inclusions on electron microscopy. Given the combination of interstitial lung disease, skin rash and likely vasculopathy, SAVI was suspected. This was confirmed on genetic testing with a heterozygous somatic mutation (c.463G >A, p. V155M) in exon 5 of the *TMEM173*, the gene encoding STING.

Treatment Treatment with pulsed methylprednisolone was commenced without improvement. He gained weight with supplemental feeding but had persistent tachynoea, subsequently becoming hypoxaemic requiring low flow oxygen therapy. He commenced on a trial of monthly intravenous immunoglobulin (IVIg) with evidence of clinical efficacy awaited. We are considering the use of the Janus kinase inhibitor, baricitinib, as a specific targeted therapy to block interferon signalling.

Conclusion SAVI is a recently described interferonopathy in which lung involvement is a major clinical feature with consequent significant morbidity and mortality. Twelve patients have been reported so far in the literature, with overall poor response to glucocorticoids and disease modifying anti-rheumatic drugs. In the context of failure to thrive, fevers, rash and interstitial lung disease in early life, we urge clinicians to consider SAVI as a differential diagnosis and to seek testing for *TMEM173* mutations.

P97 UPTAKE OF THE EMERGENCY SALBUTAMOL INHALER IN NORTH EAST ENGLAND SECONDARY SCHOOLS FOLLOWING AMENDMENT OF THE HUMAN MEDICINES REGULATIONS

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Introduction and objectives As a result of amendments to The Human Medicines Regulations 2012, schools have been permitted since 1st October 2014 to purchase salbutamol inhalers to be used by children diagnosed with asthma and prescribed an inhaler, where parents have given written permission for the emergency inhaler to be used. This regulatory change may represent a useful step in facilitating access to emergency asthma treatment in schools.

This study provides the first published data on the number of schools that have availed of this new power, through an assessment of uptake of the emergency salbutamol inhaler in secondary schools in North East England.

Methods We compiled a list of all free-to attend schools within the 12 local authorities in North East England using listings on local authority websites. We limited our study to schools which served 16 year old mainstream pupils in order to aid interpretation of our results. Postal letters were sent to invite the included schools to complete a brief online or postal questionnaire asking if the school had an emergency salbutamol inhaler for use by pupils in an asthma emergency. Data was collected between November 2014 and May 2015.

Results Of 153 schools included in the study, 103 questionnaire responses were received. We excluded the response of 1 school due to lack of clarity. Of the remaining 102 responses, 45 (44%) indicated that the school had an emergency salbutamol inhaler available, while 57 (56%) indicated that the school did not have such an inhaler. The proportion of schools in which emergency salbutamol inhalers were available varied by local authority from 0% to 71%.

Conclusions Despite the change in legislation, 56% of schools included in this study did not possess an emergency salbutamol inhaler. More needs to be done to increase the level of uptake of the emergency salbutamol inhaler to enable schools to better respond to asthma emergencies.

P98 THE RELATIONSHIP BETWEEN INVASIVE AND NON-INVASIVE MEASURES OF INFLAMMATION IN CHILDREN WITH SEVERE THERAPY-RESISTANT ASTHMA

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Background Children with severe therapy-resistant asthma (STRA) are refractory to treatment despite optimal management. Assessment of airway inflammation to phenotype these patients can enable targeted therapy. Samples obtained at bronchoscopy provide the most direct measure of lower airway inflammation; however, non-invasive measures (induced sputum and exhaled nitric oxide (FeNO)) are of greater clinical utility. We have previously demonstrated a poor relationship between blood and bronchoalveolar lavage (BAL) eosinophilic phenotype using clinical cut-offs for children (blood eosinophils 1.0×10^9/L).[1] Recent studies of the anti-IL-5 antibody mepolizumab have used a lower cut point (0.3×10^9/L) for blood eosinophils.[2] The aim of this study was to assess the concordance between BAL and non-invasive measures of inflammation.

Methods 113 children (aged 4–17 years) with STRA underwent bronchoscopy at the Royal Brompton Hospital. They had all previously been assessed and potentially modifiable factors such as poor adherence had been addressed. Inflammation was measured invasively using BAL cytology and non-invasively by blood eosinophils, induced sputum cytology, and FeNO. The eosinophilic phenotype was defined as BAL eosinophils >1.19%; blood eosinophils $\geq 0.3 \times 10^9$/L; sputum eosinophils ≥2.5%; and FeNO >35ppb. The relationship between measures was assessed using Spearman rank correlation and Receiver Operator Characteristic (ROC) curves were constructed to determine which cut points best determined BAL eosinophilia and positive and negative predictive values (PPV and NPV) calculated.

Results The predominant phenotype in all samples was eosinophilic. There was 75.6–77.8% concordance between the eosinophilic phenotype in BAL and each of the non-invasive measures.

Abstract P98 Table 1 The predictive value of peripheral blood eosinophils, sputum eosinophils and FeNO for BAL eosinophilia

	Predicting BAL eosinophilia >1.19%			
	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Blood eosinophils ($\times 10^9$/L)				
>0.15	89.8	60	84.1	71.4
≥0.3	80	68	85.2	56.7
>0.45	59.3	84	89.7	46.7
Sputum eosinophils,%				
>0	90.9	38.5	78.9	62.5
≥2.5	78.8	61.5	83.9	53.3
>5	63.6	69.2	84	42.9
FeNO (ppb)				
>23	84.9	62.5	83.3	65.2
>35	79.2	75	87.5	62.1

PPV = positive predictive value, NPV = negative predictive value.