expiratory volume in 1 second (FEV₁) as well as exocrine pancreatic marker faecal elastase-1 (FE-1) and random blood glucose within the Ivacaftor group.

**Results** The change in pancreatic lipase use was significantly decreased in the Ivacaftor group in comparison to controls (1202± 587 IU/kg, p=0.039). In addition, Ivacaftor users had a significant increase in gross BMI (0.98± 0.51 kg/m², p=0.010) and a non-significant increase in FEV₁% predicted (10.9± 5.06%, p=0.123) in comparison to controls. On subgroup analysis, there was significant improvement in FE-1 after one year of Ivacaftor use (107± 80.8 µg/g, p = 0.013, N=7). As well, there was mild decrease seen in random blood glucose, however this result was not significant (-0.43± 0.87 mmol/L, p=0.153, N=10).

**Conclusions** Ivacaftor improves paediatric CF patients’ BMI, blood glucose, and FE-1 values while reducing their reliance on pancrelipase. This data supports previous research showing increasing lung function in Ivacaftor users. Subgroup analysis of those with serial FE-1 results revealed that 43% of those taking Ivacaftor reached pancreatic exocrine sufficiency (FE-1> 200µg/g). This implies that further study of Ivacaftor’s pancreatic implications is warranted. Similarly, prospective studies of new and emerging drugs of this class in a similar manner could yield positive results for patients.

**GP285 THE EFFECT OF MODULATOR THERAPY ON LIVER FUNCTION IN PATIENTS WITH CYSTIC FIBROSIS-RELATED LIVER DISEASE (CFLD)**

1Sharon Dempsey*, 1John Travers, Gerardine Lee, Geraldine Connell, Shona Quinn, 1Peter Greally, 1Basil Elnazir. 1Children's Hospital Ireland, Tallaght, Dublin, Ireland; 2Trinity College, Dublin, Ireland

10.1136/archdischild-2019-epa.344

**Introduction** Cystic Fibrosis transmembrane conductance regulator (CFTR) modulator therapies are utilised to correct the malfunctioning protein made by the CFTR gene thus producing significant improvement in lung function. However, worsening liver function is described as a potentially serious side effect by modulator suppliers.

ORKAMBI and IVACAFTOR are licensed for the treatment of cystic fibrosis (CF) in patients greater than 6 years who are homozygous for the F508del-CFTR mutation. We set out to identify changes to liver function and pathology after initiation of modulator therapy in a retrospective study of all CFLD patients.

**Methodology** We reviewed the liver function tests and liver ultrasound results on all patients with CFLD. We recorded anonymised test results for ALT, AST, Alk Phos, GGT and bilirubin from birth. We reviewed patient files and recorded medication histories. We mapped changes in medication against chronological liver function tests and identified trends of improving or worsening results.

**Results** Ninety-eight children with Cystic Fibrosis attend Tallaght. Thirteen have CFLD (13%) of which 54% are female. The predominant phenotype is ΔF508/G551D (9/13, 69%). ΔF508/G551D was isolated in two children (15%), ΔF508/G551D/V520F in one child (8%) and ΔF508/Arg560Thr/Lys heterozygous in one child (8%). Seven children (7/13, 54%) take ORKAMBI and two (2/13, 15%) take IVACAFTOR. Four children with CFLD are not currently taking modulator therapy due to their specific phenotype, age or social circumstances. We identified an improvement in liver function tests in 89% (8/9) since initiation of therapy - 86% taking ORKAMBI and 100% taking IVACAFTOR. One patient on ORKAMBI (1/7, 14%) had no improvement in liver function tests, with persistently raised GGT and AST, which began prior to modulator therapy initiation. 100% of the ORKAMBI cohort showed no deterioration in liver pathology over 18 months. 50% of the IVACAFTOR cohort demonstrated no deterioration in liver pathology over 6 years.

**Conclusions and discussion** We identified an improvement in liver function tests in 89% of children with CFLD since the commencement of modulator therapy. Limitations include the small sample size and variance in time taking modulator therapy (from 6 months to six years). Further study would be helpful to reconcile the variance between supplier side effect warnings and these results.