analysis of DDR-1 vs DDR-3 gave a bias of -0.0083 and 95% limits of -0.042 to 0.025. Correlations between each index and FEV_1%pred, SpO_2 and Borg were significant for FEV_1%pred and SpO_2, but not significant for Borg (Table 1).

Abstract P85 Table 1 Coefficient of determination (r^2) for the relationships between lung function and the change from baseline for breathlessness (ΔBorg) and SpO_2. Linear regression was used for ΔSpO_2 and ΔBorg, and exponential analysis for FEV_1%pred

	FEV_1%pred	ΔSpO_2	Borg
DSP	0.53	0.1612	0.046
DDR-1	0.71	0.2246	0.034
DDR-2	0.72	0.2268	0.033
DDR-3	0.71	0.2251	0.035

Conclusions 1) there is no significant difference between DDR-1 and DDR-3, both providing an accurate assessment of changes in SpO_2 during exercise and allowing for the different storage capabilities of pulse oximeters; 2) the simplest index (DSP), showed poorer correlations cpmpared to the DDR's, perhaps reflecting the simplicity of the index; 3) the conceptual idea of a composite index of distance walked and changes in SpO_2 during a 6MWT needs further investigation in a range of different clinical settings.

REFERENCES

1 Lettieri CJ, Nathan SD, Browning RF, *et al*. The distance-saturation product predicts mortality in idiopathic pulmonary fibrosis. *Respir Med*. 2006;**100**:1734–1741
2 Pimenta SP, Rocha RB, Baldi BG, *et al*. *Clinics* 2010;**65**:841–846
3 Ijiri N, Kanazawa H, Yoshikawa T, Hirata K, *et al*. Application of a new parameter in the 6-minute walk test for manifold analysis of exercise capacity in patients with COPD. *Int J Chron Obstruct Pulmon Dis*. 2014;**9**:1235–1240

P86 SPIROMETRIC VALUES OF GREEK HEALTHY PEOPLE AND COMPARISON WITH ECSC VALUES IN COPD PEOPLE

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Introduction There have been always controversies whether, there is a hypo or hyper diagnosis of COPD according GOLD criteria with parameters driven many years ago, around many countries.

Purpose The purpose of our study is the use of mathematical models for the comparison of Greek patients with COPD, according GOLD criteria versus normal values of our country.

Methods Using spirometry results from a pool of healthy local population (n = 500, age range 18–89 years) we fitted regression models, separately for men and women, for FEV1 and FEV1/FVC ratio. The set of healthy individuals consisted of 261 women (52.2%) and 239 men (47.8%). Their mean age (SD) was 48.20 ± 17.19 and 46.92 ± 16.16 years respectively. The corresponding heights were 162.7 ± 7.2 and175.8 ± 7.3 cm. Predicted normal FEV1 was also calculated using the European Coal and Steel Community (ECSC) equations. Also 124 subjects, with a history of COPD were studied (age range 25–91 years).

Results A positive and linear association with height was apparent in women whereas for men, a guadratic height term was also statistically significant. Predicted FEV1 of healthy individuals, based on either the ECSC or the locally derived equations, was excellent with the concordance correlation coefficients being 0.986 for women and 0.991 for men ($p < 0.001$ in both cases). Using the GOLD 2008b staging definitions and the ECSC predicted FEV1, the obstructive individuals were classified as having mild (17; 13.71%), moderate (48; 38.71%), severe (40; 32.26%) and very severe (19; 15.32%) COPD. The corresponding figures for the same classification, based on our derived equations for FEV1, were 17 (13.71%), 44 (35.48%), 42 (33.87%) and 21 (16.94%), respectively. The overall agreement between the two classifications was 97.85% with the kappa coefficient of agreement indicating a very good agreement (kappa = 0.936; $p < 0.001$). Out of the 124 obstructive individuals, 4 (3.2%) were found to have an FEV1/FVC ratio which was above the LLN as predicted from our equations.

Conclusion The statistical analysis has shown a high correlation between the parameters already used and those locally derived.

Diagnosis and management of paediatric lung disease

P87 REPEAT SURVEY OF VITAMIN K PRESCRIBING PATTERNS AND BONE HEALTH SURVEILLANCE IN UK PAEDIATRIC CF CENTRES

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Introduction and objectives CF bone disease is multi-factorial; UK guidelines for screening and treatment of CF bone disease are published.[1] Despite evidence of a key role for Vitamin K in bone formation, there is limited agreement on supplementation in CF. A previous 2005/06 survey[2] of bone health surveillance and Vitamin K use in CF reported wide variation in practice. The current survey aimed to ascertain practice 10 years on.

Methods Questionnaires were sent via email to all 25 UK paediatric CF centres. Data were collected on use of vitamins A, D, E and K including preparation, dose and criteria for Vitamin K supplementation. In addition, information was obtained on bone health surveillance including use of dual-energy X-ray absorptiometry (DXA) scanning to measure bone mineral density (BMD).

Results A 60% questionnaire response representing 2805 CF children was collected. All centres reported that >90% pancreatic insufficient patients receive multivitamin supplements and 12/15 centres reported >90% patients receive additional Vitamin E.

Only 3 centres routinely supplement Vitamin K, with only 1 reporting that >90% patients receive Vitamin K. Criteria for prescribing Vitamin K were deranged liver function (10/15), clotting (5/15), low Vitamin K levels (2/15), and low BMD (3/15). Vitamin K dosage varied from 0.3–10 mg/day, with most (12/15) prescribing 10 mg/day. Menadiol was mainly (10/15) used with some using Phytomenadione for younger patients. Four centres used AquaDEKs, whilst three reported limitations in prescribing AquaDEKs due to formulary constraints.

All centres measured vitamin D levels and 14/15 (94%) routinely perform DXA scans. Dietary calcium intake was assessed in 11/15 centres.

Conclusion Bone health surveillance is routinely undertaken in all paediatric CF centres, with Vitamin D levels and BMD (by DXA) measurement universal. Vitamin K prescribing (criteria and dose) is still heterogeneous. A Cochrane review[3] of routine vitamin K supplementation in CF concluded that evidence is currently limited to two small trials, with further evidence needed to establish optimal dose and long-term benefit.

REFERENCES

1 UK Cystic Fibrosis Trust Bone Mineralisation Working Group. *Bone mineralisation in Cystic Fibrosis*. London: UK Cystic Fibrosis Trust, 2007

2 Urquhart DS, Fitzpatrick M, Cope J. *et al.* Vitamin K prescribing patterns and bone health surveillance in UK children with cystic fibrosis. *J Hum Nutr Diet*. 2007;**20**:605–10

3 Jagannath VA, Fedorowicz Z, Thaker V. *et al.* Vitamin K supplementation for cystic fibrosis. *Cochrane Database Syst Rev*. 2015;**1**:CD008482

P88 THE EVALUATION OF EXOPHIALA IN PAEDIATRIC CYSTIC FIBROSIS

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Introduction The increasing prevalence of fungal pathogens in paediatric cystic fibrosis (CF) is challenging current practice. Whilst respiratory growth and colonisation with *Exophiala*, a saprophytic fungus is documented; the susceptibility, clinical manifestation and management is unclear.

Aim To evaluate the clinical manifestation of *Exophiala* and the role of antifungal therapies in paediatric CF.

Setting Royal Manchester Children's Hospital provides tertiary care for 182 patients and shared care for 170 patients encompassing a diverse range of genotypes.

Population Fifteen patients have yielded *Exophiala* positive sputum swabs on routine screening over 24 months.

Measures Objective measures of disease severity and demographics; age, gender, BMI (Z-score), lung function, hospital admissions are assessed against *Exophiala* growth and co-existing pathogens. Antifungal treatment regimens are described and compared.

Analysis Significant clinical manifestation of *Exophiala* and evidence of eradiation in this population is described.

Results Data reveals no significant difference in sex ratio 8:7 (♂:♀) though distribution is skewed towards older patients 46.7% (n = 7) >15 years, 26.6% 12–14 years, 12.5% 10 years, 12.5% 5–7 years.

Two distinct categories of carriage are evident; sporadic growth (n = 9) and colonisation (n = 6). All positive sputa contained ≥2 organisms' suggesting coexisting colonisation. 73.3% of all patients and 100% percent of patients colonising *Exophiala* had coexisting colonisation of *Candida albicans*. 100% of patients colonising *Exophiala* also had a drop in BMI and Z-score from diagnosis to date of study. They also had a rate of >9 admissions/year. Lung function tests revealed variation independent of carriage.

Symptomatic carriage of *Exophiala* was treated with triazoles; voriconazole, itraconazole and posaconazole though 50% of blood triazole levels were below therapeutic range. One patient cleared *Exophiala* without antifungal treatment. No further growth was noted following itraconazole treatment on initial growth in another patient. Colonisation was treated successfully with intravenous voriconazole, though re-colonised 4 months later. Colonisation was evident in 2 patients despite 6–12 months of oral voriconazole but was eradicated on switching to oral posaconazole.

Conclusion Data from this single centre study suggests that some paediatric CF patients may be more susceptible to fungal infections. *Exophiala carriage* manifestation varies and may affect height and weight. *Exophiala* eradication can be achieved.

P89 DOES THE DEPARTMENT OF HEALTH'S PAEDIATRIC COMMUNITY ASSESSMENT TOOL PREDICT SEVERE BRONCHIOLITIS IN INFANTS ON ADMISSION?

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Objective To evaluate the ability of the paediatric community assessment tool (CAT) to predict severe bronchiolitis in infants on admission.

Setting Alder Hey NHS Foundation Trust, Liverpool, United Kingdom. The largest and busiest children's hospital in Europe and a lead referral centre for intensive care.

Design Retrospective case note review of the endemic bronchiolitis season- October 2013 to March 2014. CAT criterion data inferred from clinical findings and patient outcomes were single handedly extracted using the first accident and emergency assessment.

Participants 106 infants ≤6 months (63 male, 43 female) from the local area (L1 - L38 postcodes) admitted with bronchiolitis.

Covariates Paediatric CAT criteria: A 'Severe respiratory distress'; B 'Increased respiratory rate'; C 'Peripheral oxygen saturation ≤ 92% (SpO_2) on breathing air and using supplemental oxygen'; D 'Respiratory exhaustion'; E 'Severe clinical dehydration or shock'; F 'Altered conscious level'; and G ' Other clinical concern'.

Outcomes Oxygen; suction; intravenous fluids; intravenous antibiotics; nasogastric feeding, stay (≥ 48 h or ≥ 5 days); mechanical ventilation; and transfer to high dependency and/or intensive care. No mortality outcomes reported.

Results and discussion Based on multivariable analyses, each paediatric criterion (A-G) was relevant predicting a given outcome. Of note, criterion D 'Respiratory exhaustion' was the only criterion to independently predict the sickest infants requiring mechanical ventilation and transfer to high dependency and/or intensive care. This is a significant finding not obtained in previous work. Criterion G 'Other clinical concern' predicted the most outcomes supporting the importance of this subjective criterion.

Conclusion This study marks the first attempt to provide health professionals with a CAT evaluation specific to bronchiolitis. A strong relationship existed between the CAT and outcomes suggesting use of the tool could potentially help identify those severely ill infants who should be prioritised for assessment and may benefit from urgent care.