a significant delay in referral to allergy service. Reasons for delay included uncertainty about cause of symptoms, self-management including prolonged breastfeeding and food avoidance, and failure to recognize need to access primary care and allergy services. Many sought support and advice from family and friends who had a child with an allergy. When used, health services were viewed positively although the effectiveness of being seen in an allergy service was generally underplayed. Once educated families were able to better manage their childs's allergy but unfortunately community understanding is poor and raises significant risks for children attending family events involving food such as weddings.

Conclusions: Despite wider evidence about health inequalities faced by South Asian groups no previous research has focused upon paediatric allergy. There is a need to work with the South Asian community to enhance understanding of allergy and the importance of having children seen earlier to prevent establishment of chronic disease and greater health disparity.

O16 | UK Paediatric Allergy Services Survey—Results

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Objectives:

- To identify where paediatric allergy services are offered across the UK and to establish the staffing and structure of services and clinics
- To establish which investigations, procedures and treatments are offered at paediatric allergy services, and to assess the clinical governance processes in place
- To determine clinical practice within allergy services.

Method: 154 services in the UK were identified as providing a paediatric allergy service and a questionnaire was completed by all services. The survey was multifaceted and included questions based on the BSACI standards for secondary care, the NHS specialist service specifications, and the BSACI standard operating procedure for skin prick testing. The survey was endorsed by BSACI and could be completed online or on a paper copy.
Results: Of the 154 services seeing paediatric allergy patients nationally, 82% (126/154) self-determined that they were providing secondary level care and 18% (28/154) providing tertiary or secondary and tertiary level care. A comprehensive assessment of the state of paediatric allergy provision in the UK was established. Our results describe the capacity of paediatric allergy services in the UK, the investigations and treatments available, as well as the structure and staffing within services.

Conclusions:

- Self-determined secondary and tertiary level paediatric services overlapped in size, staffing, investigations and procedures offered
- Few secondary services were meeting all the standards of care as set out by BSACI
- Food challenge practice varies across services and there is a need for standardization
- The development of national paediatric allergy standards, endorsed by BSACI and RCPCH, would facilitate achieving high quality and consistent care for children with allergies across the UK.

ORAL ABSTRACTS—PRIMARY CARE

O17 | A model of seamless allergy care

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Objectives: The prevalence of allergic diseases among children is increasing. With lower numbers of allergy specialists in the NHS compared with other economically developed countries, upskilling the workforce to meet the nation's needs is essential. Our aim, to provide clinical allergy education and integrate primary, secondary and tertiary allergy services, leading to an efficient seamless model of allergy care. This would allow the delivery of effective care, with improved outcomes for patients and reduced burden to specialist services.
Method: Based on the LOGIC MODEL within a regional seamless care system, a committee was set up to steer the initiative, outline goals and pilot the scheme. It focused on: 1) access to Newcastle University online allergy education programme; 2) development of integrated systems of communication with outreach to community about availability of allergy hub; 3) monitoring and response to referrals, email, telephone calls, and letters; 4) development of united clinical care pathways and guidelines (hospital and community hubs); and 5) establishment of management and finance advisory platforms.
Results: Using a SWOT model, data collection and analysis identified strengths, weaknesses, opportunities and threats to the system, which showed that the scheme was successful and scalable in all the five areas explored. Since 2017 GPs were able to care for >1000 patients with a wide range of presentations. This reduced attendance to secondary and tertiary care (only 128 patients needed hospital follow-up) and led to high patient satisfaction.
Conclusions: This integrated and multidisciplinary model has shown that GPs can look after children with allergic diseases in a supported primary care setting, with links to secondary and tertiary care while preventing unnecessary visits to specialist centres. The model could be easily adjusted, as shown during COVID-19, which would lead to improvement of the currently strained paediatric allergy service within the NHS.

O18 | Audit on management of allergic rhinitis in asthmatic children in primary care

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Objectives: It is evident that severe allergic rhinitis (AR) can lead to poor asthma control, via a united airway. The AR and its impact on Asthma (ARIA) guidance has strongly recommended regular assessment of AR in routine asthma reviews. However, this combined approach has not been well delivered within primary care. This audit assessed the local compliance of AR management in the paediatric asthmatic population in two primary care centres.
Method: Asthmatic children were identified from the two primary centres via a coding system, SystmOne. Parents of the identified patients were contacted via telephone and asked a questionnaire. Two validated questionnaires for asthma (the Asthma Control Test) and AR control (International studies of asthma and allergies in childhood- ISAAC questionnaire) were incorporated into the final questionnaire. Forty nine telephone questionnaires were completed—25% of the total patients contacted.
Results: Despite 71% reporting symptoms of AR, only 39% thought they suffered from hayfever. Only 14% symptomatic patients recall enquiry regarding nasal symptoms in previous appointments. Thirty seven percent had uncontrolled asthma, with 78% reporting symptoms of AR. Although 71% of patients were symptomatic, only 51% were on treatment for AR—35% prescribed and 16% purchased over the counter. Sixteen symptomatic patients had AR treatment prescribed and controlled asthma was more likely in this group—63% controlled and 38% uncontrolled.
Conclusions: AR management in this population is suboptimal with poor compliance to the current guidance. As it is well proven that good AR control prevents asthma progression, strategies to improve clinical practice in this area are urgently needed. This includes increased awareness of this important connection within primary care practitioners, as well as incorporating an AR section in the asthma proforma used in primary care asthma reviews.

POSTER PRESENTATIONS—ADULT CLINICAL

P019 | Anaphylaxis with pub food—The role of Alpha-gal Allergy

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Objectives: Tick bites can induce production of IgE to the galactose-α-1,3-galactose (alpha-gal) moiety on tick salivary proteins and hence allergy can develop to red meat which contains alpha-gal.
Method: A 49-year-old male presented to our clinic with 4 episodes of generalized urticaria, dizziness, diarrhoea and tiredness that had occurred 6 hours after eating pub meals usually containing sausages or pie and mash with alcohol. These occurred over the last 10 years. There was no association with NSAIDSs, exercise, stress or infection. He enjoyed outdoor activities and reported a history of multiple tick bites. Investigations revealed positive specific IgE to Alpha Gal (1.30 KU/L). He showed no sensitization to a battery of airborne allergens, and he tolerated all implicated ingredients on their own except for offal which he did not usually eat. Serum baseline tryptase was 4 mcg/L. The patient was diagnosed with alpha-gal allergy and advised to avoid the mammalian meat, including offal as well as mammalian fat and gelatin in foods. He was also told to avoid cetuximab and infliximab. He suffered no further episodes since following this advice.
Results: Alpha-gal is a mammalian blood group antigen not expressed in humans. Allergy to alpha-gal was first described in 2007 in patients receiving Cetuximab and was later shown to cause red meat allergy. The link between tick bites and red meat allergy was established after alpha-gal was found to be expressed in tick salivary proteins. Diagnosis is supported by a positive sIgE for alpha gal (>2 KU/l or more than 2% of the total IgE).
Conclusions: Cases of red meat allergy have rarely been described in the UK. This report highlights the importance of recognizing Alpha-Gal Allergy as an important cause of delayed food reactions, especially when cofactors are involved.

P020 | Long-term Dupilumab treatment up to 100 weeks reduces serum biomarkers in patients with moderate-to-severe atopic dermatitis

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Objectives: Thymus and activation-regulated chemokine (TARC) is a chemotactic factor for Th2 cells and eosinophils, which are important in atopic dermatitis (AD) pathogenesis. Serum TARC and total IgE levels correlate with AD disease severity. Dupilumab, a human monoclonal antibody, blocks the shared receptor component for interleukin-4 and interleukin-13, key and central drivers of type 2 inflammation in multiple diseases. We report the impact of long-term dupilumab treatment on TARC and IgE levels in adults with moderate-to-severe AD in a phase 3, open-label extension (OLE) trial.

Method: The LIBERTY AD OLE study (NCT01949311) assessed long-term safety and efficacy of 300 mg dupilumab/week in adults with moderate-to-severe AD who previously participated in a randomized, double-blind, placebo-controlled (RDBPC) parent studies (PS). We present TARC and total IgE data of patients treated for up to 100 weeks. Data were analysed descriptively based on available samples at individual timepoints.

Results: At data cutoff (December 1, 2018), TARC and IgE levels were assessed in 288 patients treated up to 100 weeks. Median baseline RDBPC PS/OLE levels were 2,483.3/1,463.4 pg/mL for TARC (n = 280/288) and 3,051.0/1,532.5 kU/mL for total IgE (n = 259/249). Median TARC levels at Week 2/4/52/100 of OLE were 670.7/518.6/321.9/338.3 pg/mL (n = 282/285/284/288). Median total IgE levels at Week 4/52/100 of OLE were 1,228.9/408.0/275.5 kU/mL (n = 237/270/288). Median % reduction in TARC concentration from PS baseline was −73.3%/−87.0%/−85.5% at Week 2/52/100 of OLE. Median % reduction in total IgE concentration from PS baseline was −38.5%/−80.4%/−87.6% at Week 4/52/100 of OLE.

Conclusions: Long-term dupilumab treatment resulted in >70% reduction in TARC as early as Week 2 that was further reduced by Week 52 and Week 100; total IgE decreased more slowly, achieving >80% reduction by Week 52. These substantial and sustained reductions were accompanied by sustained improvements in AD signs and symptoms (data previously published).

P023 | Diagnosing primary immunodeficiency disorders in the time of COVID-19: In search of warning signs

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Objectives: In some cases, the SARS-CoV-2 infection progresses rapidly. Hard to treat infections may be the first sign of a primary immunodeficiency disorder (PID).

Because the established warning signs for PIDs are screening the patient's past we aimed to search for practical warning signs to use during an outbreak.

Method: The study was conducted in a non-randomized case–control fashion. A set of criteria for immunology consultation was established by the task group. The studied group included 37 COVID-19 inpatients and 14 cases of non-COVID-19 outpatients as the control.

Results: One CVID and one selective IgA deficiency diagnosis were made in COVID-19 and control group, respectively. Details are presented below.

	Group-1 (n = 15)	Group-2 (n = 22)	Group-3 (n = 14)	Reference	*P* -value
Age	38.6	56.3	34.4	(years)	0.000
Lymphocyte	1460	1551	2480	4200-10900 (/μL)	0.008
IgA	2.14	-	1.65	0.63-4.84 (g/L)	0.1
IgG	12.89	-	10.84	5.40-18.22 (g/L)	0.158
$CD4^+$cell	42.2	-	40.1	34.0-63.8(%)	0.100
$CD8^+$cell	24.6	-	25.1	19.0-48.0(%)	0.262
$CD19^+$cell	6.9	-	12.9	7.0-23.0 (%)	0.000
$CD20^+$ cell	7.1	-	13.2	7.0-23.0 (%)	0.000

Conclusions: The number of PIDs diagnosed in two groups was equal. The patient diagnosed with CVID was negative for the conventional PID warning signs. Our study had several limitations like the design. The workload during the pandemic and the need for prudent resourcing forced us to establish a narrow set of criteria for immunology consultation which may have resulted in missing PID diagnosis in some cases. Like the virus our understanding of it evolved too, resulting in preferring different evaluation and treatment options for similar cases over time, which posed as another handicap. Early identification of PIDs is crucial but is not easy for

non-immunologists. We believe that each institute should establish its own standards about approaching patients experiencing prolonged, serious or unusual infections.

P024 | Gata-2 Deficiency in a young adult

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Objectives: GATA2 deficiency presents with a wide spectrum of variable clinical phenotypes: recurrent viral and bacterial infections, pan-cytopenias, aplastic anaemia, leukaemic transformation and lymphoedema. Haematopoietic Stem Cell Transplantation has been successful curative therapy; however, it carries significant risk of morbidity and mortality.
Method: In this report, we present a 23-year-old man who presented with persistent and extensive viral warts affecting palms and soles for 11 years which were refractory to treatment and severe scrotal infections following hydrocele operation. Lymphocyte subsets showed persistent pan-lymphopaenia and full blood count showed a monocytopaenia, normal levels of serum immunoglobulin, electrophoresis and serum free light chain ratio. Gene panel screening initially was negative. Direct sequencing of GATA2 gene identified a pathogenic GATA2 mutation (c.1046G>T) predicted to result in the protein change P. (Cys349Phe). This patient subsequently developed a left-sided neck mass. Excision biopsy showed enlarged lymph glands with caseating and non-caseating epithelioid histiocytic granulomas harbouring acid-fast bacilli. Efforts to identify the mycobacterium species were unsuccessful. He was commenced on empirical non-tuberculous mycobacterial treatment for 12 months. He is now awaiting bone marrow transplant.
Results: This case highlights the requirement for a heightened clinical suspicion of GATA2 haplo-insufficiency in patients who present with pan-lymphopenia, monocytopaenia and warts with clinical evidence of immunodeficiency. The diagnosis of GATA2 can be very challenging due to wide clinical spectrum of the disease. The use of gene panel screening can be helpful but it is imperative to know what genes are looked for in the gene panel beforehand.
Conclusions: This case illustrates the diagnostic difficulties in identifying GATA2 deficiencies and the importance of genetic testing. Haematopoietic Stem Cell Transplantation is the only available curative therapy to prevent leukaemic transformation in patients with GATA2 deficiency.

P025 | Anaphylactic reaction after drinking tea with honey

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Objectives: Honey-related allergic reactions are rare; however, may present as a serious health condition. In this case report, we presented a patient who had anaphylaxis after drinking tea with honey; investigation with skin prick-prick test confirmed honey allergy
Method: We report a case of a 35-year-old male originally from Poland, was referred to our allergy clinic for further assessment for his severe allergic reaction. He reported within one minute of having 4 sips of tea (with honey) he developed retching, abdominal pain, severe and persistent vomiting for 10 minutes. He then developed generalized itching, urticaria accompanied with neck and throat tightness; he required emergency admission and treatment with adrenaline. Skin prick-prick testing confirmed Honey allergy with a positive weal of 8 mm. Blood tests for total serum IgE, specific IgE to honey and bee venom were unremarkable.
Results: Honey is a complex and heterogeneous mixture of flower nectars, sugars, proteins and glandular secretions of bees (salivary and pharyngeal). Honey allergy has been described since 1957. There are various theories on type I hypersensitivity to honey: due to cross-reactivity among pollens of the Compositae family (e.g. sagebrush) or due to the presence of proteins from the bee venom. Honey contains a small amount of wax (<0.05%). The beeswax alone does not have allergenic properties. Propolis—a substance used by bees during honeycomb building—is a known contact allergen.
Conclusions: Honey may be present as a hidden ingredient in chocolate bars, candies, cakes, gingerbread and cereals. Although honey-related allergic reactions are rare; this case illustrates type I hypersensitivity reaction to honey that presented with anaphylaxis. Therefore, we suggest that warning information should be clearly labelled on every preparation containing honey.

P026 | Comparison of High versus Low dose oral vitamin D supplementation in improving symptoms score and Quality of Life of Patients with Chronic Spontaneous Urticaria

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Objectives: To compare the efficacy of a 12-week course of daily oral vitamin D3 at a high (4,000 IU/d) versus low (600 IU/d) dosing on Urticaria activity score (UAS-7) and chronic urticaria quality of life (CU-Q2oL) score in patients with chronic spontaneous urticaria (CSU), and to investigate the relationship between vitamin D and C-reactive protein (CRP) titre in those patients.

Method: A single-blind, prospective interventional study recruited 50 patients with CSU attending the Allergy outpatient clinic at Ain Shams University Hospital by cluster randomization.

Patients were subdivided into:

Group A: Twenty-five CSU patients received high dose (4000 IU/Day) oral vitamin D3 daily for 12 weeks

Group B: Twenty-five CSU patients received a low dose (600 IU/d) oral vitamin D3 daily for 12 weeks

Patients were followed up at baseline (0 weeks), after 6 weeks, and at 12 weeks to determine the level of 25-hydroxy vitamin D, UAS-7, and QoL.

Results: Mean ± SD 25-hydroxy vitamin D level in Group A was higher than in Group B (58.44 ± 1.87 ng/ml and 27.16 ± 1.43 ng/ml, respectively) at 12 weeks. UAS-7 score was lower in group A than Group B at baseline and at week 6 (P = 0.009 vs 0.239). QoL was statistically significantly better at 12 weeks in group A than group B. However, we found no statistically significant difference in CRP titre between group A and group B.

Conclusions: The current study found improvement in the UAS-7 score and QoL in patients with CSU prescribed 4000 IU/d of oral vitamin D3 in comparison with patients who received 600 IU/day. Further large-scale studies could help establish clinical benefit from adding oral vitamin D supplements to treatment protocols of CSU to provide clinical improvement in urticaria activity and QoL. No significant correlation was observed between vitamin D level and CRP titre.

P027 | Lactation anaphylaxis: A case presentation

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Objectives: 1. Background: There are many common medical emergencies during the peri- and postpartum periods. Here, we describe a case of lactation anaphylaxis (LA): an extremely rare and life-threatening condition.

Method: 2. Case Presentation: A 30-year-old presented with a recurring history of anaphylaxis on day 3 postpartum after each pregnancy. All pregnancies had been unremarkable with uncomplicated spontaneous vaginal deliveries. Immediately after lactogenesis, she developed anaphylaxis necessitating emergency admission and treatment. In addition to adrenaline, she was treated with long-acting steroids each time, after which she been able to breastfeed safely. She had no pre-existing conditions and no known allergies.

Serological tests including baseline tryptase were normal and skin prick testing to her breast milk was negative. It was concluded that this represented a case of LA. As the patient intended to have more children and breastfeed, pharmacological suppression of lactation was not a valid management option. It was decided that any future delivery should occur in hospital with inpatient monitoring for 3-4 days postpartum, with administration of prophylactic cetirizine 10 mg BD from the time of delivery and methylprednisolone on day 2, with the aim to prevent anaphylaxis on day 3. The patient gave birth to her fourth child and, with this protocol, did not develop anaphylaxis and safely established breastfeeding.

Results: 3. Discussion: LA is rare and life-threatening. Its pathophysiology remains unclear, but it has been postulated that the acute postpartum decline in progesterone leads to mast cell instability and degranulation, precipitating anaphylaxis.

Conclusions: LA should be considered in any lactating woman suffering recurrent anaphylaxis with no clear trigger. This case and those in the literature suggest that prophylactic treatment with antihistamine and steroids can successfully prevent these potentially fatal episodes of anaphylaxis. Alternatively, pharmacological suppression of lactation would also prevent the episodes if patients do not wish to breastfeed.

P028 | Stopping immunomodulatory immunoglobulin therapy in an adult patient with atopic dermatitis on dupilumab

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Objectives: Immunomodulatory dose immunoglobulin has been used in a small number of patients to treat refractory atopic dermatitis (AD). Dupilumab (a monoclonal antibody against the alpha subunit of the IL4 receptor) is approved by NICE to treat moderate-to-severe AD.

Method: Patient A developed severe AD in childhood, which continued into adulthood and was refractory to treatment with topical steroids and calcineurin inhibitors, and oral ciclosporin, azathioprine and methotrexate. Symptoms were complicated by molluscum contagiosum and herpes simplex virus infections, thought secondary to immunosuppression. Antiviral prophylaxis with aciclovir was started. A DOCK8 expression assay was normal. At the age of 47, immunomodulatory dose immunoglobulin was started with a reduction in EASI score from 37.78 to 16.4 and reduction in DLQI from 19 to 15 at 5 months. He remained on immunoglobulin for 9 years, with the addition of mycophenolate to control symptoms. Mycophenolate was switched to dupilumab in October 2019 with improvement in DLQI from 23 to 4 in 3 months. Despite aciclovir prophylaxis, he developed eczema herpeticum which was treated with valaciclovir. Immunoglobulin therapy was discontinued 6 months after dupilumab initiation, and his eczema remains well controlled 3 months after dupilumab monotherapy.

Results: Evidence for efficacy of immunomodulatory immunoglobulin in AD is based on small case series. Molluscum contagiosum infection may have contributed to the patient's high DLQI scores. Initiation of dupilumab (£9,700 per annum) which enabled discontinuation of immunomodulatory immunoglobulin (£40,560 per annum) improved symptoms and was cost-effective. Eczema herpeticum is a known infective complication of dupilumab.

Conclusions: Several novel targeted therapies, which include biologics and small molecules, are currently in development for the treatment of severe AD. Dupilumab is the first licensed biologic for AD and this case demonstrates its efficacy, which enabled successful discontinuation of immunomodulatory immunoglobulin.

P029 | Improving the documentation of beta-lactam antibiotic allergy in a district general hospital

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Objectives: Beta-lactam antibiotics are among the most effective and widely prescribed anti-microbial medications. While reported beta-lactam allergy is common (10-16%) in the UK population, 10% or fewer are typically a true IgE-mediated sensitivity. Reported allergy limits antibiotic choice and causes patient harm. NICE guideline CG183 makes recommendations on drug allergy documentation, advising the nature, severity, and time of onset be recorded. We undertook a quality improvement project seeking to understand and improve the reporting of beta-lactam antibiotic allergy in a district general hospital.
Method: Documentation of beta-lactam allergy was measured at baseline and after phases two and three using a point-prevalence survey of the adult inpatient population, obtained from the electronic patient record (EPR). Phase one: structured interviews with inpatients reporting beta-lactam allergy. Phase two: wide-ranging educational interventions to junior doctors and pharmacists; introduction of a pro forma to record beta-lactam allergy. Phase three: introduction of new guidance on beta-lactam allergy; changes to EPR allergy form.
Results: Baseline audit identified 58 (12%) beta-lactam allergic patients in the inpatient population (493). Fifty seven percent of patients lacked a recorded nature for their allergy. Only one patient's allergy documentation was compliant with CG183. Phase one improved CG183 compliance to 59% and de-listing 17% of reported allergies. Phase two failed to demonstrate change to beta-lactam allergy documentation. Phase three demonstrated significant improvements in all aspect of beta-lactam allergy documentation with a 40% decrease in unspecified reactions and increased CG183 compliance to 14%.
Conclusions: The observed prevalence of beta-lactam allergy was consistent with UK population estimates. Prior documentation of allergy was sporadic, while a structured interview enabled most beta-lactam allergies to be adequately documented or removed. The failure of educational interventions to demonstrate an improvement was disappointing, though potentially a delayed effect of these, alongside changes to the EPR and guidance, yielded clinically and statistically significant improvements by the project's conclusion.

P030 | The effect of phototherapy on the inhibition of symptoms associated with allergic rhinitis

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Objectives: The objective of the trial was to evaluate a phototherapy device to assess how effective it was at reducing symptoms associated with allergic rhinitis after allergen exposure.
Method: The trial was conducted during the period of the year when grass pollen was not present, participants were not using allergy medication. Two groups of allergy sufferers used either a photoperiod device or a placebo device before exposure to allergens in a test chamber. The sum of the Total Nasal Symptom Score (TNSS) was used to determining symptom levels of allergic rhinitis after exposure in a randomized blind trial. Participants were observed initially at a mid and final assessment times during the use of the device.
Results: The TNSS showed that there was little change in the intensity of symptoms scored at the baseline and at the final study visit for participants in the placebo group ($P = 0.09492$); with only a slight change in numbers at each intensity level. The difference in the intensity of all symptoms scored at the baseline and at the final visit for the group using the photoperiod device was significantly lower ($P = 0.00024^{***}$) with a reduction in the intensity of symptoms. The effect of the photoperiod device was observed mainly in the total nasal symptom scores (TNSS). Sensitivity to grass represented the major allergenic response group in the trial.
Conclusions: This study demonstrates that phototherapy may be an effective method for treating and reducing the effects of symptoms for sufferers of allergic rhinitis particularly those affecting the nose. Phototherapy may be suitable for sufferers in those cases either as a replacement therapy or used alongside traditional medication.

P031 | Single-centre experience of Omalizumab therapy for chronic spontaneous urticaria

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Objectives: Omalizumab is the only biologic approved for use in patients with chronic spontaneous urticaria (CSU) unresponsive to high-dose antihistamines. This outcome audit aimed to document (1) safety; (2) efficacy; (3) failure rates to understand factors relating to efficacy or resistance to omalizumab.
Method: The health records of patients who received omalizumab (2017-2019) were reviewed. Each cycle of subcutaneous omalizumab 300 mg was once monthly for 6 months, with further doses approved after review. Patient demographics, laboratory results and urticaria activity score (UAS7) were analysed. UAS7 0 was complete

remission (CR), UAS7 1-28 partial remission (PR), UAS7>28 non-responder (NR). Descriptive statistics were done using GraphPad Prism v7.0GraphPad software, USA.

Results: 23 patients (18 women, mean age 39.6 years, range 18-76 years) received 396 doses of omalizumab (average 17 doses) with no adverse events. Baseline mean UAS7 at 34[(±SD 5.2), range 20-42] dropped after 1st cycle to 19(±SD 15.1) range 0-42 (difference in means, $P < 0.0001$) suggesting clinically significant difference. Four of 6 patients in CR after 1st cycle had sustained remission at 9 months, while six classed NR(26%). Fifteen patients required 2nd cycle, with good responses after each dose. Thirteen percent achieved CR for 5 months, while 53% relapsed in 3-4 weeks. Fourteen patients continue on therapy, including 5 patients on 5th cycle. Of 13 patients who had significant angioedema, 15% achieved CR after 1st cycle.

Median baseline IgE 250 U/ml(n = 13; IQR25-75 25-470), tryptase 4.9 ng/ml(n = 16; IQR25-75 range 3.8-6.5), antinuclear antibody was negative in all patients tested. There was no difference between IgE level and tryptase with response to omalizumab.

Conclusions: Omalizumab is extremely safe and effective in CSU, but a third of patients were resistant with relapses common following interruption of therapy. Presence of angioedema was associated with lower complete remission. Safer alternative therapies are required as indefinite biologic therapy is the only option for many patients.

P032 | Degmacytes in a patient with resistant urticaria

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Objectives: Background: Treatment options for patients with chronic urticaria resistant to high-dose antihistamines and anti-IgE therapy include ciclosporin or dapsone. Normal glucose-6-phosphate dehydrogenase (G6PD) level would suggest lower risks of haemolysis with dapsone and preferred to ciclosporin in patients with hypertensive heart disease.

Method: Case presentation: A 58-year-old man with steroid-responsive chronic spontaneous urticaria for 3 years was on lansoprazole 30 mg, fexofenadine 720 mg/day and montelukast 10 mg. He also required levothyroxine 75 μg replacement therapy for hypothyroidism (positive anti-thyroid peroxidase antibodies), atorvastatin 10 mg for hyperlipidemia and losartan 25 mg for hypertension. Omalizumab 300 mg was discontinued after four doses as UAS7 remained high (>32). With normal G6PD screen, dapsone 100 mg once daily was started. Within 10 days, he reported being fatigued (haemoglobin 126 g/L from baseline 140 g/L). Three weeks into dapsone therapy, he was icteric with total bilirubin at 88 μmol/L (<21), haemoglobin 106 g/L, haptoglobin < 0.08 g/L, lactate dehydrogenase 776 U/L (215-485) suggesting haemolysis. Direct antiglobulin test was negative. Blood film showed polychromasia and numerous bite cells. Dapsone was stopped with improvement in haemoglobin, bilirubin levels and disappearance of bite cells in peripheral blood film. His urticaria remains controlled on ciclosporin.

Results: Discussion: The major side effect of the sulphone antibiotic dapsone is oxidative haemolysis, especially in G6PD-deficient patients. Red-cell survival times on dapsone (^{53}Cr studies) in patients with normal G6PD levels were 29-35 days, perhaps by toxic hydroxylamine metabolites, or medications affecting cytochrome -P450 isoenzyme system (e.g. lansoprazole (CYP1A2-inducer) with dapsone, losartan and atorvastatin (CYP3A4-substrates) in our patient). During haemolysis, clumps of denatured haemoglobin that precipitate intracellularly form inclusions ('Heinz bodies') seen on supravital staining. These are removed by splenic macrophages, leaving cells with one or more semi-circular portions missing from cell-margins (bite cells or degmacytes).

Conclusions: Dapsone can induce haemolysis with normal G6PD level. Individualized dosing may be an option when no alternative is present.

P033 | Long-term safety and effectiveness of berotralstat (BCX7353) for the prophylaxis of hereditary angioedema (HAE) attacks: Results from the APeX-S study

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Objectives: Berotralstat is an oral, once-daily, highly selective inhibitor of plasma kallikrein in development for prophylaxis of HAE attacks. Berotralstat reduced HAE attack rates compared to placebo and was safe and generally well-tolerated in the Phase 3; APeX-2 (NCT03485911) and APeX-J (UMIN000034869) studies. The ongoing APeX-S study (NCT03472040) evaluates the long-term safety and effectiveness of berotralstat.

Method: Subjects with HAE Type 1/2 were allocated to receive open label berotralstat 150 mg (N = 127) or 110 mg (N = 100). Adverse events (AEs) and HAE attacks were recorded throughout the study.

Results: 227 subjects took berotralstat (mean [range] age 40.3 [12 to 72] years). No important differences in rates or types of AEs were observed in the 150 vs. 110 mg dose groups. Nineteen subjects discontinued study drug due to an AE (10.2% and 6.0% receiving berotralstat 150 mg and 110 mg, respectively). The most common AE was

nasopharyngitis (30.8%). The most frequent gastrointestinal AEs were abdominal pain, diarrhoea and nausea. These were generally mild to moderate, transient, occurred early in treatment, and seldom resulted in discontinuation of berotralstat (6 subjects, 2.6%). One hundred and three subjects (73 and 30 in the 150 and 110 mg groups, respectively) completed 48 weeks of dosing at the time of the data cut. After 1 month of treatment, the 73 subjects who received 150 mg berotralstat through Week 48 had a mean (±SD) rate of 1.18 (±1.40) HAE attacks per month, which was maintained through Month 6 and generally improved from Months 6 (1.01 ± 1.26) to 12 (0.81 ± 1.03).

Conclusions: Oral treatment with 150 mg berotralstat in APeX-S was safe and generally well-tolerated. The low mean attack rate during the first month of treatment was maintained over 48 weeks. APeX-S effectiveness results through 48 weeks support the durability and robustness of HAE attack prophylaxis with 150 mg berotralstat seen in APeX-2.

P034 | Skin testing to Neuromuscular Blocking Agents (NMBAs): Are we changing the non-irritant concentration (NIC) for intradermal test (IDT) to vecuronium and pancuronium?

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Objectives: Skin testing to NMBAs plays an important role in the investigations of perioperative anaphylaxis. However, the NIC for some NMBAs remained disputable. The recent EAACI position paper recommended a lower NIC for IDT to pancuronium and vecuronium. In light of this, we aim to review the results of NMBA skin tests at our centre.

Method: A retrospective study was conducted on all patients who underwent skin tests to full panel of NMBAs from January 2016 to March 2020 (n = 27). The NIC used for IDT to pancuronium and vecuronium was 0.2 mg/ml and 0.4 mg/ml, respectively. Wheal with an increase in diameter of ≥3mm compared to the original bleb after 15-20 minutes is considered a positive IDT.

Results: Six patients (22.2%) showed positive IDT to vecuronium but none received it perioperatively. 5/6 patients received previous general anaesthetic. Patient-1 & Patient-2 were diagnosed with IgE-mediated reaction to NMBA (rocuronium). NMBA was deemed not the cause for Patient-3 as it was administered 5 hours before the reaction. Patient-4 was diagnosed with non-IgE-mediated reaction to atracurium. Patient-5 had negative IDT to the NMBA received (rocuronium) and negative drug provocation test(DPT) to all other agents received perioperatively. She is awaiting NMBA DPT. Patient-6 had positive IDT to vecuronium, pancuronium and cisatracurium, but atracurium was given perioperatively. This is the only patient (3.7%) in our study with positive IDT to pancuronium. The cause of the reaction was unidentified despite extensive investigations and perioperative anaphylaxis MDT discussion.

Conclusions: The predictive value for NMBA skin tests is unclear due to limited possibility and significant risk with NMBA DPT. In our study, the clinical significance of the positive IDT to vecuronium and pancuronium in some patients remained unknown and might represent false positive. Following this review and the recent recommendation, our centre has adjusted the NIC for vecuronium but kept the NIC for pancuronium.

P035 | Efficacy of dupilumab in chronic rhinosinusitis with nasal polyps and comorbid asthma by baseline biomarkers of type 2 inflammation: SINUS-24 and SINUS-52 phase 3 trials

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Objectives: Chronic rhinosinusitis with nasal polyps (CRSwNP) asthma share type 2 inflammatory pathophysiology and are frequently comorbid. Dupilumab is a human VelocImmune®-derived monoclonal antibody that blocks shared receptor component for interleukin (IL)-4 and IL-13. These two interleukins are central drivers of type 2 inflammation and regulators of IgE and thymus and activation-regulated chemokine (TARC) expression. We report the effect of dupilumab on upper and lower airway outcomes in patients with CRSwNP and comorbid asthma from the SINUS-24/52 trials (NCT02912468/NCT02898454), categorized by baseline IgE and TARC.

Method: Patients were randomized to subcutaneous dupilumab 300 mg or placebo every 2 weeks for 24 weeks. Dupilumab treatment effects were evaluated in patients with asthma, grouped by ≥/< baseline median serum total IgE (120 IU/mL) and TARC (291 pg/mL).

Results: For patients with asthma (428/724, 59.1%), mean (SD) baseline IgE and TARC were 249.12 (308.82) IU/mL and 377.44 (266.13) pg/mL, respectively. Patients had severe upper/lower airway disease at baseline (mean [SD] for: nasal polyp score [NPS] 5.97 [1.26], range 0–6; nasal congestion [NC] score 2.42 [0.57], range 0–3; nasal peak inspiratory flow [NPIF] 87.02 (57.26) L/min; 6-item Asthma Control Questionnaire [ACQ-6] score 1.59 [1.10], range 0–6; and forced expiratory volume in 1 second [FEV_1] 2.61 [0.88] L). At week 24, outcomes were improved with dupilumab vs placebo ($P < 0.01$), regardless of baseline IgE/TARC levels (LS mean change ≥/< 120 IU/mL IgE and 291 pg/mL TARC, respectively, for: NPS, −2.18/−1.88 and −2.20/−1.83; NC score, −1.07/−1.02 and −1.10/−0.98; NPIF, 51.96/38.59 and 54.38/35.91; ACQ-6 score, −0.79/−0.87 and −0.83/−0.78; and FEV_1, 0.22/0.22 and 0.21/0.20).

Conclusions: Patients with CRSwNP and comorbid asthma had severe upper and lower airway disease at baseline. Dupilumab

improved upper and lower airway outcome measures in these patients, regardless of baseline IgE or TARC.

P036 | The role of cellular antigen stimulation test in the diagnosis of allergy to food additives

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Objectives: The Cellular Antigen Stimulation Test (CAST) is a commercially available, diagnostic laboratory procedure based on in vitro food allergen-induced cysteinyl leukotrienes release. We aimed to evaluate the efficacy of CAST in the diagnosis of allergy to the food additives sodium benzoate and potassium sorbate.

Method: A case–control study was conducted on 90 adult patients with allergic rhinitis, bronchial asthma, or chronic urticaria with a history of allergy to food additives recruited by cluster randomization from the Allergy outpatient clinic of Ain Shams University Hospitals. Patients were subdivided according to the results of oral food challenge (OFC) with sodium benzoate and potassium sorbate into:

Cases: 50 participants with positive OFC.

Controls: 40 participants with negative OFC.

Skin prick test (SPT) with locally prepared sodium benzoate and potassium sorbate extracts, specific IgE and CAST-ELISA were done to all participants.

Results: Cases had a statistically significant higher frequency of positive SPT and higher specific IgE to sodium benzoate and potassium sorbate than controls. The frequency of positive CAST among cases and controls was 58% and 47.5%, respectively, with no significant statistical difference.

CAST had sensitivity of 58% (95% CI, 44.2% - 70.6%) and specificity of 52.5% (95% CI, 37.5% - 67%) for discrimination between cases and controls, a positive predictive value of 60.4% (95% CI, 46.6% - 74.3%), and a negative predictive value of 50% (95% CI, 34.9% - 65.1%). CAST sensitivity and specificity was less than SPT and specific IgE.

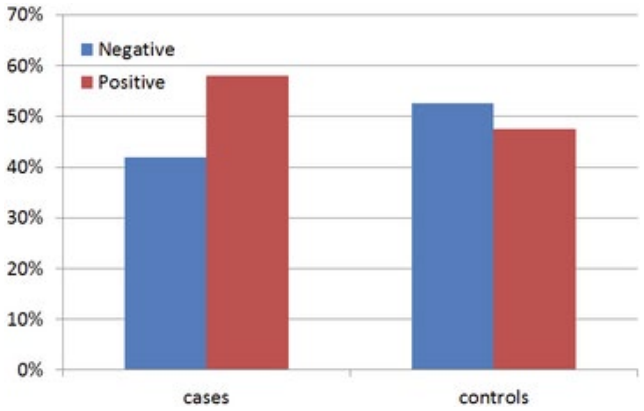

FIGURE 1 Result of CAST-ELISA in cases and controls

TABLE 1 Sensitivity and specificity of SPT, specific IgE and CAST for discrimination between cases and controls

	Sensitivity	Specificity
Skin prick test	66%	57.5%
Specific IgE	68%	55%
CAST	58%	52.5%

Conclusions: CAST has a lower sensitivity for diagnosing allergy to food additives than conventional methods of food allergy diagnosis. Future large-scale studies could further elucidate the role of CAST in diagnosing allergy to food additives if combined with history, SPT and specific IgE.

P037 | Audit to assess if regular inhalers are reconciled within 24 hours of admission at Milton Keynes Hospital over a 1-month period

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Objectives: Regular inhaler reconciliation is often overlooked on hospital admission. This audit aimed to test the standard that 100% of patients should have their regular inhalers reconciled (prescribed/omitted with valid reason) within 24 hours of admission, based on the NICE quality statement that 'Medicines reconciliation … in an acute setting should occur within 24 hours of admission'.

Method: A list of 189 patients admitted to respiratory wards at Milton Keynes Hospital during

August 2019 was obtained from medical records. Hundred were not on regular inhalers, leaving 89 patients eligible for inclusion, with 203 regular inhalers. Patient's records were screened for admission date, regular inhaler details, date of prescribing/reason for omission and date of drug history completion and then analysed to assess if regular inhalers were prescribed within 24 hours of admission and if not, if there was a valid reason.

Results: Regular inhalers were prescribed in 39.3% (n = 35), not applicable in 1.1% (n = 1), not prescribed with a valid reason in 27% (n = 24) and not prescribed with no valid reason in 32.6% (n = 29) out of 89 patients within 24 hours. 55.2% (n = 112) of inhalers were prescribed, 1% (n = 2) were not applicable, 24.6% (n = 50) were not prescribed with a valid reason and 19.2% (n = 39) were not prescribed with no valid reason out of 203 inhalers within 24 hours.

Conclusions: The audit standard was not met—32.6% of patients did not have their regular inhaler(s) reconciled within 24 hours. Potential

factors contributing to this include rigidity of the electronic prescribing system and lack of knowledge with brand vs. generic inhaler names/inhaler types. We recommend including inhaler prescribing in Foundation/IMT teaching sessions to improve knowledge, creating posters in ED, MAU and respiratory wards for reminders on appropriate reconciliation of regular inhalers and conducting a re-audit after actioning these interventions to assess improvement.

P038 | A rare case of perioperative anaphylaxis to heparin during endovascular aneurysm repair with a final diagnosis of multiple drug allergy syndrome

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Objectives: Perioperative anaphylaxis diagnosis can be challenging because of the number of potential culprits administered in a very short period of time and the limitation of the available investigations. The final diagnosis is based in a good clinic history and two positive test results.

Unfractionated heparin (UFH) and low molecular weight heparins(LMWH) are frequently used and usually a safe anticoagulant option, immediate hypersensitivity reactions to heparin are rare. The most frequent immune reactions related to heparin are delayed and heparin-induced thrombocytopenia (HIT). In 2007 contaminated heparin with oversulfated chondroitin sulphate (OSCS) caused multiple anaphylactic reactions. Nowadays heparins preparations are preservative free.

Method: We are reporting the case of perioperative anaphylaxis to heparin with a final diagnosis of multiple drug allergy syndrome in a 80-year-old man who was anaesthetized for an elective endovascular abdominal aortic aneurysm repair.

Our patient developed severe hypotension refractory to standard vasoconstrictors one minute after an intravenous bolus of unfractionated heparin with generalized skin flushing. Dynamic mast cell tryptases were elevated and in vitro tests available were negative.

Results: As part of the allergy study, he had a positive skin prick test for chlorhexidine and an intradermal positive test for ondansetron and unfractionated heparin. An indeterminate result was found for penicillin. We did not proceed with the drug provocation test based on the latest recommendations.

In our patient, the clinical picture, the elevated dynamic mast cell tryptases and the positive skin tests for heparin, ondansetron and chlorhexidine were suggestive of IgE-mediated hypersensitivity to these drugs.

Conclusions: We have recommended for the intraoperative period anticoagulation with intravenous argatroban, a safe alternative to unfractionated heparin, and fondaparinoux for the posterior prophylaxis.

We will like to remark the importance of a close collaboration between Anaesthesia and Allergy Department in the evaluation of perioperative anaphylaxis to provide the best outcome.

P039 | Management of Chronic Spontaneous Urticaria during pregnancy and in woman who plan to conceive while on ongoing treatment

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Objectives: Urticaria in pregnancy remains a challenging task for clinicians in primary care in severe cases and involvement of consultants from specialized centres is often required. While the pathogenesis of CSU has been extensively investigated, no theory has been conclusively proven, and a combination of mechanisms may play a role. The prevalence of urticaria in pregnancy is not known.

Method: We continued this research project as a part of PREG-CU trial—a prospective, international, multicenter, observational (non-interventional), cross-sectional study to better characterize the course, given treatments and outcomes of pregnancy in patients with chronic urticaria. UCARE centres in the UK The London and Immunology Centre jointly with The Dermatology Centre Salford Royal Hospital obtained ethics approval to conduct this study in the United Kingdom. Statistical analysis and overall supervision of the project was done by Okmeydanı Training and Research Hospital, İstanbul, Turkey

Results: Jointly we observed 23 patients in this study. Patients received treatment at during the first (41.3%), second (41.3%) and third (46.2%) trimester. Some of participants reported improvement in their symptoms and did not take any treatment during pregnancy. Those who remained symptomatic depending on their severity were treated with high dose of non-sedating antihistamine (58%), (Loratadine, Cetirizine, Levocetirizine or Rupatadine) with or without addition of Ranitidine and Montelukast (n = 6.4%). One patient was receiving anti-IgE treatment. Many patients have premenstrual flares and several study patients commented on this, indicating that changes of hormonal levels are likely to be one of the underlying causes alongside with cofactors, playing a role in release of vasoactive mediators from mast cells and basophils in the pathogenesis of CSU.

Conclusions: Our findings demonstrated that pregnancy may change this condition dramatically, some patients improve, some worsen, some patients go into complete remission only to relapse afterwards.

P040 | Prevalence and type of sensitization to pollen allergens in Egyptian patients with respiratory allergy

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Objectives: The frequency of allergic rhinitis and asthma is increasing, which represents a major public health problem. Seasonal allergies are mostly caused by pollen allergens, typically with symptoms exacerbation during the pollen season.

In the current study, we aimed to assess the prevalence and type of pollen sensitization among 200 adult Egyptian patients with seasonal allergic rhinitis and bronchial asthma during the pollen season in Egypt from March till August.

Method: Two hundred adult (>18 years old) patients with seasonal allergic rhinitis and asthma were recruited from the Allergy outpatient clinic of Ain Shams University Hospitals. Skin prick test (SPT) was done to all patients using standardized allergen extracts provided by Stallergenes Greer to ten commonly encountered pollen allergens:

Bermuda grass, Ray grasses, Grasses mix, Birch tree, Cypress tree, *Betulaceae*, Russian thistle, Plantain, *Chenopodium*, Mugwort.

Patients with contraindications to SPT as patients on long-acting antihistamines were excluded from participation.

Results: SPT to pollens was positive in 50/200 patients (25%).

Twenty/fifty (40%) patients with positive SPT were sensitized to one pollen, while 30/50 patients (60%) were polysensitized. The commonest sensitizing pollen was ray grasses in 56% of patients, followed by Plantain in 48% and grasses mix in 36%.

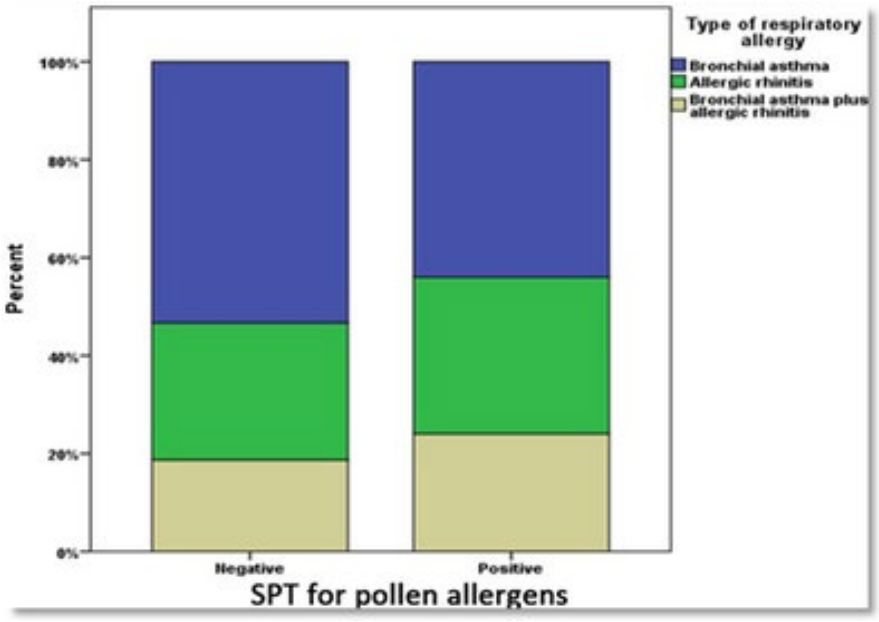

FIGURE 1 Type of respiratory allergy in patients with negative and positive SPT for pollens

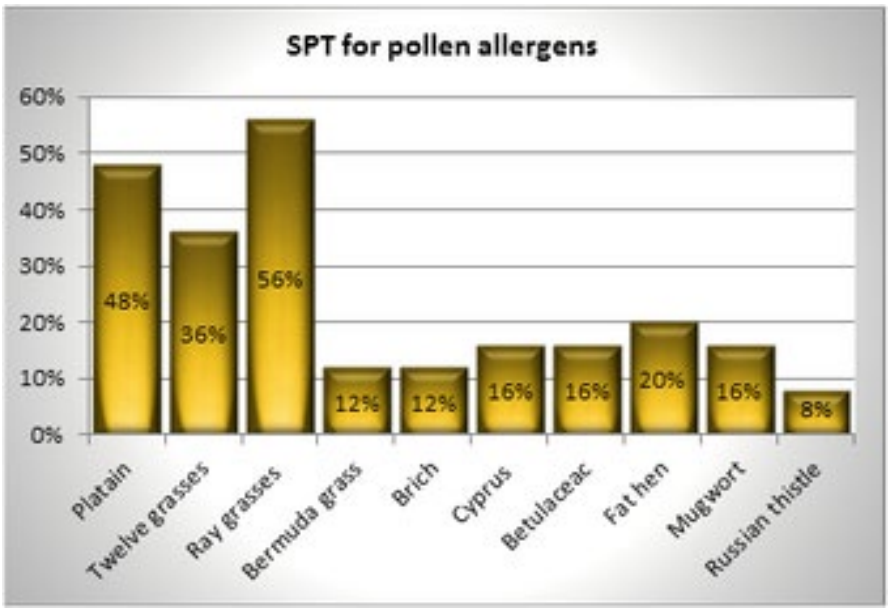

FIGURE 2 Bar chart showing the frequency and type of sensitization to different pollens in patients with positive SPT

Conclusions: Sensitization to pollens affected one-quarter of the patients, and polysensitization was more prevalent than monosensitization. Future large-scale studies should be conducted to determine the frequency and type of sensitization to seasonal pollens in different geographical areas, and trials of administration of pre-seasonal immunotherapy as a treatment modality for patients with seasonal respiratory allergies should be considered.

P041 | Millet allergy

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Objectives: Millets are a group of cereal grains belonging to the *Poaceae* family and are botanically related to wheat, corn and rice. They are commonly cultivated in Asia and Africa and are used for livestock and bird feed, and human consumption. In Westernized countries, millets are popular as healthy alternative cereals or gluten-free substitutes. Immediate hypersensitivity reactions to millets can lead to asthma and anaphylaxis. A limited number of cases have been reported, mainly in central Europe, Japan and USA.

Method: A 38-year-old Indian female developed pruritus, throat restriction, nausea and facial angioedema within minutes of eating a chapati made from millet flour, and on another occasion millet as rice alternative. There were no associated cofactors. The patient used to tolerate millet in the past. She has had no further reactions after avoiding millet. She has tolerated rice, wheat, and corn, after these episodes. Skin testing was positive to millet four, grass pollen, wheat flour, semolina and barley, but negative to whole millet grain, oat flour and peach (LTP). Specific IgE testing was positive to different millet varieties, maize and peach Pru p 3; negative to omega-5-gliadin and rice. She has a history of allergic rhinitis to grass and childhood asthma.

Results: Millet allergy is a rare, mostly resulting from primary sensitization to airborne millet allergens in bird keepers. IgE cross-sensitization to other grains appears to be extensive, mainly to rice, wheat and corn, which can sometimes be clinically relevant. Skin testing with millet flour is more sensitive than the whole grain itself. It has been suggested that the hypersensitivity against millet might be decreased over time after prolonged avoidance.

Conclusions: To our knowledge, this is the first reported case of an IgE-mediated reaction following ingestion of millet in the United Kingdom. The increased use of millets in natural diets might increase the incidence of millet-related allergic reactions. Therefore, allergy professionals should recognize millets as a new emerging cause of anaphylaxis.

ALLIED HEALTH

P042 | Spare pens in Schools—Are the key recommendations being followed?

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Objectives:

- To identify how many schools had opted to purchase spare adrenaline auto-injectors and the reasons precluding schools to do so.
- To assess current allergy management practices against the recommendations set out for schools by the Spare Pens in school's legislation.

Method: We aimed to explore what measures are taken by state-funded primary and secondary schools in the London boroughs of Wandsworth and Merton to maintain the safety of food-allergic pupils. An online anonymous questionnaire was sent to one first-aider from each school within these boroughs, whose headteacher had consented to participation.

Results: 33 schools participated in the survey, of which 79% (n = 26) were primary and 21% (n = 7) secondary.

64% (n = 21) had not purchased spare adrenaline auto-injectors. Eighty two percent (n = 27) reported allergy medications were centrally located, 97% (n = 32) stated that this location was accessible by all staff. Seventy percent (n = 23) kept these medications unlocked. Expiry dates of allergy medications were checked monthly by 18% (n = 6).

58% (n = 19) had dealt with an allergic reaction. Office staff, teachers and teaching assistants commonly received allergy training. 27% (n = 9) extended this training to catering/lunch time supervisory staff.

91% (n = 30) received face-to-face training by school nurses, however, only 15% (n = 5) of schools educated pupils regarding allergies.

Conclusions: Despite schools accessing allergy training, many remain inadequately prepared to keep their allergic pupils safe. The risk of anaphylaxis, therefore, remains a major concern for carers of school-aged children. The uptake of purchasing spare adrenaline auto-injectors remains low. Also, inconsistencies are evident in the storage and management of medicines, as well as staff and pupil training. Further work is required to address these issues and maintain safety of the allergic child at school.

P043 | Supporting schools to recognize and manage anaphylaxis rapidly: development of a visually friendly resource alongside implementation of a school allergy policy

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Objectives:

- To support the safe implementation of spare AAIs in schools project in a London Borough by developing a school allergy policy.
- To create a visually friendly resource for schools to display, emphasizing the importance of early recognition and rapid administration of adrenaline in anaphylaxis, to accompany a school allergy policy.

Method: Current local and national resources including the BSACI allergy action plan and an asthma school poster were reviewed.

- Discussions were undertaken at a Borough health education event seeking the views of special-educational needs coordinators (SENCo's) on the content of an anaphylaxis resource to display in schools.
- The views and expertise of a working group consisting of a head teacher, community asthma nurse, children's allergy CNS and children's health commissioner were also sought in the development of an accessible and memorable format conveying the key anaphylaxis messages consistently to school staff.

Results: A poster was created around the acronym of RACE, emphasizing key messages in the management of anaphylaxis in school:
Recognize anaphylaxis/Remove allergen
Anaphylaxis -ABC signs and symptoms
Care- patient positioning and AAI administration
Emergency- call 999 for emergency services.
The poster was incorporated into a school allergy policy distributed to schools which supported the implementation of Spare AAIs in school projects, in two London Boroughs.

Conclusions: Visual resources displayed in schools may aid the understanding of the importance of early recognition and administration of adrenaline in anaphylaxis, when used in conjunction with a school allergy policy. This resource has supported implementation of spare AAIs in schools in two London Boroughs. The distribution of A3 copies of the poster could be facilitated by securing funding for printing enabling more posters to be displayed, strengthening its effectiveness. This needs to be audited with SENCo's in the future.

P044 | Do Allergists know about and use Social Media in clinical practice: Results of Social Media Survey at BSACI Annual Congress 2019

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Objectives: To understand the knowledge of healthcare professionals in allergy of social media and which platforms were used personally and professionally and to see how or if it was being used in clinical practice in the UK.
Method: We performed a written questionnaire of those who attended the social media and apps workshop at the BSACI Annual Conference. Survey data were collected from 60 individuals from a variety of healthcare backgrounds.
Results: 60 questionnaires were analysed from a number of health professions (28 Doctors, 17 Dietitians, 12 Nurses, 1 Student, 1 Patient Group and 1 Other)
Of those surveyed 47 (78%) worked with Paediatric patients, the remaining with adults or both.
Facebook, Twitter, Whatsapp and Youtube were the most commonly known platforms with 100% recognition.
Nearly, all of the respondents used social media in their personal lives (58 out of 60), however, only 38% used in their professional lives (n = 23).
Of those who were using [digital media] in their professional lives, the most commonly used platforms were Twitter, Facebook and Whatsapp
Only a quarter of professionals had used social media to find information for patients and a similar number recommended social media to patients for finding information.
Over 56% of respondents recommended apps their patients and in particular FoodMaestro, Spoon Guru and Jext came out as the most commonly recommended apps.
Close to 75% of respondents did not feel they were well informed on apps or social media.
Conclusions: We have a duty as health professionals to provide our patients with resources to keep them well informed with the increasing trend of social media use
Our survey has shown that many have a knowledge of platforms although not comfortable in using in professionally and most felt ill-informed regarding apps/social media.
Post-COVID world may see change in these results as digital platforms commonly used.

P045 | Non-IgE cow's milk protein allergy is a multiorgan system disorder

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Objectives: Non-IgE cow's milk protein allergy (CMPA) is a differential diagnosis in infants exhibiting one or more cutaneous, gastrointestinal or respiratory symptoms, requiring elimination and reintroduction of milk to confirm the diagnosis. However, many of these symptoms are similar to common infant symptoms. The prevalence of challenge proven non-IgE CMPA in infancy is less than 1% but prescriptions for amino acid formula have risen tenfold so over diagnosis of CMPA is purported. Overdiagnosis may be related to the low threshold of one or more organ symptoms necessary to meet the milk allergy guideline criteria for elimination. The aim of this prospective study was to assess the prevalence of symptoms in organ systems in a cohort of infants in a non-IgE CMPA allergy clinic.
Method: Prospective anthropometric and symptom data from 55 infants were collected. Symptoms were recorded in gastrointestinal, skin and respiratory system categories. Infants were either exclusively breast fed, combination fed or exclusively formula fed. All infants had symptoms on rechallenge with milk after a 2-4 week elimination period to confirm CMPA diagnosis.
Results: Median age at referral was 5 months old. 53/55 (96%) symptoms started within 4 weeks of birth. 47/55 (85%) of infants experienced symptoms in more than one organ system; upper and lower gastrointestinal symptoms 53/55 (96%), respiratory symptoms 37/55 (67%), skin symptoms 30/55 (55%). Individual symptoms experienced were gastro-oesophageal reflux 50/55 (91%), colic 50/55 (91%), nasal congestion 37/55 (67%), eczema 21/55 (38%), rash 15/55 (27%), blood in stool 5/55 (9%), constipation 27/55 (49%) and diarrhoea 15/55 (27%). Only 4/55 (7%) had faltering growth.
Conclusions: The majority of infants with diagnosed non-IgE CMPA have multiorgan system symptoms. Gastrointestinal and respiratory symptoms were most prevalent in our clinic. Recognition of CMPA as a multiorgan system disorder will help to distinguish symptoms from other common infant presentations.

P046 | Does a maternal elimination diet improve symptoms of non-IgE cow's milk protein allergy in infants?

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[1]*Department of Dietetics/SLT, University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom;* [2]*Deaprtment of Paediatric Allergy, University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom*

Objectives: The current guideline for breastfeeding mothers of infants with suspected non-IgE cow's milk protein allergy (CMPA) is to exclude milk for 2-4 weeks followed by reintroduction to confirm the diagnosis. The benefit of a maternal elimination diet (MED) has been questioned, as modelling suggests that the bovine beta-lactoglobulin content of breast milk is too low to cause an allergic response in an infant. Elimination diets impact on quality of life and nutritional intake of breastfeeding mothers and may contribute to premature cessation of breastfeeding and commencement of hypoallergenic formula. The aim of this study was to assess symptom resolution and switch to formula in a cohort of infants with CMPA who were breast fed on a MED.

Method: Prospective anthropometric and symptom data were collected from 25 exclusively breastfed MED infants attending a dietetic allergy clinic.

Results: Median age was 5 months. 2/25 (8%) infants had faltering growth. 21/25 (84%) had multiorgan system involvement at diagnosis. All mothers were breastfeeding on a milk and soya free diet. All infants' symptoms improved on elimination and worsened on dairy reintroduction in the maternal diet. 8/25 (32%) infants had complete resolution of symptoms. 17/25 (68%) infants had unresolved symptoms, of whom 9/17 (53%) began hypoallergenic formula in combination with a MED. 2/17 (12%) transferred to hypoallergenic formula exclusively to achieve symptomatic resolution.

Conclusions: All infants showed improvement on a MED suggesting this has a clinical effect despite modelling to the contrary. However, symptoms did not fully resolve in two thirds of infants in our clinic which may imply the continued presence of allergen. Hypoallergenic formula was often required to provide symptom resolution, although only the minority stopped breastfeeding. Further research is required to understand maternal reasons for cessation of breastfeeding milk allergic infants, in order to better support breastfeeding in clinical practice.

P047 | Almond challenge outcome audit—Would home introduction be safe?

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Objectives: There are long waits and limited capacity for food challenges. We reviewed the outcome of hospital-based almond challenges to see if they could be safely performed at home.

Method: We identified almond challenges performed on our day ward in 2018-2019 from our challenge database. Challenge outcome data and patient information was extracted from the electronic patient record.

Results: 18 almond challenges were completed in children aged 11 months—13 years (median age 10 years 5 months). None had reacted to almond previously. Two children had a positive Skin Prick Test (SPT) to almond, 2 had a borderline SPT (1-2mm), 3 had low positive specific IgE (<3kuA/L). Eleven had negative almond allergy tests (67%)

There were 15 negative almond challenges, 2 were inconclusive due to food refusal; one of which had oral & eye itching in early stages (1x1mm SPT).

There was 1 positive almond challenge (SPT 3x3mm). The child completed the challenge protocol, then developed urticaria during observation. (Cautious home introduction was advised, but lost to follow-up).

The majority of children were sensitized to peanut (67%) or tree nuts (88%). One child had only almond sensitization. Fifty percent were sensitized to tree pollen (n = 9), 60% to grass (n = 11).

Conclusions: All almond challenges performed in children with negative allergy tests to almond were negative. There was a mild reaction in a child with a positive SPT.

In children who have had no previous reactions to almond and negative/low allergy tests, home introduction should be considered.

Reviewing the use of hospital-based food challenges is important to ensue limited resources are used to the best effect.

PAEDIATRIC CLINICAL

P048 | Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome in a child with prolonged hospitalization

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Objectives: Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is rare in the paediatric population. Here, we describe a case in a previously well, 12-year-old child with no allergies or significant medical history.

Method: Discussion:
We present a child with typical features of DRESS syndrome, based on the Registry of Severe Cutaneous Adverse Reaction (RegiSCAR) scoring system. The most likely culprit was PTZ. Positive testing to co-amoxiclav and amoxicillin suggested cross-reactivity.
Results: The table below summarizes the sequence of events (D = Day).

Day of treatment	Clinical features	Antibiotics
D1	Perforated appendicitis, appendicectomy D1 Abdominal pain (D1-4) Fever ongoing (D1-D33) Diarrhoea (D1-2) Vomiting (intermittent D1-25, stopped for 3 days then restarted D28-33)	Co-amoxiclav and gentamicin, D1-4
D5	Bilateral pleural effusion, CRP:420 mg/L	Piperacillin-tazobactam (PTZ) , D5-8
D6	Abdominal fluid culture grew Pseudomonas	Ciprofloxacin added, D6-8
D8	Ongoing fever	Meropenem D8-10, PTZ D10-25
D12	Chest drain (Right side)	
D20	Intra-abdominal collection, conservatively managed	PTZ stopped, D25

On D28, he developed a widespread itchy erythematous maculopapular rash. There was no oro-genital involvement or lymphadenopathy. Eosinophil count and ALT were significantly raised at 2.2 x10*9/L (Normal: 0.02-0.65 x 10*9/L) and 156U/L (Normal: 7-40 U/L), respectively. His viral and auto-immune screens were negative. He was treated with antihistamines, topical steroids and emollients. His rash, pyrexia and infection markers improved over the subsequent 2 weeks and he was safely discharged with no subsequent complications.
Four months later, he underwent skin prick testing (SPT) and intradermal testing (IDT) to PTZ, meropenem, co-amoxiclav, gentamicin, amoxicillin, flucloxacillin and benzylpenicillin. Delayed readings were positive on intradermal test for PTZ, amoxicillin and co-amoxiclav. The management plan included avoiding PTZ, co-amoxiclav and amoxicillin.
Conclusions: DRESS syndrome secondary to PTZ in a child is a rare diagnosis but should be considered with the described clinical features. Investigations of delayed reactions should include other penicillins which may cause cross-reactivity.

P049 | Evaluating parental satisfaction with paediatric allergy telephone clinics during the COVID-19 pandemic

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Objectives: The COVID-19 outbreak has placed the National Health Service under significant strain. Social distancing measures were introduced in the UK in March 2020 and virtual consultations (via telephone) were identified as a potential alternative to face-to-face consultations. This has allowed us to continue to deliver a modified form of the paediatric allergy service, while reducing face-to-face contacts and the need for patients to attend hospital.
The aim of this project was to evaluate parental satisfaction with a doctor-led telephone allergy clinic.
Method: The parents of children seen in the paediatric allergy telephone clinic over a 5-week period between May to June 2020 were invited to participate in a telephone satisfaction survey. Information on patient demographics was collected from electronic patient records. A retrospective parental satisfaction survey, using a 5-point Likert scale including free comments section, was carried out within a week of the clinic appointment.
Results: 54 parents consented to participating in the satisfaction survey. Thirty eight were successfully contacted via phone and completed the survey. Fifteen did not answer the phone and 1 did not have time to answer the survey.
94.7% of parents strongly agreed or agreed that they had enough time to discuss their child's problems and their concerns. 55.3% strongly agreed or agreed that they would be happy to have a telephone clinic appointment the future, 23.7% were neutral and 21.1% disagreed or strongly disagreed. 73.6% strongly agreed or agreed that they would prefer for their child to be seen in a face-to-face clinic, 10.5% were neutral and 15.8% disagreed.
Conclusions: Overall, parents are satisfied with the time they are given, and the information and explanations received. However, the majority would still prefer for their child to be seen in a face-to-face clinic. Further initiatives are required to support clinically appropriate and acceptable virtual consultations beyond COVID-19.

P050 | Parents and primary care perspective on penicillin de-labelling in children

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Objectives: To review outcome of children attending Harrogate District Hospital with suspected penicillin allergy between December 2018 and December 2019, and identify-

1) Number of children, who had a true penicillin allergy
2) How effectively primary care records are being updated regarding penicillin allergy status and prescribed if needed?
3) Children who successfully completed the challenge. How confident did parents feel to give penicillin to their children if needed?

Method:

- Retrospective review of management, over a year's period.
- Children were reviewed in clinic after the successful challenge and a discussion of de-labelling of their allergy status. Following which a letter was sent to primary care with the notification of 'de-labelling penicillin allergy'.
- Telephone follow-up with parents and primary care after few months, following the challenge. To review their perspective and check updated allergy status.

Results: Total of 18 children had the oral challenge, of which 8 were boys and 10 were girls. Age range of 2-15 years and a median age of 5 years. 89% children had successfully completed oral challenges and a notification letter to primary care was sent in all. Fifty six percent of primary care records were updated. Eighty one percent of the parents were contactable and were happy to have penicillin prescribed for the future and 31% have already had penicillin with no adverse effects.

Conclusions:

- Majority of children were able to tolerate penicillin at testing and were de-labelled.
- Current practice is effectively addressing inaccurate 'allergy labelling' and thus reducing the inappropriate prescription of alternative antibiotics.
- Parents of children that are de-labelled are generally reassured and happy to accept future penicillin prescriptions.
- 'Labels' frequently seems to persist in primary care, despite notification letters. Perceived barriers seem anxiety relating to de-labelling and oversight of information in letters. To improve clarity of information, by creating a letter template specific to de-labelling and education. Reviewing our practice at later date.

P051 | Winter wheals and welts in a toddler

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Objectives: Background- Cold-induced urticaria (CIU) is rare and the exact number of people is unknown. The incidence in central Europe is thought to be 0.05%.
More common in young women. Symptoms of pruritic wheals, angioedema to anaphylaxis. Risk of development of systemic reactions & anaphylaxis, especially if a large area is exposed to cold.
Two types- primary (idiopathic) or secondary to an underlying haematologic, infectious disease and others. Most cases are idiopathic. Diagnostic testing shows inconsistent results.
In a third symptoms resolve in few years.
Method: Case presentation - A 19-month-old presents with history of welts on exposure to cold. Symptoms started at 14 months of age, which is an unusual age for presentation. Mum had noticed welts on exposed parts of her body or areas of contact, on exposure to cold weather or water. Developed somewhat itchy hives, few minutes after exposure, which was proven by ice cube test in clinic. Her symptoms were somewhat relieved by cetirizine, with majority of rash disappearing in some hours. Currently on a trial of high-dose non-sedating antihistamine. No secondary causes or co-existing physical urticaria have been identified.
Interestingly mum has history of cold-induced urticaria, diagnosed at 18 years of age. She currently is on omalizumab trial and carries an EpiPen. Genetic investigations are pending.
Results: Discussion- There are types of CIU that are felt to have a genetic component with familial transmission such as Familial cold Urticaria, with autosomal dominant inheritance, where symptoms can start at early age.
Conclusions: Cold-induced urticaria is a complex, chronic physical urticaria. Characteristic signs and symptoms support diagnosis. Mainstay of treatment consists of non-sedating antihistamines, sometimes higher than standard doses being prescribed. Other treatment options available for those who do not respond to standard treatment. Parents should be well informed of the risk of anaphylaxis & preventive measures and adrenaline auto-injector should be offered.

P052 | Home Food Introduction Service: an initiative for sustaining Paediatric Allergy Services during recovery from Covid-19

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Objectives: During the Covid-19 pandemic our Day Ward was closed to support emergency care and staff redeployment. From 23 March

2020 to 31 July 2020, 164 food and drug challenges were cancelled. With no date for its reopening and social distancing measures likely to reduce the number of patients allowed; we designed a home food introduction service to decrease the burden of patients affected. We aim to empower families with children deemed low risk of having allergic reactions to safely introduce a food at home.

Method: The service provides at least two telephone consultations with either a Paediatric Allergy Clinical Nurse Specialist or Paediatric Allergy Dietitian (milk and egg introductions). An initial consultation allows caregivers to discuss concerns and practical issues. Families are sent a patient information leaflet outlining the process, with safety advice on managing reactions. A second telephone review is scheduled for 2 weeks later to give them an opportunity to undertake the introduction. During this review, the outcome is discussed, and plans made to regularly include the food or continue exclusion. If it is not done, then reasons are explored and a further appointment given 2 weeks later.

Results: It was designed in response to a survey of the 24 challenges cancelled during May 2020. We classified 16 of these patients as being suitable for a home introduction (67%). However, of the 12 contactable by telephone, only 3 chose to introduce the food themselves. The 9 who opted to continue on the waiting list stated concerns around accessing healthcare and needing more support before they would consider it.

Conclusions: This service will provide additional health professional contact to increase the confidence of families in carrying out home introductions and reassurance they are part of a wider effort for more healthcare to be delivered at home during the Covid-19 recovery phase and beyond.

P053 | Children with Atopic Dermatitis with Allergic Gastrointestinal Origins (ADAGIO) Complex—Th2 allergic inflammatory diseases and use of biological and targeted therapies: Dupilumab and Omalizumab

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Objectives: To (i) further characterize, the clinical and immunological Th2 allergic inflammatory phenotype of children presenting with the ADAGIO Complex* and to (ii) assess the clinical efficacy of anti-IgE and anti-IL4/13 targeted therapy.

Method: 76 children (0-16years) with physician confirmed ADAGIO Complex [Severe Atopic Dermatitis(AD) and >1 other symptoms of Food Allergies(FA), Atopic Asthma(AA), Allergic Rhinitis(AR) plus Faltering Growth(FG)] were reviewed. Clinical electronic records, timeline data, prospective validated questionnaires, Eczema Area and Severity Index(EASI) & Dermatology Life Quality Index(DLQI) scores obtained in patients treated with dupilumab(n = 5) and omalizumab(n = 1).

Results: Main :(n = 76), female (44%) mean age (77 months), White British(68.4%); severe AD (100.0%); non-IgE-FA (16.7%); IgE-FA (83.3%); anaphylaxis (35.5%); AA (41.0%); AR (64.4%) and faltering growth (FG) (100%). There is positive correlation between age and number of allergic co-morbidities ($P < 0.0001$). Comparison of severe AD with faltering growth to moderate AD with normal growth reveals: high TIgE ($P < 0.0001$); height z-score ($P < 0.0001$); high eosinophil count ($P = 0.0400$); Vitamin D deficiency ($P = 0.0487$); low ferritin ($P = 0.3563$); low iron ($P = 0.4928$); recurrent skin infections ($P = 0.0802$).

Dupilumab: (n = 5), female(20%), mean age(186months), White British(40%); with severe AD, IgE-FA, AR, AA(100%). Mean treatment(38.4 weeks): 200/300microg <60kg/>60kg. T0-follow-up; 5/5(100%) reduction/resolution of AD symptoms, 5/5(100%) reduction of EASI, 4/5(80%) reduction of DQLI, 3/4(75%) resolution of AA symptoms, PEFR improvement, 3/3(100%) resolution of AR symptoms. Three food exposures to known allergens, 2/3(66.67%) elicited no reaction. Mean reduction in prescribed medication(43%).

Omalizumab: One child not eligible for dupilumab subsequently responded to omalizumab.

Conclusions: ADAGIO complex defines non-resolving, severe AD with >1 allergic co-morbidity: raised TIgE, high eosinophil count, Vitamin D deficiency, recurrent skin infections; and FG. Dupilumab is licenced for children >12 years of age (AD, AA) and appears beneficial. Future work in improving diagnosis and treatment options is required.

P054 | A case of Neonatal Mastocytosis presenting as congenital urticaria pigmentosa and infected bullae

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Objectives: Mastocytosis, a rare disorder characterized by mast cell infiltration in the skin and other organs and related to KIT gene mutations, encompasses a variety of manifestations. Here, we describe a case of cutaneous mastocytosis present from birth.

Method: A 14-day-old girl presented with a generalized erythematous maculopapular rash noticed at birth, later featuring seropurulent-filled bullous lesions. The bullae initially appeared on her left leg and later on all four limbs. New bullae developed on sites of light pressure (Darier's sign). She had received both topical and oral antibiotics, which did not halt the lesions' appearance. She was otherwise well and growing appropriately. Mum was positive for Group B Streptococcus (GBS) during the first trimester of pregnancy, but remained well during pregnancy and delivery. An initial lesion's swab had grown Streptococcus Viridans, therefore she received further IV antibiotics. Blood cultures were negative, CRP and WBC within normal parameters. Elevated tryptase was noted at 40.5μg/l.

Dermatology review and biopsy were organized with Great Ormond Street. Biopsy confirmed cutaneous mastocytosis. Normal liver and spleen were confirmed by ultrasound, and repeat blood tests showed no sign of bone marrow invasion.

Results Discussion: Mastocytosis can mimic more common presentations in infancy, and differential diagnoses include Streptococcal and Staphylococcal skin infections, and inflammatory conditions such as neonatal pemphigus. Mastocytosis should therefore be considered in neonates presenting with unusual congenital rashes. Biopsy confirmation is vital for diagnosis, and management until confirmation should focus on treatment of infected skin lesions. Systemic involvement must be excluded early to avoid undesirable outcomes. Long-term management includes oral antihistamines and regular follow-up.

Conclusions: Mastocytosis is an important differential diagnosis in cutaneous manifestations with positive Darier's sign in neonates. Timely investigation and diagnosis are important for management, which relies on antihistamines, steroids and parental advice regarding management of anaphylaxis.

P055 | IPEX (Immune dysregulation, polyendocrinopathy, enteropathy, X-linked) syndrome—a report of heterogeneous phenotype presenting as clinical conundrum in 2 siblings

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Objectives: IPEX is an X-linked, rare hereditary disorder of primary immunodeficiency caused by Forkhead Box Protein3 (FOXP3) mutations, which encodes a key regulator of immune tolerance. The syndrome is characterized by immune dysregulation, polyendocrinopathy and enteropathy.

Method: We report a case series of 2 male siblings with genetically diagnosed familial FOXP3 c.1117t>G p.(phe373val) mutation. Both siblings presented with early-onset diarrhoea, eczema and high immunoglobulin E levels. Sibling-1 improved after dairy exclusion in the diet. His disease course was complicated by recurrent upper respiratory tract infections and arthritis which was treated with steroids and immunosuppressant. He remained under investigation by immunology until sibling-2 was born (age 5). Sibling-2 presented with neonatal sepsis secondary to rotavirus gastroenteritis. Despite clearing rotavirus, he developed intestinal failure. His disease course was further complicated by multiple sepsis episodes, non-nephrotic range proteinuria, and non-haemolytic anaemia requiring transfusions without response to steroids and immunosuppressants. The severe clinical course prompted further investigations which revealed the pathogenic mutation at FOXP3 in both patients. There was no evidence of active auto-immunity or endocrinopathy in either patient. Sibling-1 remains under follow-up with immunology while sibling-2 died during haematopoietic stem cell transplant.

Results Discussion: IPEX syndrome is a clinically heterogeneous disorder with variable a phenotype/genotype. Mutations within the repressor domain correlate with a severe clinical phenotype while forkhead domain mutations are reported to have more attenuated phenotype. In our sibling group, despite carrying the same familial forkhead exon10 mutation, a different clinical course presented a diagnostic dilemma and questioned the role of gene modifiers and epigenetic and environmental variables contributing to the disease onset and severity.

Conclusions: Molecular profiling of patients with IPEX syndrome is the gold standard in diagnosis. Understanding the role of gene modifiers and epigenetic factors in disease expression could provide new insights into novel treatment options and improve patient outcomes

P056 | Allergic profile of children with cystic fibrosis at the Great North Children's Hospital and a novel perspective on the pathogenesis of Allergic Bronchopulmonary Aspergillosis

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Objectives: To characterize the allergic profile and risk factors of a cohort of children with cystic fibrosis (CF) and to investigate the pathophysiology behind Allergic Bronchopulmonary Aspergillosis (ABPA).

Method: Retrospective data were collected from 37 children within a multidisciplinary CF clinic at the Great North Children's Hospital Newcastle. Participants' allergic histories were compiled using a validated questionnaire, with particular attention to atopic dermatitis (AD), food allergy, atopic asthma, allergic rhinitis (AR) and drug allergy (DA). Electronic medical records were screened for investigation results and potential risk factors (infections, mediations).

Results: 28/37 had history of at least one of the main allergic conditions. AR was much more prevalent than in the general population (21/37) (56.8%). 8 (21.6%) had ABPA, and formed an interesting subgroup in terms of atopy: 6/8 had AR, 4/8 had multiple DA and only 2/8 had AD despite it being very common in the group (18/37). Children with ABPA had consistently higher peak total Immunoglobulin E (TIgE) than those without (median 4097 versus 38 IU/mL) regardless of whether those without were allergic or not. *Pseudomonas aeruginosa* colonization was associated with ABPA. Six with ABPA had their atopic exacerbations plotted on a timeline with blood test results. 4/6 only had exacerbations around high pollen months. TIgE, basophil count and eosinophil count were predictive of exacerbations.

Conclusions: This study presents findings supportive of a novel alternative to the dual exposure and united airway hypotheses, a mechanism by which four factors predispose CF individuals to ABPA: altered airway mucosa, bacterial colonization, prolonged antibiotic

exposure and allergy. According to this 'Quadruple Hypothesis', the upper airways act as the entry point for allergic disease rather than the skin (as it is in the dual hypothesis). If true this would have implications for managing these children, with greater emphasis needed on the upper airway and AR.

P057 | Antibiotic drug desensitization in the Paediatric Intensive Care Unit

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Objectives: Drug allergy continues to be on the increase with more children experiencing drug allergic reactions year on year, with antibiotics being one of the most common drugs associated with allergy. For the immunocompromised patient where there is no alternative drug, this is even more of a challenge. Drug desensitization offers the opportunity for these vulnerable patients to become tolerant of the antibiotic in question.

Method: A 16-year-old girl with medullary myeloid leukaemia who was due a bone marrow transplant, developed a fungal chest infection requiring antifungal treatment with Ambisome being identified as the most appropriate antifungal. The patient had experienced a previous allergic reaction to Ambisome with an itchy tongue and throat, vomiting and lip swelling at the beginning of the infusion. The desensitization was carried out in the paediatric intensive care unit with the allergy team present throughout. The patient received IV chlorphenamine and oral cetirizine prior to the infusion. Desensitation was successful.

Results and Discussion: The desensitization process took over 9 hours on an incremental dose protocol. The patient needs to have Ambisome regularly to maintain tolerance. Post the bone marrow transplant, the allergies may change and this will need to be reviewed as necessary.

Conclusions: The desensitation process required both allergy and paediatric intensive care medical and nursing expertise. This limits the allergy centres that this procedure can be carried out in, as not all allergy centres have a paediatric intensive care unit.

There is no standardized drug desensitation protocol in UK.

P058 | Is home introduction of tuna safe for children with fish allergy?

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Objectives: Children with fish allergy can often tolerate canned tuna, potentially because the allergenicity of tuna is lost during processing. It may be that assessment of tolerance could be done at home rather than the hospital setting. Our aim was to describe the reactions to tuna challenges to determine whether certain patients would be safe for home introduction.

Method: We undertook a retrospective audit of tuna challenges performed in the Paediatric Allergy service at King's College Hospital over the last 5 years. Tinned tuna is used for food challenges as service standard. Clinical history, results of skin prick tests (SPTs) and specific IgEs (tuna, cod, salmon) and challenge outcomes were extracted from the electronic patient record.

Results: Twenty-five children (aged 4-16 years) underwent a tuna challenge. Most children were sensitized to other fish (4% salmon, 20% cod, 72% cod and salmon). The majority had SPTs performed prior to challenge (96%).

One child (aged 12) had a positive challenge (swollen, itchy eyes after eating 15g tuna). The symptoms were treated with Cetirizine. The other challenges (n = 24) were negative.

The child with the positive tuna challenge had a small positive SPT prior to the challenge (3x3 mm). Sixteen children (64%) had negative tuna allergy tests (IgE or SPT) before the challenge. Two children (8%) had a borderline SPT (2x2 mm), and seven (28%) had positive tests (6 SPTs and one specific IgE positive, 3.08 kUA/L).

Conclusions: Only one child (4%) with a positive SPT had a positive tuna challenge. All children with negative SPT and specific IgEs had negative tuna challenges and some children with positive allergy tests (IgE, SPT) had negative challenges. For children with fish allergy, who have negative allergy tests to tuna, it is potentially safe to introduce tinned tuna at home.

Children with a positive tuna allergy test should continue to have supervised tuna challenges in hospital.

P059 | Follow-up telephone calls may be needed for a successful food challenge

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Objectives: An audit was conducted to establish if telephone calls made to carers of children will help in re-introducing food that they were avoiding in-spite of successfully passing their food challenges.

Method: Phone calls were made to check if carers had introduced food items that they were avoiding following food challenges. Calls were made on two occasions: one week and six weeks. Data were collected over an eight-week period following the food challenges.

Results: 28 patients underwent food challenges in a two-month period. A phone call made at one week revealed that 10 (36%) of them did not introduce the food that they were challenged to. Phone calls made at six weeks revealed that 7 (70%) were taking it on a regular basis which they failed to introduce at one week. Two patients did not like the food and hence did not continue, and one did not respond to phone calls on both occasions. Out of the 10 patients who were not introduced to the food that they were challenged, 9 of them were supposed to be introduced to nuts. Seven in this group later successfully consumed them.

Conclusions: 36 % of patients were not introduced to the food after food challenges but a phone call reminder at this stage was mostly successful as 70 % of this group started having the food on a regular basis. Eighty six percent of the group who failed to introduce food in their diet were children who were avoiding nuts. Following this success, we have plans to introduce this as a guidance for a successful challenge and by sharing this good practice of two reminder phone calls, we would hope that this could become a part of the national food challenge guidance.

P060 | Re-audit of attitudes to precautionary allergen labelling when purchasing products for children with nut allergy

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Objectives: There has been a shift in nut allergy management over the last 10 years, with selective nut eating rather than blanket avoidance becoming the gold standard. We examined how this shift in practice has affected patient attitudes to precautionary allergy labels (PAL); and identified demographic factors affecting behaviour.
Method: Nut allergic patients followed up in London and Newcastle completed a customized questionnaire. Current data were compared with Noimark et al.'s 2009 responses to a similar questionnaire. Chi-squared was used to assess the significance of differences observed between groups of data.
Results: 115 patients were surveyed. 33.3% of patients had a history of anaphylaxis and 63.4% carried an adrenaline auto-injector. 64.3% had other food allergies and 47.4% practised selective nut eating. In 2020, there was a reduction in the avoidance of products containing 2 of 5 PALs surveyed ($P < 0.001$), checking of suncreams and medicines ($P < 0.01$) and avoidance of chestnut and coconut ($P < 0.05$) compared with the 2009 data. Following subgroup analysis, patients with a history of anaphylaxis were more likely to check lip balms, shampoos and sun creams ($P < 0.05$), and patients with other food allergies were more likely to check all six non-food products surveyed ($P < 0.01$). Selective nut eaters exercise less caution with products containing 3 of 5 PALs ($P < 0.05$). Patients with other food allergies and non-selective nut eaters were more likely to avoid chestnut, nutmeg and coconut ($P < 0.001$).
Conclusions: Compared to the 2009 data, nut allergy patients are less cautious about avoiding PALs and checking labels of non-food products; although education about chestnut, nutmeg and coconut appears to have improved. Previous anaphylaxis and multiple food allergies are associated with more cautious behaviour. Selective nut eating is associated with more relaxed behaviour. Hospital admissions due to allergic food reactions in the UK since 2013 have increased, therefore, stricter adherence to PALs may be necessary.

P061 | Specific oral tolerance induction to cow's milk: A 'life changing experience'

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Objectives: Specific oral tolerance induction to cow's milk (CM-SOTI) can be used as a treatment option in the small proportion of patients whose milk allergy persists beyond childhood, however, currently, there appear to be very few centres in the UK offering this option. We wanted to assess our patient and families' experience of the milk desensitization program offered at Sandwell and West Birmingham Hospitals NHS Trust in an aim to ensure the experience was a positive one, without overburdening the families unnecessarily. As our findings were so overwhelmingly positive, we present them here with a view to encouraging other allergy centres to consider implementing CM-SOTI as part of their routine clinical practice (where appropriate).
Method: We used our electronic notes system to collect data, and also made a telephone call to each family who had completed the SOTI program (given the restriction of face-to-face appointments during COVID-19) in order to hear their thoughts on the process.
Results: 7 patients were identified, of which 6 were male. Three completed SOTI with full tolerance to milk, 2 achieved partial tolerance and 2 are still in treatment. We had an overwhelmingly positive response from all of the families who took part in our telephone feedback, despite some having not achieved full tolerance. The children are 'chuffed' that they now have much less restricted choices of foods. Parental and child anxiety has significantly reduced, and family life is much easier in most cases. Two of our teenagers described the process as 'life changing' and one young man who thought he would be unable to enter the military due to his milk allergy, now can.
Conclusions: The process of CM-SOTI is looked upon favourably by families, even those who do not achieve full tolerance, and in some cases can have life-changing effects on young people.

P062 | Drug allergy in children: De-labelling the label

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Objectives: Drug allergy in children is often over reported, with features of intercurrent illness frequently mistaken for allergy by parents and healthcare professionals. It is estimated that less than 7% of children are truly allergic on re-exposure to the drug in question. We audited our drug allergy challenges over a 3 ½ year period at Sandwell and West Birmingham Hospitals NHS Trust, in order to establish how many positive challenges occurred, and to assess

whether we could change to a 'quick challenge' protocol for some of our patients.

Method: Data were collected from our electronic notes and laboratory systems and analysed in Microsoft Excel.

Results: 64 drug allergy challenges were requested, of which 26 were completed, 8 did not attend, 16 are still on the waiting list and 10 are scheduled. The remaining few were cancelled by parents, or are waiting for parents to call and book. 48% of challenges were requested for amoxicillin, 22% for penicillin and 6% for macrolide antibiotics. Of 26 challenges completed, 1 patient reacted during challenge and 1 after discharge, both of which were considered allergic reactions. Both were to a form of penicillin. Skin prick testing was negative in both patients, neither had severe symptoms of allergy at challenge or on initial presentation.

Conclusions: The vast majority of patients did not react at challenge, and those who did had mild reactions. We feel it would benefit delabelling to make use of a 'quick challenge' or even single-dose challenge in those patients are felt unlikely to have had a true allergic response to medication, with negative testing. This would enable us to reduce our challenge waiting times and provide a better service overall, while maintaining patient safety.

P063 | The burden of allergy on quality of life and psychological wellbeing in children

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Objectives: We assessed the quality of life (QoL) and psychological wellbeing in children attending a general Paediatric allergy clinic at a central London hospital.

Method: Paired proxy and self-reported Paediatric Quality of Life Inventory (PedsQL) questionnaires were used to assess QoL. Published PedsQL data for a healthy population were used as control.

Results: Eighteen children (9 males 50%; mean age 7.7 ± 4.5 years) were included, statistical analysis compares to a population sample (8 both proxy- and self-reported, 6 proxy only, 4 self-reported questionnaires). Twenty-two per cent had family history of atopy, 56% IgE-mediated food allergy, 33% testing positive serum or skin prick test for IgE food allergen, 67% eczema, 33% allergic rhinitis and 22% asthma. Compared to PedsQL normal values, self-reported scores showed a statistically significant difference for physical functioning only(88.28 ± 10.99 vs 88.51 ± 11.52) with *P*-value 0.03, with little difference in other domains; emotional(71.15 ± 22.47 vs 78.49 ± 17.94); social(84.58 ± 11.77 vs 87.65 ± 16.46); school functioning(78.75 ± 13.16 vs 78.87 ± 15.89); total(81.5 ± 9.5 vs 83.89 ± 11.84). For proxy reported scores, there was no significant difference compared to PedsQL normal values for any of the domains; Physical(93.66 ± 12.37 vs 89.06 ± 12.27); emotional(81.07 ± 23.14 vs 78.28 ± 15.54), social(91.78 ± 13.24 vs 86.82 ± 15.42); school functioning(84.64 ± 15.04 vs 81.52 ± 16.09); total(88.2 ± 12.5 vs 84.61 ± 11.19)

Conclusions: Despite being a highly atopic group, there was less impact on QOL than expected, contradicting older studies. Many were in their early childhood and impact on QoL may become more apparent later; many were follow-up patients, possibly indicating that our allergy clinic equips them with appropriate and timely management of allergies and atopic co-morbidities, reducing impact on QoL. Our results may reflect necessity to create improved frameworks for measuring health outcomes in infants, particularly in a setting assessing a large proportion of very young children with significant atopic disease.

P064 | Signs of early presentation of presumed food allergy in the Neonatal Intensive Care unit

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Objectives: To describe patterns of clinical presentations of suspected early presentations of food allergy in a central London tertiary neonatal intensive care unit

Method: Retrospective case notes review of all neonates prescribed allergen-elimination diet (AED) over a 12 month period (April 2019 - April 2020), identifying the signs of presumed non-IgE-mediated food allergy (PNFA) prompting the change to an AED.

Results: Thirty-four neonates (22 male, 30 preterm) were changed to either extensively hydrolysed cow's milk protein-based preterm formula (eHPF) and/or maternal dietary exclusion (MDA).

Signs of PNFA included: retrograde flow of feed up the gastric tube, blood in stools, vomiting, poor weight gain, straining and squirming. 38% (13) neonates had just 1 sign of PNFA, and 62% (21) had ≥2 signs (range 2-5).

Of the neonates with ≥2 signs: 95% (20) were preterm (mean GA 29 weeks, mean birth weight 1500 g); 52% were singleton; 38% had foetal growth restriction (10% of these had reversed end-diastolic flow); 71% received enteral feeds from day 1 (43% maternal expressed breast milk (EBM), 24% donor EBM, 14% maternal and donor EBM, 10% eHPF, and 10% maternal EBM and eHPF); 38% (8) had a family history of atopy; 62% were prescribed more than one course of antibiotics; necrotizing enterocolitis (NEC) was suspected in 5 and confirmed in 3.

76% were reviewed by 3 months (corrected): 63% tolerated whole cow's milk protein and 37% remained on elimination diets. Of those on elimination diets: 31% had ongoing signs of PNFA and 25% had been given a diagnosis of cow's milk protein allergy.

Conclusions: Neonates presenting with signs of PNFA may benefit from AED. A standardized approach to allergen elimination-reintroduction sequences may improve identification of early presentations

of food allergy, guiding targeted and standardized dietary management strategies.

P065 | Transplant associated allergy: A comparison of the clinical phenotype and risk factors between paediatric cardiac and renal transplant recipients

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Objectives: To characterize and compare the clinical phenotype of Th2 allergic inflammatory disease in children following cardiac or renal transplant; including atopic dermatitis (AD), allergic rhinitis (AR), food allergy (FA), allergic asthma (AA) and drug allergy (DA). To identify risk factors in these transplant recipients.

Method: Retrospective data were gathered via a validated questionnaire and a review of clinical records. Allergic disease was defined by the treating paediatrician or allergy specialist reviewing questionnaire answers.

Results: 24 cardiac patients (29% male, median age 144 months, median age at transplant 16 months) and 20 renal patients (50% male, median age 127 months, median age at transplant 53 months) were included.

24 (71%) cardiac patients developed new allergic disease(s) following transplant, compared to 3 (15%) renal patients. Types of new (post-transplant) allergic disease for cardiac and renal patients:

AD: 15 (63%) cardiac and 1 (5%) renal patients. AR: 10 (42%) cardiac and 1 (5%) renal patients. IgE-FA: 5 (21%) cardiac and Non-IgE-FA 1 (5%) renal patient. AA: 3 (13%) cardiac and, 2 (10%) renal patients. DA: 1 (4%) cardiac with no renal patients. Four renal patients had DA, but all began pre-transplant.

Significant risk factors: Cardiac patients had more total allergies (P = 0.0001) and new allergies than renal patients (P = 0.0002). Cardiac patients £12 months of age at transplant or sternotomy had more new allergies than those >12 months (P = 0.009 and P = 0.053). Atopic family history, atopic personal history (pre-transplant), primary diagnosis and immunosuppression with tacrolimus were not significant risk factors for developing new allergic diseases. Atopic history of donor heart/kidney unknown.

Conclusions: Transplant-associated allergy is an important complication of transplantation. Results suggest a higher burden on cardiac transplant recipients with a predisposition to Th2 skewing of allergic inflammation. Donor history and further research is needed to improve understanding of the mechanisms and impact.

P066 | Allergic rhinitis in asthmatic children: A comparison of recognition and management of this modifiable risk factor in primary and tertiary care

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Objectives: The important connection between allergy rhinitis (AR) and asthma has now been well recognized. The AR and its Impact on Asthma World Health Organisation concluded that these symptoms should be considered as a whole, and recommended a combined therapeutic approach to achieve optimal disease control. Unfortunately, this approach has not been widely adopted in clinical practice.

This study assessed and compared the recognition and management of AR in asthmatic children, between primary and tertiary care. We explored how asthma control varies with severity of AR. We also evaluated patients' awareness of AR in this cohort.

Method: This prospective cohort study combined data from two primary care centres and tertiary asthma clinics in Newcastle. All asthmatic children were invited to participate by completing a questionnaire. A total of 49 and 35 patients, from primary and tertiary care, respectively, participated.

Results: Majority of patients with poorly controlled asthma (PCA) reported concomitant AR symptoms (85% -primary, 89% - tertiary). In the primary group, only 18% of these patients were consulted for AR in their asthma clinics. In tertiary, one quarter of patients have never been asked about AR. 40% were symptomatic and also have PCA. 26% and 9% of these children (symptomatic + PCA) , from the primary and tertiary group, respectively, were not on AR treatment. One fifth of the patients from both groups reported severe AR symptoms, and all of them have PCA. 53% and 10% of patients in the primary and tertiary group, failed to recognize their AR symptoms.

Conclusions: Our study highlighted suboptimal recognition and management of AR in our cohort, especially in primary care. We have also observed a discrepancy between patients' perception of 'hay fever' and presence of true symptoms. This posed an important reminder to healthcare professionals to always explore each AR symptoms, instead of using an umbrella term during asthma review.

P067 | Update of the BSACI guideline for the management of egg allergy

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Objectives: Egg allergy is one of the most common childhood food allergies, affecting 1 in 50 children. The BSACI published a guideline for the management of egg allergy in 2010. This has recently been updated by the BSACI Standards of Care Committee (SOCC).
Method: A literature search was conducted, using defined search terms, of publications since 2010. Topics for inclusion in the guideline were established in conjunction with Allergy UK and the Anaphylaxis Campaign, and informed selection of evidence. Where evidence was lacking, consensus was reached among experts on the guideline committee. An initial draft was reviewed by BSACI members and patient groups prior to submission for publication.
Results: The revised guideline contains additional and expanded sections on

- Component testing
- Allergen labelling
- Reintroduction of egg
- Home introduction of baked egg
- Oral immunotherapy
- Egg allergy in adults
- Egg allergy and asthma, peanut allergy, eosinophilic oesophagitis, FPIES, propofol
- Immunizations
- Egg allergy in nurseries and schools
- Psychological implications
- Primary prevention

Appendices include case examples, patient information leaflets and information for patients about home introduction.
Conclusions: Children with egg allergy should be assessed for reintroduction from 12 months of age, to prevent prolonged exclusion and the risk of persistent egg allergy. Children with severe reactions should have avoidance and reintroduction guided by an allergy specialist. Early egg introduction in infants with eczema prevents egg allergy. Early peanut introduction in infants with egg allergy prevents peanut allergy. New-onset egg allergy in adults is uncommon, more severe and persistent.
All egg-allergic children should be immunized with the MMR vaccine in primary care and can receive the nasal live attenuated influenza vaccine. Adults and children can receive the intramuscular influenza vaccine in primary care, unless they have had egg anaphylaxis requiring ICU admission. Yellow fever immunization of egg-allergic patients should be performed in conjunction with allergy specialists.

P068 | Investigating UK dermatologists' knowledge, confidence, training and attitude towards food allergy in atopic dermatitis

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Objectives: The association between atopic dermatitis (AD) and food allergy (FA) is well documented. It is mainly a problem in infants and young children with moderate-to-severe disease and less so in older children and adults. The aims of this study were to examine UK dermatologists' knowledge, confidence, attitudes and training relative to food allergy in atopic dermatitis.
Method: A structured 20 question online survey was disseminated to UK dermatologists via the British Association of Dermatology October 2017 newsletter and to hospital dermatology departments across the UK, December- January 2018. Data were collated and analysed using SPSS.
Results: 79 dermatologists responded to the questionnaire. Dermatologists answered 56% of knowledge questions correctly, struggling particularly with identifying clinical signs associated with IgE-mediated FA; 30.3% answered correctly and diagnosing delayed non-IgE-mediated FA, 20.5% answered correctly. 83% had previous training in FA but only 28% felt their training was adequate and only 31% felt confident in their ability to manage FA patients. Dermatologists who felt confident in managing FA patients were more likely to have received training in FA (P = 0.02) and food allergy tests (P = 0.03). Dermatologists with FA training performed better in the knowledge questions compared to the non-trained dermatologists, scoring 62% and 51%, respectively. Only 20% of dermatologists did not refer AD patients to allergists for further FA investigation.
Conclusions: UK dermatologists do not receive adequate training on food allergy, resulting in a lack of knowledge and confidence in its diagnosis and management. Updating the UK dermatology curriculum to include more information on FA would be useful.

P069 | Oral food challenge to baked milk: Identifying risk factors for clinical reactivity to support decision-making about home or hospital-based challenge

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Objectives: Identification of risk factors for clinical reactivity during baked milk (BM) oral food challenge (OFC) to inform decisions about home or hospital-based OFC within a tertiary children and young persons (CYP) allergy service.
Method: Electronic records of 74 CYP for BM OFC (Feb18-Nov19) were reviewed. Data collated included presenting symptoms (PS), co-morbidities, co-existing food allergy (FA), co-existing food and aeroallergen sensitization, specific IgE (SIgE)(cow's milk (CM)), SIgE(casein), skin prick testing (SPT) wheal size (CM) and outcome of OFC.
Results: Sample comprised 74 CYP, 28(38%) female and 46(62%) male. Median age 32 months (range 13-184). Most frequently reported PS was urticaria 39(53%) followed by gastrointestinal 35(47%), erythema 26(35%), angioedema 23(31%), respiratory 7(10%) and symptoms suggestive of hypotension 4(5%). 43(58%) had co-existing FA with 36(49%) to egg. 27(37%) had co-existing sensitization to food allergens and 15(20%) to aeroallergens. 58(78%) had diagnosis of atopic dermatitis and 10(14%) asthma. Median SPT(mm)(CM) 5 (range 0-17). Median SIgE(KAu/L)(CM) 2.1 (range <0.35-47.6). Median SIgE(Kau/L)(casein) 1.0 (range <0.35- 36.7). 67 (91%) completed OFC with no evidence of allergic reaction. 6(8%) OFC were stopped because of allergic reaction. One OFC outcome was inconclusive. Linear regression analysis suggests erythema (*P*-value 0.034), SPT(CM) (*P*-value 0.038) and SIgE(CM) (*P*-value 0.013) as having effect on outcome of OFC. However, for 5% type-1 error-rate none reached significance.
Conclusions: Inclusion of BM within the diet improves quality of life and supports acquisition of tolerance to CM. Hospital-based OFC's are resource intensive. Increasing demand for OFC alongside limited resources requires alternative and safe approaches to be considered. Statistical analysis of potential predictors of BM OFC identified SPT(CM), SiGE(CM) and erythema(PS) as having an effect on outcome.

P070 | Management of anaphylaxis in the paediatric emergency department: a systematic review of the literature

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Objectives: The incidence of anaphylaxis in the paediatric population has been increasing and management has been reported as being insufficient. This systematic review aims to identify and summarize the available research that examines the management of paediatric anaphylaxis in the emergency department (ED) and to make recommendations for the improvement of management.
Method: The search for studies was conducted on MEDLINE and CINAHL to collect articles that discussed paediatric anaphylaxis management in the ED. Studies were included if they were retrospective chart reviews, observational studies or cross-sectional studies. The data that were collected were qualitatively assessed using thematic analysis to identify repeated ideas and concepts.
Results: Sixteen papers were included in the systematic review. Three studies evaluated the management of anaphylaxis before and after the implementation of guidelines. Two of the studies observed improvements in the use of adrenaline, prescription of auto-injectors or adrenaline upon discharge and referral to an allergy specialist. One study concluded that there was no statistically significant change in these areas of management apart from an increase in referral to an allergy specialist. Thirteen studies evaluated the management of anaphylaxis over one time period. Nine studies concluded that adrenaline was underused in the management of anaphylaxis. Four studies determined that adrenaline was frequently used. Nine studies concluded that the use of other pharmacological treatment was highly used. Six studies reported infrequent prescriptions and referrals. Two studies found that prescription auto-injectors or adrenaline upon discharge was frequently done. Only one study found that referral to an allergy specialist was frequently completed.
Conclusions: This review confirms that the management of paediatric anaphylaxis in the ED is still not in concordance with anaphylaxis guidelines. The findings of this review illustrate that there is a need for teaching and training on evidence-based anaphylaxis management and follow-up care protocols for all ED medical staff.

P071 | In situ multi-disciplinary simulation as a method for informing service development in the immunotherapy clinic

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Objectives: Simulation is an effective method of training healthcare staff in recognition and treatment of medical emergencies. In situ simulation can identify potential safety threats in equipment and resources and evaluate the system at work, informing service development and leading to improvements in patient safety. We sought to evaluate the latent safety threats in the paediatric immunotherapy clinic using in situ simulation.
Method: A simulation exercise was delivered in the paediatric oral peanut immunotherapy clinic by the paediatric simulation team. The scenario used was a 9-year-old boy who reacts to an up-dose of peanut immunotherapy. The scenario required identification of anaphylaxis and management as per APLS. Two doses of adrenaline were

necessary for clinical improvement. A mock crash call team could be activated during the scenario. Following the scenario, a de-brief with the allergy and simulation teams was conducted, and participants were asked to fill in a questionnaire regarding the event.

Results: The simulation session and de-brief were succinct lasting approximately 45 minutes. All participants agreed that the simulation had a positive impact on teamwork and communication, while 88% participants reported it would positively impact their practice. All participants agreed that they would recommend simulation to a colleague. Potential factors affecting patient safety identified included: environmental factors (inadequate space and layout of the clinic room for a resuscitation scenario), team-working factors (identification of roles and leadership) and timing of interventions including the mock crash call with appreciation of the length of time required to get to an unfamiliar clinic. Following on from the de-brief action points were implemented including the assignment of a 'resuscitation room' within clinic with appropriate space and role assignment in managing reactions at the beginning of clinic.

Conclusions: In situ multidisciplinary simulation enables identification of important patient safety threats within the allergy clinic allowing for focused service development.

P072 | Current practice in the diagnosis and management of paediatric eosinophilic oesophagitis (EoE) in a multicentre cohort in London

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Objectives: This multicentre retrospective cohort study assessed EoE diagnosis, management & outcomes within London paediatric gastro-allergy centres against current consensus standards.

Method: Data were anonymized from 4 centres. Inclusion criteria: age ≤18years, histologically confirmed EoE (≥15 eosinophils/hpf), diagnosis after April 2017.

Results: 40 children were identified (75% M; median diagnostic age of 9 years, range 0.9-16.3). 70% had atopy: immediate food allergy 45%, asthma 45%, eczema 40%, rhinitis 23% & urticaria 8%. Of those tested (73%), 68% had positive IgE-tests to food & 38% to aeroallergens. At diagnosis all were symptomatic - upper GI symptoms (83%), dysphagia (63%), feeding difficulties (30%), lower GI (23%) & failure-to-thrive (23%). At initial endoscopy 72% had ≥4 oesophageal biopsies taken; macroscopic features were furrows (56%) and exudates (28%); eosinophil counts ranged from 15-100/hpf.

First-line management: 15% had only an elimination diet (ED), 28% had only medical management (PPI only), and 57% having combined medical & dietetic strategies - PPIs + ED (n = 12), oral viscus budesonide (OVB) + ED (n = 5), PPI + OVB + ED (n = 2). Of EDs used: 2-food ED (15%), 4-food (13%) & 6-food ED (25%). Cow's milk (55%) & wheat (50%) were the commonest excluded allergens.

Within 6 months, 57% of children were reassessed; 48% had endoscopic reassessment.

Histological remission (<15 eos/hpf) was found in 40% of children; 70% had symptom response to treatment; 7.5% were lost to follow-up.

Second-line management: adding/switching to OVB (25%), further ED (14%), increasing PPI dose (6%) or starting swallowed fluticasone (3%). 11% had treatment de-escalated. At second reassessment, similar histological (63%) & symptomatic response (73%) was seen. 48% were also seen by an allergist, 78% by a dietitian & 20% by a psychologist.

Conclusions: This study provides unique insight into current practice & challenges. Combined strategies were a common first-line approach with good histological/symptom response. The prevalence of atopy and ED as treatment suggests the need of a multi-professional approach. In future, a wider national study with additional parameters is planned.

P073 | Audit of adherence to the South East London Allergic Rhinitis Area Prescribing Committee (SELAPC) Pathway in patients referred to Evelina London Children's Hospital (ELCH)

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Objectives: Allergic rhinoconjunctivitis (ARC) affects approximately 20% of the UK population. Symptoms of ARC vary from mild/moderate-to-severe and have significant impact on patients' quality of life (QoL). In 2016, allergists from ELCH designed an ARC management pathway for South East London Primary Care to assist healthcare professionals (HCP) working in South East London (SEL) Clinical Commissioning Groups (CCGs) manage patients with ARC up to the immunotherapy assessment stage. The objective of this clinical audit was to assess the adherence to this pathway.

Method: We conducted a prospective, questionnaire-based audit in 2019. We designed a questionnaire based on ARIA guidelines to assess symptoms severity (based on symptom scores (0-10) and medication use) and the impact on patients' QoL. Patients/their parents referred by SEL CCG primary care with ARC completed the questionnaire during their initial outpatients visit.

Results: Forty-nine patients aged 4.75 to 17 years were audited. 96% of patients suffered from persistent ARC as defined by ARIA guidelines. 39/49 patients (79.6%) had moderate/severe or severe symptoms. 90% of patients were undertreated and prematurely

referred. 55% of patients, who met the criteria, were not prescribed corticosteroid nasal spray. 8/48 patients used beclometasone nasal spray (not recommended due to high bioavailability) and 12/39 (31%) used sedating chlorphenamine. Four patients met the criteria for Dymista nasal spray, however, it had not been prescribed. 5/48 were appropriately referred, of whom 4 met criteria for immunotherapy.

Conclusions: HCP in SEL primary care rarely use the AR pathway designed for them.

The lack of adherence to this pathway causes significant financial loss to local CCGs due to cost of hospital appointments, leaves patients incorrectly treated and negatively impacts patients' QoL.

Better adherence to this pathway would support achieving a target of the NHS Five Year Forward View of healthcare being delivered closer to home, reducing unnecessary hospital appointments.

P074 | Pan-London paediatric allergy online educational experience during the COVID-19 pandemic

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Objectives: Reflection on the experiences of establishing a prompt, rigorous regional online educational programme following COVID-19 restrictions on face-to-face paediatric teaching.

Method: The London School of Paediatrics (LSP) Information Technology and Education subgroups established a live, remote online teaching programme from the 25 March 2020. Online platform registration, timetable planning, weekly teaching format, guidance for speakers and chairs, curriculum mapping, topic specific learning packs and speaker feedbacks were collated. A week dedicated to Allergy was organized and included topics such as: *Controversies in Anaphylaxis*, *Transitional Care in Adolescents with Allergy*, *Food Allergy and the Gut*, *FPIES Lightning Learning*, *Clinical Immunology in Allergy* and Journal Club discussing the BEEP study. A Learning pack, which includes Simulation, Part-tasks, Communication Scenario, and a Quiz, was also designed.

Results: There were 7 sessions during the week with attendee numbers ranging from 12 to 63 (median 34). Some attendees were groups of individuals logged in via one device. There were 39 feedback responses with sessions rated 4.9/5 overall for educational value. 37/39 (95%) felt the pace of the session was just right, 14/31 (45%) downloaded the learning pack and of these, 16/18 (89%) found it useful. 35/37 (95%) would watch more online teaching after their experience with the sessions. Specific feedbacks included 'interactive and relevant', 'well explained with good overview' and 'excellent link to online resources'.

Conclusions: LSP's prompt response to an acute need for curriculum-based education during the pandemic created a programme that is potentially sustainable, making the best use of technology. Although there are drawbacks to only having remote teaching opportunities, they are an additional valuable resource. The benefits from this and similar projects should be recognized and widely shared—ideally to collaboratively create high-quality teaching that meets trainees' needs and is easily accessible during these troubled times and beyond.

P075 | Outcomes of hospital-based oral food challenges

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Objectives: To evaluate the success rate and safety of oral food challenges (OFC) carried out in our day unit in children who had suspected or previously confirmed food challenge.

Method: The data were collected retrospectively from clinical notes of children who underwent OFC over a 12 month period (January to December 2019). Data collected on food being challenged, previous exposure to good, SPT or IgE result, type of reaction if unsuccessful and other allergic co-morbidities. The data were entered directly into Microsoft excel and analysed.

Results: A total of 76 OFC were carried out. Majority of challenges were nuts (56), followed by egg (15), milk (5) and others (2). 48 (63%) challenges were successful whereas 24 (32%) failed and 4 (5%) inconclusive. Success rate was highest in nut challenge (70%), followed by egg (67%) and milk (60%). None of the children had anaphylaxis during the challenges. 33 (43%) children had never eaten the food before. Among them, 27 (82%) had successful challenge and 2 (6%) had inconclusive results. In this group who passed the challenge, all had negative test results. Eight children had previous anaphylaxis to food being challenged and half of them had successful challenge. 50% challenges were failed in stage 1 (lip dose) and the highest proportion with egg (80%). 18 (20%) children had positive test results (SPT, IgE or both) who had successful challenge compared to 14 (58%) who had failed challenge.

Conclusions: Almost two thirds of children who underwent OFC had successful challenge. High success rate and no major reaction during challenge demonstrate stringent patient selection and safe practice. Children with positive tests have three times less chance of having successful challenge. The results support our current practice of home introduction in children who have not been exposed to food and negative test results.

P076 | Are we getting diagnosis and prescribing right in cow's milk protein allergy?

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Objectives: Cow's milk protein allergy (CMPA) is common in infants, often requiring prescription formula. Although breastfeeding is advised, the North East has one of the lowest breastfeeding rates in the country. Rates of local amino acid formula (AAF) prescribing are above the national average of 30%. We were concerned that too many were inappropriately being treated with amino acid formula (AAF) at significant healthcare cost. The impact of the International Milk Allergy in Primary Care Guidelines (iMAP) on the use of AAF formula is not known. This audit aimed to identify if iMAP was being followed locally as a surrogate for a genuine requirement for AAF in these patients.

Method: This was a retrospective notes audit, of all children under 1 year of age referred to our service with suspected CMPA, over a 6 month period during 2018-19.

Results: 111 children were included, 55% male. 97/111 (87.4%) had mild to moderate non-IgE-mediated CMPA. 97/111 (87.4%) had multi-system disease on presentation (not only reflux). 86/111 (77.5%) were started on appropriate initial treatment (24 maternal dietary exclusion, 62 on prescription formula). Of those 25/111 (22.5%) started on inappropriate treatment, 10/111 (9%) were prescribed AAF. Only 37/79 (47%) of those with mild or moderate non-IgE-mediated CMPA, whose final treatment was a prescription formula, had reintroduction of dairy to confirm the diagnosis. 30/61 (49.1%) infants commenced on EHF were changed to AAF due to persistent symptoms. Ultimately, 33/111 (29.7%) were appropriately prescribed an AAF.

Conclusions: In this cohort, iMAP guidance led to one third of infants being prescribed AAF. This is in keeping with national AAF prescription rates. Further education is required for GP and paediatricians on initial recognition of CMPA and reintroduction of dairy to confirm or refute the diagnosis, as well as appropriate initial treatment choices. We may need to balance mild symptoms against induction of tolerance.

P077 | Reviewing first dose reactions at open food challenge

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Objectives: Paediatric oral food challenge (OFC) dosing schedules vary across the country and are adapted according to local needs and resources. Our schedule consists of 4 incremental doses, commencing at 100 mg food protein, which is over a log fold greater than other clinical protocols. We sought to assess the frequency and severity of reactions occurring after the first FC dose at our centre.

Method: A retrospective review was undertaken of OFCs performed between June-November 2019 and documented within our clinical service challenge database. Patient characteristics, sensitization data and food challenge outcomes were analysed to compare reaction frequency and severity by challenge dose with in-depth review of 100 mg dose reactions.

Results: 141 oral food challenges were reviewed for this analysis. Cohort characteristics were as follows: 60% male, age range 0.5-16 years, 43% asthma, 84% multiple food allergies. 45 patients experienced an allergic reaction (32%) to one of the following foods: baked egg, baked milk, tree nuts, sesame, peanut, legume, cooked egg, banana, grains and fish. Of the positive challenges, 9 patients (20%) reacted to the first challenge dose of 100 mg. In comparison, 9, 13 and 14 patients reacted at the subsequent 300 mg, 1000 mg and top doses, respectively. Anaphylaxis was diagnosed in 2/9 patients who reacted at the first challenge dose (22%). Comparatively, 21-23% of reactions to the other doses were diagnosed as anaphylaxis. A single dose of adrenaline was sufficient to manage all anaphylaxis reactions.

Conclusions: Of the cohort of patients referred for an OFC within our clinical centre, few patients react to a 100 mg initial dose. The majority of first dose reactors have mild reactions. OFC dosing schedules commencing at 100 mg food protein appear to carry an acceptable safety profile in supervised clinical settings and reduce overall visit times for families. Prospective comparison with other dosing schedules and more allergens is planned.

PRIMARY CARE

P078 | Development and implementation of a nurse-led allergy clinic model in primary care: a feasibility study

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Objectives: Allergic conditions affect around one in three of the Scottish population, accounting for 6% of all GP consultations. While around 90% of allergic conditions can be managed within primary care, there remains a cohort of patients, especially those with life-threatening anaphylaxis and multiple allergies, requiring specialist care.

The primary aims of this trial, to assess the feasibility of delivering and evaluating a novel nurse-led allergy clinic in the primary care setting in Scotland. The secondary aim, to measure the acceptability of the service to patient/carers and healthcare professionals.

Method: Healthcare professionals (HCPs) referred adults with anaphylaxis or suspected anaphylaxis, infants up to 36 months with suspected food allergy and/or moderate-to-severe eczema and children up to 16 years with allergic rhinitis into the nurse-led allergy clinic. The specialist nurses diagnosed, managed, carried out investigations, prescribed and provided follow-up for patients. Feasibility was measured by the number of practices referring patients, number of patients seen and followed up using disease-specific quality of life questionnaires and satisfaction surveys. A sample of HCPs and patients was interviewed and analysed using thematic analysis.

Results: We saw 426 patients over 30 months within the clinic. HCP's stated they would have referred 90% of patients onto secondary care services, however, only 5% of patient's required onward referral. 33/37 practices referred patients to the clinic. Out of the 332 patients eligible for follow-up, 78% were completed, and quality of life and satisfaction data were collected. Three main themes emerged from interviews with patients (n = 16): ease of access to the clinic, usefulness of the consultation itself and consequent sense of improved knowledge, control and reassurance. The HCPs (n = 9) felt it addressed an existing service gap.

Conclusions: The feasibility study has demonstrated that the clinic was well received by both HCPs and patients/carers.

UNDERGRADUATE

P079 | Adrenaline Auto-injector (AAI) carriage in allergy clinics at St George's Hospital

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Objectives: Clinicians at St George's Hospital have observed that many patients prescribed AAIs did not have them at the clinic appointment. As a result, they were keen to explore this phenomenon by collecting data from a questionnaire. The aim of the questionnaire was to assess the carriage of adrenaline auto-injectors (AAIs) in children at their appointment, how often they carry it with them and to investigate whether they had adhered to the BSACI guidelines. If they were found not to have their AAIs with them, then reasons as to why not were identified.

Methods: All children, that had previously been prescribed an AAI, who had attended their appointment at St George's Hospital between November 2019 and February 2020 were asked to fill complete a survey. The questionnaire was completed by doctors and nurses in paediatric allergy outpatient clinic appointments. The patient's details were anonymized but data on gender and age were collected. The data were then analysed.

Results: Of the 51 responses collected, 22 of the respondents were females and 29 were males. 40 (78%) had their AAI with them in clinic; 23 (57.5%) of those were males and (42.5%) 17 were females. 33 (64.7%) of patients had reported that they always carry their AAI with them.

Reasons for why patients did not have their AAI with them included: forgot to bring it, left it in the car, keep it at home and only take it with them on holiday.

Conclusions: Nearly 2/3 of patients reported that they always carried their AAI with them. Further exploration as to what other factors could affect the rate of carriage could be significant and must be investigated. Interventions to promote adrenaline-carrying and injection training are needed.