BACKGROUND: Crohn’s Disease (CD) is a debilitating chronic inflammatory process of the gastrointestinal tract which primarily affects children, teens, and young adults, causing severe pain, diarrhea, and other intestinal issues. Crohn’s affects nearly 1.4 million individuals in the United States, and is characterized by deep ulcerations, skip lesions, transmural inflammation, fistula and granuloma formation with expression that changes in location and extent. In Crohn’s disease, living in the gut may play a role in CD. Dysbiosis of the enteric microbiota has been demonstrated in CD patients, and it is speculated that this dysbiosis may contribute to the intestinal inflammation observed in those patients. This study sought to identify characteristics of dysbiosis in patients with CD to ascertain whether microbiome manipulation is a potential treatment avenue to pursue.

METHODS: Microbiome sequencing results from a subset of 8 CD subjects from a larger microbiome study were analyzed in comparison to a first-degree relative (parent, child, or sibling). To obtain a microbiome profile, DNA was extracted from the fecal samples. DNA was then quantitated and normalized for downstream library fabrication utilizing shotgun methodology. Prepared and indexed libraries were subsequently pooled and sequenced on the Illumina NextSeq 500 System. Sample FASTQ files were analyzed with a computational tool profiling the microbial communities from metagenomic sequencing data with species level resolution. Finally, individual microbiome profiles were analyzed for Alpha Diversity and relative abundance.

RESULTS: While dysbiosis was found in every subject studied, they each had a unique presentation. Multiple studies have found potential endogenous dysbiosis for Crohn’s disease, thought to be a beneficial constituent of the microbiome, was markedly decreased (0.089% vs 1.5% total reads). Conversely, Akkermansia, associated with inflammation, was not surprisingly elevated (6.7% vs 0.026% of total reads). Contrast this to Subject 4, with a Shannon Diversity Index of 0.6, compared to Subject 1, and their respective microbiome. The data indicates a marked increase in Enterococcus faecalis, which represented 84.95% of the relative abundance. While greater similarity was seen between first-degree relatives than the group of CD subjects, the Shannon Diversity Index was a mean of 2.6 in the CD group and 3.63 in the healthy family members. CONCLUSION: In this study, we have provided an overview of differences in the microbiome resulting from CD. However, these results vary widely from study to study, and this lack of reproducibility calls the findings into question. While most authors agree that reduced species diversity and richness can be found in Crohn’s patients, the exact nature of this dysbiosis changes from person to person. As there is no one diagnostic test for Crohn’s disease, the treatment must truly fit the individual. There is no silver bullet. Rather, the treatment of Crohn’s disease must be guided by next-generation sequencing of the microbiome, to ascertain the nature of the dysbiosis therein.

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IBD Patients Treated for Depression and Anxiety May Be More Compliant With Surveillance Colonoscopies than Those Who Are Untreated
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BACKGROUND: Multiple studies have established a relationship between psychological disease and gastrointestinal issues. The rate of depression and/or anxiety in inflammatory bowel disease (IBD) has been found to range from approximately 30% during remission to 60–80% during relapse. Concurrent psychological disease has been reported to impact the clinical course of IBD and specific to IBD patients has not been evaluated. The purpose of this study was to assess the rates of depression and anxiety in IBD patients and evaluate their relationship with surveillance colonoscopies or other procedures. However, it is important to recognize that >30% of IBD patients were tested due to SARS-CoV-2 infection concerns, with only 1 patient testing positive. Few patients had exacerbations during the SARS-CoV-2 pandemic, with exacerbations occurring more often in patients with Crohn’s disease. While this study is limited due to the institutional design and size, it offers a novel opportunity to further research to define if IBD patients have greater apprehension or worse outcomes due to SARS-CoV-2 infection compared to others with chronic illness.

METHODS: A retrospective chart review of all IBD patients seen at a single, academic medical center during a 3-year period was completed. Patients were then divided into 1 of 2 groups based on whether they had diagnosis of depression and/or anxiety. In this study, the treatment must truly fit the individual. There is no silver bullet. Rather, the treatment of Crohn’s disease must be guided by next-generation sequencing of the microbiome, to ascertain the nature of the dysbiosis therein.