Abstract HMO-2 Figure 1 Probability of 5-ASA discontinuation in the first year of therapy

proportion of days covered (PDC) in the first year of treatment was calculated. Multivariable Cox and linear regressions assessed predictors associated with 5-ASA discontinuation and adherence, respectively.

Results We identified 694 AYA initiated on oral 5-ASA treatment. The median time to 5-ASA discontinuation was 176 days (95% CI 153-204). A quarter of AYA stopped after a month of treatment and by a year 2 out of 3 individuals had discontinued. The proportion with continuous use of 5-ASA in the first year of treatment varied by age at initiation (10-14 years: 49%, 15-17 years: 52%, 18-24 years: 32% - Figure 1). The mean PDC was 73% (S.D. 0.31) in the first year of therapy and was lowest amongst individuals aged between 18 to 24 years, at 69% (S.D. 0.32), compared to 81% (S.D. 0.27) in 10 to 14 year olds and 79% amongst 15 to 17 year olds (S.D. 0.30). Starting treatment between 18 and 24 years of age and socioeconomic deprivation increased the risk of discontinuation and lower adherence, while early corticosteroid use, a proxy marker of disease severity, was associated with a lower risk of discontinuation and better adherence.

Conclusion AYA diagnosed with UC and initiated on oral 5-ASA medication are at risk early discontinuation and poor adherence. Clinicians should be vigilant regarding the higher risk following the first month of treatment, particularly in young adults and those living in deprived postcodes. Targeted interventions are needed to improve 5-ASA adherence among these high risk groups.

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HMO-3 MAPPING FIELD CANCERISATION AND CLONAL EVOLUTION IN IBD COLONS WITH DYSPLASIA AND CRC

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Introduction In Inflammatory Bowel Disease (IBD), clonal evolution and field cancerisation precedes the development of colitis-associated colorectal cancer (CA-CRC), however the extent and spread of pre-cancerous clones in the IBD colon remains incompletely determined and consequently clinical practice is poorly informed of how best to detect these clones by endoscopy and accurately predict future cancer risk. This study aims to quantify the number and size of mutant clones arising across the length of the colitic bowel, reveal the mechanism of how they arise and spread, and through this gain a detailed molecular understanding of the evolutionary dynamics of progression to CA-CRC.

Methods Three IBD patients undergoing a total panprocto-colectomy for multifocal dysplasia or CA-CRC were recruited prospectively. Fresh-frozen biopsies were taken at regularly spaced intervals (~2cm) across the entire colon (rectum to caecum, comprising 118, 108 and 25 biopsies respectively). Epithelial tissue was isolated from each biopsy using laser capture microdissection and DNA was extracted. Low pass whole genome sequencing (lpWGS) was performed to generate genome-wide copy number alteration (CNA) profiles.

Results Analysis from the first 45 samples from colon 1 show; 1) Multiple CNA events occur in macroscopically 'normal' parts of the colon. 2) Recurrent CNAs were shared between biopsies, revealing clonal expansions in multiple areas of the colon, both proximal and distal to the cancer, and comprising normal, inflamed, dysplastic and cancer-adjacent tissue. 3) Clonal expansions ranged from 2-14cm in size, and were separated by distances of 4-30cm. 4) Certain CNA events occur more commonly across the colon, both independently and from within different clonal patches, such as a gain on chromosome 7 and 20, and losses on chromosomes 5, 8 and 17. 5) Whole genome doubling events within clonal clades.

Conclusions These data show that across the IBD bowel, CNAs occur and expand in ostensibly 'normal' cells, demonstrating evidence of field cancerisation. Moreover, the fact that similar and independent patterns of CNAs are seen throughout the whole colon provide evidence to suggest both convergent and independent evolutionary events occurring respectively. Further work is needed to more precisely quantify clonal and sub-clonal distribution across the IBD colon, in addition to deriving measures of intra-colon, intra-lesion and intra-clade genomic diversity to complement the above measures of evolvability.

HMO-4 IMMUNOGENICITY TO SECOND ANTI-TNF THERAPY (IMSAT): IMPLICATIONS FOR SEQUENCING OF BIOLOGIC THERAPY

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Introduction Anti-TNF treatment failure in patients with IBD is common. International guidelines recommend switching out of class when anti-TNF drug levels are therapeutic and within class with an immunomodulator when anti-TNF drug levels are suboptimal and associated with antibody development.