Abstract P119 Table 1

	n	Gender	Age	BPAT	RR	D-12	SNOT-22	EQ5D5L	EQ5D-5L Health
				max=14*		max=36*	max=110*	max=25*	max=100%**
A									
Mean	7	5F/2M	28	5.42	15	15.43	49.14	2.57	68
±SD			7.1	0.79	4.12	10.37	20.97	2.23	15.75
B									
Mean	10	5F/5M	31	2	14.5	2.7	26.5	0.56	75.78
±SD			21	0.82	3.57	2	12.14	1.13	18.41
p=		0.2	0.37	<0.00001	0.4	0.0008	0.0064	0.016	0.19

data expressed as mean ±SD;

RR=respiratory rate; *higher score=worse; **higher score=better

in definition and measurement, the Breathing Pattern Assessment Tool (BPAT)¹ is increasingly being used to identify BPD. At our specialist PCD centre, we considered the relationship between possible BPD and breathlessness, sino-nasal symptoms and QoL.

Method 17 stable adult PCD patients attending virtual appointments provided lung function data using a hand-held spirometer. BPD and breathlessness were measured using the BPAT (therapist-observed) and Dyspnoea 12 (D12), a patient-reported questionnaire; patients also completed the SNOT-22, which examines the impact of chronic rhinosinusitis on well-being, and a generic QoL measure, the EQ5D-5L. Data from patients whose BPAT score was > 4 (group A), indicating likely BPD¹, were compared with those whose BPAT was < 4 (Group B).

Results Age and gender distribution did not differ substantively between groups. We observed that 7/17 patients had BPD; these patients had significantly higher scores for D12, SNOT-22 and EQ5D-5L (function) suggesting greater problems with breathing and rhinosinusitis, and lower QoL (table 1). However, there were no significant differences in lung function between groups A and B respectively: FEV₁ (2.77l vs 2.64l; p=0.42), FEV₁%pred (76.4% vs 71.4%; p=0.35), FVC (3.65l vs 3.72; p=0.46), FVC%pred (84.9% vs 81.6; p=0.36), FEV₁/FVC (0.78 vs 0.68; p=0.12) and in EQ5D-5L%health (68% vs 76%; p=0.19).

Discussion These data suggest for the first time, that BPD is likely found in PCD, even when lung function is reasonably well maintained. The difficulties in breathing identified maybe associated with chronic rhinosinusitis and impact on patients' functional QoL. Overall perception of QoL did not differ between groups, but was only 70% of perceived maximum. Further data are needed although these results suggest the need to screen patients for BPD, target nasal symptoms aggressively and provide breathing re-education techniques.

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Improving care pathways in adults and children

P120

THE EFFECT OF MEDICAL FACE MASK ON ADOLESCENT CHILDREN'S OXYGEN SATURATION DURING 6-MINUTE WALK TEST

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Aims The World Health Organization recommends that face masks are used for children aged six years and older. Children in the UK are now attending schools using face coverings and undertaking mild to moderate activity with the face covering on. We aim to study the effect of face masks on SpO₂ levels of healthy adolescents with a 6-minute walk test (6MWT).

Material and Methods 11 healthy adolescent children (16–17 years) undertook the 6-minute walk test with and without a medical mask (Type IIR, triple ply) and SpO₂ levels were measured with a standard commercially available pulse oximeter. A pre-walk test screening questionnaire was used to exclude children with co-morbidities. None of the screened participants needed to be excluded. Measurements included screening blood pressure, SpO₂, pulse rate, walking distance, breathlessness and fatigue.

Results The average post 6MWT SpO₂ without a mask (96.6 ± 1.43) was higher than with a mask (94.8 ± 4.05) but this was not statistically significant (t-Test p value 0.17). The average distance travelled without a mask (683.4 ± 64.2 metres) was greater than with a mask (675.45 ± 52 metres), again this was not a statistically significant difference (t-Test p value 0.75).

Conclusion Concerns have been raised regarding the safety of the use of face masks.¹ A review regarding the impact of face masks on children has suggested the need for further studies.² In this study we have found that the use of medical face masks does not cause a significant drop in oxygen saturations during 6MWT in healthy adolescent children.

This work is a pilot study as part of a sixth form Biology extended essay, all participants signed a written consent form.

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P121 DOES METHACHOLINE CHALLENGE TEST IMPROVE ASTHMA DIAGNOSTIC CERTAINTY IN CHILDREN AGE 5–16YR?

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Introduction Current UK guidance (NICE) for diagnosing asthma in children 5–16yrs involves sequential lung function testing in a complex algorithm (spirometry; bronchodilator reversibility if spirometry shows obstructions; FeNO; PEFv). This results in three diagnostic outcomes: asthma, not asthma or suspect asthma, with children requiring at least 2 positive tests to be assigned a diagnosis of asthma. Bronchial challenge testing (BCT) is not currently recommended in children but is in adults when there is diagnostic uncertainty.

We hypothesised that methacholine BCT (BCTmeth) is feasible in children >5 years and that the results can reduce the number of children labelled 'suspect asthma'.

Methods Children aged 5–16 years with suspected asthma (symptoms of wheeze, cough, breathlessness) were referred into the RADicA (Rapid Access Diagnostics in Asthma) Study. All attempted lung function testing (spirometry with bronchodilator reversibility, FeNO, PEFv and BCTmeth). Using the NICE algorithm, participants were assigned as asthma, not asthma or suspect asthma. BCTmeth were classed as positive when PD20 was <0.20mg, and children's asthma status was reassessed with this result.

Results 53 children (mean age 9.5yr [SD 3.4]; 25 male) attempted all tests. 8 children (mean age 8.75yrs [SD 3.6]; 4 male) did not complete BCTmeth; 2 children's baseline spirometry was classed as obstructed prior to BCTmeth, 1 had taken salbutamol prior to BCTmeth and 5 had inconsistent baseline spirometry, these were excluded from further analysis.

Abstract P121 Table 1 Number of children classed as asthma, not asthma and suspect asthma before and after BCTmeth

	Using NICE lung function algorithm N (%)	Using NICE lung function algorithm AND BCTmeth N (%)
Asthma	7 (15.5%)	13 (28.8%)
Not asthma	29 (64.4%)	30 (66.6%)
Suspect asthma	8 (17.7%)	1 (2.2%)
Missing evidence	1 (2.2%)	1 (2.2%)
Total	45	45

45 children (mean age 9.5yrs [SD3.4], 21 male) successfully completed BCTmeth; of these children 20 had a positive test (PD20 <0.15mg-0.199mg). 1 child was unable to complete FeNO and/or PEFv (positive BCTmeth) and classed as 'missing evidence'. Using the NICE algorithm, 7 children were diagnosed with asthma (5 positive BCTmeth) and 29 without asthma (7 positive BCTmeth). Of the 8 children with suspect asthma; 6 had a positive BCTmeth and could be given a diagnosis of asthma, 1 had a negative test and was reclassified as not asthma and 1 had a borderline result (PD20 0.214mg) so remained in the suspect asthma group.

Conclusion BCTmeth is feasible with 85% of children successfully completing the challenge. Assessing airway hyperresponsiveness with BCTmeth reduced diagnostic uncertainty in children.

P122 AN EVALUATION OF THE TRANSITION SERVICE BETWEEN PAEDIATRIC AND ADULT REGIONAL SEVERE ASTHMA CARE IN LEEDS

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Introduction Over one million children have asthma in the UK and a recognised need for support transitioning into adult services. Poor transition with uncoordinated processes risks disengagement from services, and poorer health outcomes. Transition processes are embedded for children with diabetes and transplantation, but less established for severe asthma. We aim to explore the patient experience of transition for young people with severe asthma and evaluate the impact of a transition service in reducing emergency department (ED) presentations with asthma.

Methods A questionnaire containing Likert scale and free text questions was developed based on the 'ready, steady, go'¹ programme. This was given to patients aged 14–15 years attending asthma transition clinic.

ED records for the years 2016–2018 were reviewed to identify patients aged 16–19 that presented with asthma symptoms. These data were cross-referenced with the registry of patients known to the transition service and demographic data was analysed.

Results 9 patients completed questionnaires, with two thirds of respondents reporting confidence about the transition process. All respondents reported good knowledge of their condition and treatment. Key themes that emerged were concerns about potential limits asthma may place upon their future achievements and a desire for understanding of management of their asthma during the transition process.

During the years analysed for ED attendances, none (0%) of the 17 children who underwent transition through the service presented to the emergency department with asthma. During that time, 131 young people (mean (SD) age 17.5 (0.7) years, 56% female) presented to the emergency department with asthma who were not known to the transition service.

Conclusion The transition service for young people with severe asthma is successful in preventing emergency department attendances with asthma symptoms. We have identified a need to expand the transition service to young people not already known to the regional severe asthma service.