could rationalise testing and reduce unnecessary referrals, without delaying IBD diagnoses.

Methods All primary care FCP tests processed for 0–16 year olds in Bristol were obtained for between Oct. 2016 - Mar. 2017 and Oct. 2018 - Mar. 2019. Hospital records were reviewed to identify associated referrals to specialist services and any subsequent diagnoses. Patients with a pre-existing IBD diagnosis were excluded.

A clinical algorithm was subsequently constructed and tested against results available at referral from 50 IBD cases diagnosed at the Bristol Children's Hospital (May 2018 – Jul. 2019) to assess its sensitivity for IBD cases.

Results The number of patients receiving FCP tests had increased by 92% between the 2016/17 and 2018/19 samples to 254. Referrals in response to these presentations increased by 58% in the same period to 63.

Of the 2018/19 referrals, 63% made explicit reference to a FCP result perceived to be elevated and 11 referrals (17%) resulted in a IBD diagnosis. 14% of referred patients were ≤ 4 years, 21% 5–8 years and 65% 9–16 years. The most common presenting symptoms were abdominal pain (67%), loose stools (57%), weight/growth concern (14%) and rectal blood (19%).

Of all FCP tests ordered, 25% were moderately elevated (50–199 µg/g) and case examples highlighted a lack of consistency in the management of such equivocal results and presentations. The above analysis also illustrates a proportion of FCP testing in situations where it was unlikely to be instructive (e.g. those ≤ 4 years; active rectal bleeding). Such examples represented opportunities to rationalise testing and interpretation. Constructing an algorithm accordingly, we trialled this approach on 50 IBD diagnoses in a validation sample, which indicated all would have been successfully referred.

Conclusion There has been an increase in faecal calprotectin testing in primary care since 2016/17, generating an associated increase in referrals. Our proposed clinical algorithm did not lead to missed or delayed IBD diagnoses in our validation sample, suggesting that faecal calprotectin testing and referrals to hospital care could be streamlined if the algorithm was used in primary care.

P83 UNDERSTANDING DIFFERENCES IN SERUM AND MUCOSAL IMMUNOPATHOTYPES IN CROHN'S DISEASE

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Introduction Crohn's disease (CD) is a chronic inflammatory condition of the gastrointestinal tract, characterised by an aberrant immune response towards commensal microbiota. Despite the availability of target-specific front-line therapeutics, 30–40% of CD patients still require surgery to manage disease. This project aims to identify different systemic and mucosal CD immunopathotypes and map their associations to distinct treatment responses and behaviours.

Methods To study local immune response in CD, colonic mucosal biopsies of inflamed patients (CD, n=4) and non-IBD controls (NC, n=6) were analysed by bulk RNA sequencing. Raw counts were normalised using DESeq and further analysed in R studio with a specific pipeline to select differentially expressed genes associated with the immune system. All findings were validated in a selection of three cohorts comparing gene expression of colonic inflamed CD tissue with non-IBD controls (n_{CD}=36, n_{NC}=24).

Differences in the systemic immune response were studied in two separate cohorts by isolating plasma and peripheral mononuclear cells (PBMCs) from fresh whole blood of CD patients with different levels of disease activity (n=30) and NCs (n=42). Subsequently, cytokine levels and leukocyte frequencies were measured using multiplex assays and flow cytometry analysis.

Results Gene expression analysis of colonic mucosal tissue biopsies highlighted an immunophenotype driven by macrophage and neutrophil activation and infiltration. After validating this gene cluster in a selection of cohorts, we find that CD patients with colonic active disease can be stratified into three different groups based on their macrophage activation phenotype. In the peripheral blood, we observed that patients have different levels of systemic disease activation, characterised by their leukocyte and cytokine concentrations, independent of their disease activity.

Conclusions Our analyses of mucosal tissue and peripheral blood have provided evidence of different immunopathotypes, both mucosal and systemic. Ongoing work will involve the correlation of these phenotypes with clinical information, such as treatment response and disease progression, to better understand whether pathotypes predict disease behaviour in CD.

P84 THE MANAGEMENT OF CROHN'S DISEASE PATIENTS POST ILEO-CAECAL RESECTION: A MULTICENTRE, REGIONAL AUDIT

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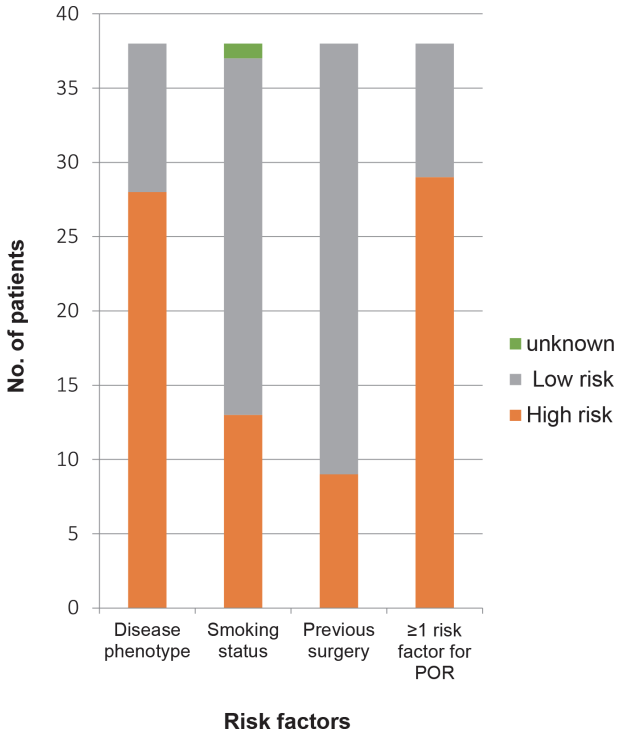
Introduction 70–90% of patients with Crohn's disease (CD) require intestinal resection.[1] Post-operative recurrence (POR) is common with 30% of patients requiring further surgery.[2]European Crohn's and Colitis Organisation (ECCO) guidelines suggest identifying patients at risk of recurrence (disease phenotype, smoking, prior resection), the use of imidazole antibiotics following surgery and assessment for recurrence within 1 year. The ECCO guidelines recommend ileocolonoscopy, although alternative modalities can be used.

Method A regional, multicentre, retrospective audit was conducted by GRANT, a network of gastroenterology trainees in Northern England. Data collection was performed for CD patients who had an ileocaecal resection between 1/9/16 and 1/9/17. Patients with an end-ileostomy were excluded. Patients were identified using clinical coding and data collection sheets were completed.

Results 7 of 9 Hospital Trusts returned data. The number of eligible patients was 38 with a mean age of 41 years. 76% of patients had at least one risk factor rendering them 'high-risk' for POR (*figure 1*). Only 13% of patients received imidazole antibiotics postoperatively and only 29% had an



Abstract P84 Figure 1 Risk factors for POR

ileocolonoscopy within 12 months. However, 32% had an alternative assessment of POR, with calprotectin being the most popular. An escalation in treatment following assessment was required in 25% of patients. Postoperatively, 40% of patients had no maintenance therapy before POR assessment; 26% continued on the same therapy as preoperatively and 34% had augmented pre-operative therapy.

Conclusions The majority of patients in Northern England who have an ileocaecal resection for CD are high risk for recurrence and many patients are not being assessed. Endoscopic POR predates clinical POR[3] and, without monitoring, the opportunity to augment therapy and prevent clinical recurrence can be missed. In Northern England less invasive disease monitoring is being used to assess for POR and this audit would suggest that these have a comparable rate of identifying a need to escalate medical therapy. A postoperative CD management bundle is being developed and will be implemented to assess whether this drives improvement.

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P85 FAECAL VOLATILE ORGANIC COMPOUNDS IN PAEDIATRIC INFLAMMATORY BOWEL DISEASE

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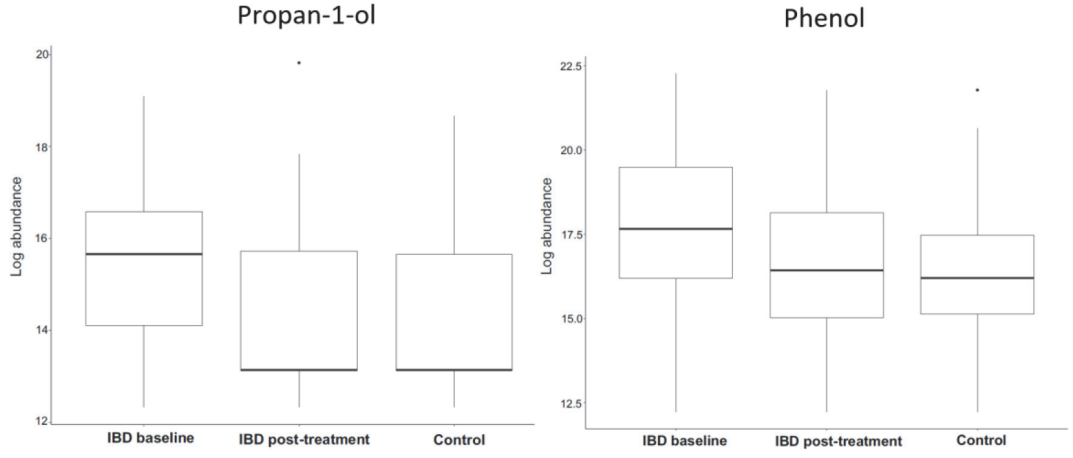
Faecal volatile organic compounds (VOCs) result from the metabolism of the intestinal mucosa, gut microbiota and the environment. Faecal VOCs may provide novel insights into the pathogenesis of gastrointestinal disorders.

Method We assessed faecal VOCs by gas chromatography-mass spectrometry in a prospective, observational study of children with suspected inflammatory bowel disease (IBD) attending 3 specialist clinics. We tested whether the abundance of faecal VOCs differed according to IBD versus other gastrointestinal disorders, IBD subtype and response to treatment in IBD.

Results We characterised faecal VOCs in 132 children in whom IBD was diagnosed and 132 non-IBD controls. 162 (61.4%) were boys. Mean age was 12.2 years (SD 3.0). In total 214 (81.1%) were white, 35 (13.3%) were Asian and 15 (5.7%) of other ethnic background. There were 78 (29.5%) children with Crohn's disease (CD), 38 (14.4%) with ulcerative colitis (UC) and 16 (6.1%) IBD-unclassified. The most common diagnosis in controls was a functional gastrointestinal disorder.

The abundance of 18/30 (60.0%) faecal VOCs differed significantly between IBD and controls (t-test; $p<0.03$ corrected for multiple analyses). Amongst 5 short chain fatty acids, 3 were of significantly lower abundance in IBD than controls (butanoic, pentanoic and hexanoic acids). The two compounds



Abstract P85 Figure 1 Box and whisker plots of propan-1-ol and phenol