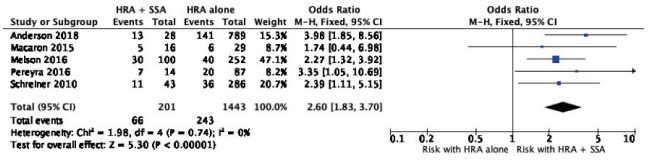
cohort studies on risk of metachronous neoplasia following index colonoscopy was performed. Patients were stratified into 2 groups: those with sessile serrated adenoma (SSA) in addition to high-risk adenoma (HRA), and those with HRA alone on index colonoscopy. Primary outcome measure of interest was presence of advanced neoplasia on surveillance colonoscopy. Advanced neoplasia included tubular adenoma or SSA ≥1 cm in size, villous histology, high-grade dysplasia, or colorectal cancer. Primary outcomes: pooled odds ratio (OR) of risk of metachronous neoplasia in patients with HRA + SSA compared to HRA alone. Meta-analysis was performed using the Cochrane Network RevMan 5.3 software. **Results:** Of 526 records reviewed, a total of 5 studies (3 retrospective and 2 prospective) met inclusion criteria with 1644 patients (mean age 60.9 years, males 61%) with average follow up of 5.38 years. There were 1443 patients with HRA found on index colonoscopy and 201 patients who had at least one SSA found in addition to the HRA. In pooled analysis, there was significantly elevated risk for metachronous neoplasia in patients with HRA + SSA compared to HRA alone with pooled OR 2.6 (95% CI 1.83-3.7; p<0.01). There was low heterogeneity (I2=0%). When analysis was restricted to prospective studies alone, there was persistently elevated risk with pooled OR 2.52 (1.04-6.14), p=0.04. **Conclusion:** The presence of synchronous SSA in patients with HRA is associated with increased risk of metachronous advanced neoplasia. Therefore, shorter surveillance interval should be considered in patients with SSA and HRA compared to those with either of these lesions alone, which should be further studied in longitudinal fashion.

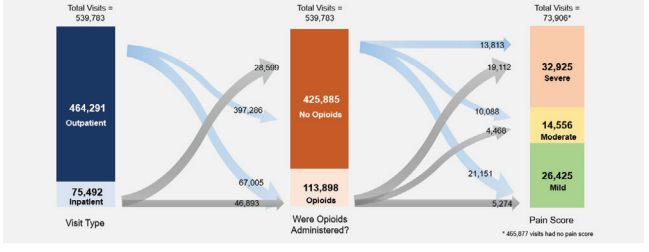


Mo1769

OPIOID USAGE AND PATIENT-REPORTED PAIN SCORES IN INFLAMMATORY BOWEL DISEASE PATIENTS: A RETROSPECTIVE ANALYSIS OF A LARGE US ELECTRONIC HEALTH RECORD DATABASE.

Apeksha Shenoy, Fred W. Peyerl, Fabian T. D'Souza

Objectives: Inflammatory bowel disease (IBD) is a complex gastro-intestinal disorder, a term used to encompass Crohn's Disease (CD) and Ulcerative Colitis (UC). It is often characterized by abdominal and other pain negatively impacting a patient's quality of life. One method of managing pain is with certain medications. Further, opioid-based medications may be prescribed for treating IBD-related flares, but patients may develop 'new persistent opioid use' leading to potential complications such as narcotic bowel syndrome or an opiate dependency. The objective of the present study was to examine opioid usage within an IBD cohort stratified by type of visit and patient-reported pain scores. **Methods:** This retrospective study examined data from a U.S. electronic health record database (Cerner Health Facts®). Each patient visit (age ≥ 18 years) with a principal inpatient or outpatient ICD9/10 diagnosis of IBD between 2011 and 2016 were included in the analysis. Visit-based data for medications were examined for this cohort. 'Opioid analgesics' were identified as per the VA drug classification system (2016). The highest pain score per visit (Numeric Pain Scale 0-10) was used to assign a pain group (mild/moderate/severe) for every visit. Length of Stay (LOS) was calculated for non-deceased inpatients. **Results:** The study included 539,783 IBD visits (59% female, 41% male), with a mean (standard deviation) age of 44.7 (18.5) years. Of the total visits, 14% (N=75,492) were inpatient stays while the rest were outpatient. Opioid analgesics were prescribed in 21% (N=113,898) of the total visits and in 62% (N=46,893) of all inpatient stays. Pain scores were available in 14% (N=73,906) of the total visits with patients reporting severe pain in 45% (N=32,925) of those visits. Opioid analgesics were prescribed in 20% (N=5,274), 31% (N=4,468) and 58% (N=19,112) of visits with a mild, moderate or severe pain score respectively. Median LOS was 2.19 days in the non-opioid group while in the opioid group it was 2.98 days. **Conclusions:** This large database analysis examines patient-reported pain scores and opioid usage for IBD-related visits and provides initial insights into potentially relevant medication prescribing practices in inpatient and outpatient settings. It highlights high opioid-use in a subset of IBD patient visits perhaps impacting patient outcomes. Given the current opioid epidemic, there may be opportunities for improved prescribing.



IBD cohort stratification by visit type, opioid administration and patient-reported pain scores

Demographics

	Number of visits
By gender	
Female	320,921
Male	218,862
By race	
Caucasian	403,723
African American	77,870
Asian/Pacific Islander	7,167
Hispanic	5,222
Other	34,625
Not Specified	11,176
By age group	
18-<36	207,970
36-65	246,440
65+	85,373

Mo1770

ADHERENCE TO GUIDELINES REMAINS POOR AMONG PATIENTS HOSPITALIZED WITH INFLAMMATORY BOWEL DISEASE

Codey Pham, Elizabeth Coss, Nilam Soni, Shail M. Govani

Background: Patients with inflammatory bowel disease (IBD) are at increased risk of hospitalization due to flare or infection. Management of hospitalized patients with IBD flares is challenging, requiring exclusion of infection, prevention of deep venous thrombosis (DVT), and management of the inflammation if present. We assessed the effect of GI consultation on adherence to guideline recommendations for the management of hospitalized IBD patients at one county teaching hospital in the United States. **Methods:** All patients who visited the Emergency Department (ED) with a diagnosis of IBD based on ICD-10 codes in 2016 were identified using electronic medical records. Charts were manually reviewed to confirm a diagnosis of IBD. Among patients with multiple ED visits, only the first visit for an IBD-related complaint was analyzed. We assessed whether testing for *Clostridium difficile* infection (CDI) was performed, chemical DVT prophylaxis was ordered, and if a gastroenterologist was consulted. Discharge plans, including new narcotic or steroid prescriptions, and follow up hospitalization within 1 year for IBD-related complaints were collected. Categorical variables were compared using the chi-squared or Fisher's exact test with SAS 9.4. **Results** Of 117 ED visits reviewed, 77 (66%) visits were for an IBD-related complaint and 56 (73%) of patients were admitted. A gastroenterologist was consulted in 40 (71%) of the hospitalizations. Chemical DVT prophylaxis was administered in 23 (41%) of hospitalizations. There was no difference in DVT prophylaxis rates among patients that did or did not receive gastroenterology consultation (43% vs. 38%, p=0.73). CDI status was assessed in 66% of patients with a higher, but not statistically significant, rate among those receiving consultation from a gastroenterologist (73% vs. 50%, p=0.11). New narcotic and steroid prescriptions upon discharge were given to 32% of patients. There was a change in IBD maintenance medications in 28% of patients with a consulting gastroenterologist versus none of the patients without a gastroenterologist (p=0.02). One-year readmission rates were high among both patients that received and did not receive gastroenterology consultation (45% vs. 63%, p=0.24). **Conclusions** Adherence to guideline recommendations for hospitalized IBD patients remains low. Hospitalized IBD patients are often discharged with new narcotic or steroid prescriptions. Gastroenterology consultation is significantly more likely result in a change of the patient's IBD maintenance medications but does not improve the utilization of chemoprophylaxis for DVT. All patients with IBD have a high risk of readmission at 1 year, regardless of whether or not a gastroenterologist was consulted during hospitalization. More work is necessary to increase adherence to guidelines for these patients among all inpatient providers.

Mo1771

THE FACTORS ASSOCIATED WITH THE LEVELS OF PHYSICAL ACTIVITY IN ADOLESCENTS WITH INFLAMMATORY BOWEL DISEASE

Xin Yu Yang, Si Yuan Geng, Caitlyn Kanters, Sabrina Madagh, Lina Belmesk, Fella Chennou, Prevost Jantchou

Background: Physical activity has proven benefits on inflammatory bowel disease (IBD), as it contributes to the reduction of serum inflammatory markers. In a previous study, we showed that only 30.6% of pediatric IBD patients reached the daily 60 minutes target of moderate-to-vigorous physical activity (MVPA) recommended by the Canadian 24-Hour Movement Guidelines. **Aims:** The primary aim was to investigate the clinical and familial factors that might influence the physical activity level (PAL) in IBD adolescents. The secondary aim was to assess the association between PAL and patients' body mass index (BMI). **Methods:** From June to November 2018, adolescents with IDB, aged ≥12 years, were included in the study. The patients and their parents were prospectively surveyed during outpatient visits. Patients' PALs were assessed using the Canadian Health Measures Survey - Physical Activity of Children Questionnaire. Clinical and familial factors were compared between adolescents who reached the MVPA target and those who did not (in two groups and in quartile). The Pearson's x^2 test was performed for categorical variables and the student T-test for continuous variables. **Results:** We included 138 patients (79 males; mean (SD) age 15.5(1.6) years, 95 (68.8%) diagnosed with Crohn's disease and 32 (23.2%) with ulcerative colitis). The mean (SD) disease duration at time of inclusion was 2.8 (2.7) years. Overall, 54.1% were in remission according to the Pediatric Crohn Disease Activity Index or Pediatric Ulcerative Colitis Activity Index (score ≤10). According to the Canadian MVPA target, 91(65.9%) of the patients were considered as sedentary, 21(15.2%) as moderately active and 26(18.8%)

as vigorously active. None of the following clinical factors showed association with the PAL, whether as a continuous variable or according to the MVPA cutoff: disease phenotype and activity, abdominal pain, anemia, arthralgia, arthritis, age at diagnosis and age at visit. As for familial factors, no association was found between parents' BMI and patients' PAL. Moreover, patients in the vigorously active group had the lowest BMI as compared to patients in moderately active and sedentary groups, with respective median (interquartile range (IQR)) BMIs of 19.8(18.3 - 21.3), 22.4(20.3 - 24.4), and 20.4(18.9 - 23.3) kg/m^2 P=0.0243. **Conclusions:** Our study showed no association between clinical or familial factors and PAL in pediatric IBD patients. Thus, further physical activity recommendations from health providers are needed to help enhance PAL in all children diagnosed with IBD regardless of disease activity.

Mo1772

INCREASED HEALTHCARE UTILIZATION BY MEDICAID PATIENTS WITH INFLAMMATORY BOWEL DISEASE

Jordan E. Axelrad, Rajani Sharma, Monika Laszkowska, Richard M. Rosenberg, Benjamin Lebwohl

Background: Low socioeconomic status has been linked with numerous poor health outcomes, but there is little data regarding the impact of insurance status on inflammatory bowel disease (IBD) outcomes. We aimed to characterize utilization of healthcare resources by IBD patients based on health insurance status, using Medicaid enrollment as a proxy for low socioeconomic status. **Methods:** We identified all adult patients with IBD engaged in a colorectal cancer surveillance colonoscopy program at an urban, quaternary care center from January 2007 to June 2017. We retrospectively reviewed medical records for demographics, insurance status, and IBD-associated variables. Our primary outcomes included IBD-related emergency department (ED) visits, inpatient hospitalizations, biologic infusions, and steroid exposure, stratified by insurance status. We compared patients who had ever been enrolled in Medicaid to all other patients. **Results:** Of 947 patients with IBD engaged in a colorectal cancer surveillance colonoscopy program, 221 (23%) ever had Medicaid (Table 1). Compared to other insurances, Medicaid patients had significantly higher rates of ever being admitted to the hospital (78% vs. 43%, p=0.001) or ever visiting the ED (91% vs. 38%, p=0.001). When adjusted for sex, age at first colonoscopy, race, and ethnicity, Medicaid patients had a higher rate of inpatient hospitalizations (Rate ratio [RR] 2.95; 95% CI 2.59-3.36) and ED visits (RR 4.24; 95% CI 3.82-4.70) compared to patients with other insurance (Table 2). Medicaid patients had significantly higher prevalence of requiring steroids (62% vs. 38%, p=0.001) and after adjusting for sex, age at first colonoscopy, race, and ethnicity, the odds of requiring steroids in the Medicaid population was increased (OR 3.77; 95% CI 2.53-5.62). **Conclusions:** Medicaid insurance was a significant predictor of IBD care and outcomes. While Medicaid is designed to improve healthcare quality and minimize the impact of social determinants of health, these data suggest that patients with IBD who ever required Medicaid may have less engagement in IBD care and seek emergency care more often. ED providers may perceive substantial barriers in this population in accessing maintenance IBD care and therapies, and be more likely to admit for hospitalization and/or prescribe steroids, management strategies with fewer perceived barriers. This study highlights the need to change healthcare models to better serve the growing needs of patients with IBD.

Table 1. Patient Characteristics of Established IBD Patients in a Surveillance Colonoscopy Program at a Single-Center by Insurance Status

Variable	Medicaid n=221 (23%)	All Other Insurance n=726 (77%)	p-value
Age (years)	42.2	49.8	0.001
Male Sex [n (%)]	97 (43.9)	387 (53.3)	0.014
Race [n (%)]			0.001
White	62 (28.0)	559 (77.0)	
Black	29 (13.1)	26 (3.6)	
Asian	2 (0.9)	17 (2.3)	
Other[b]	22 (10.0)	12(1.7)	
Unknown	106 (48.0)	112 (15.4)	
Ethnicity [n (%)]			0.001
Hispanic	96 (43.4)	57 (7.9)	
Non-Hispanic	43 (19.5)	545 (75.0)	
Unknown	82 (37.1)	124 (17.1)	
All surveillance colonoscopy intervals are compliant (n)	135 (61.1)	400 (55.1)	0.120
Ever admitted to the hospital [n (%)]	172 (77.8)	309 (42.6)	0.001
Ever visited the ED [n (%)]	200 (90.5)	279 (38.4)	0.001
Days of Hospitalization (days)[c]	9.3	3.4	0.001
Ever Requiring Steroids [n (%)]	138 (62.4)	201 (27.7)	0.001
Ever Requiring Intravenous Steroids [n (%)]	102 (46.2)	152 (20.9)	0.001
Ever Requiring Oral Steroids [n (%)]	96 (43.4)	139 (19.2)	0.001
Ever having received a PO steroid dose >20mg prednisone or equivalent ([n (%)]	45 (83.3)	63 (84.0)	0.910
Ever requiring PO steroid course >90 days [n (%)]	50 (55.6)	43 (33.9)	0.001
Ever requiring a biologic infusion [n (%)][d]	71(25.9)	115 (14.1)	0.001
Follow-Up Time (years)	4.2	4.8	0.017

a. All Other Insurance includes Medicare and private insurances.
b. Other Race includes American Indian, Pacific Islander, Latin, Middle Eastern, and Other.
c. Among patients who are hospitalized.
d. Biologic infusion includes infliximab and vedolizumab infusions.

Table 2. Predictors of Inpatient Hospitalizations[a], ED Visits[a], and Ever Requiring Steroids[b]

Variable	Inpatient Hospitalizations		ED Visits		Ever Requiring Steroids		
	Rate Ratio	95% CI	Rate Ratio	95% CI	Odds Ratio	95%CI	p-value
Sex	0.76*	0.69, 0.84	0.89*	0.82, 0.96	0.99	0.75, 1.33	0.980
Age at first colonoscopy encounter	1.00	0.99, 1.01	0.99*	0.99, 1.00	0.98	0.98, 0.99	0.180
Race							
White	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Black	1.50*	1.25, 1.78	1.40*	1.21, 1.63	2.49	1.32, 4.66	0.004
Asian	1.54*	1.11, 2.14	1.31	0.94, 1.81	0.65	0.20, 2.16	0.480
Other	1.69*	1.29, 2.21	1.43*	1.18, 1.75	0.86	0.38, 1.98	0.730
Unknown	1.35*	1.14, 1.60	1.56*	1.38, 1.78	1.10	0.65, 1.84	0.730
Ethnicity							
Non-Hispanic	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Hispanic	0.78*	0.67, 0.91	1.48*	1.31, 1.68	1.17	0.75, 1.85	0.490
Unknown	0.72*	0.62, 0.89	1.59*	1.38, 1.83	0.70	0.40, 1.20	0.190
Medicaid Insurance	2.95*	2.59, 3.36	4.24*	3.82, 4.70	3.77	2.53, 5.62	0.001

*p value <0.05
a. Multivariable, Poisson Regression adjusted for all variables in the table.
b. Multivariable, Logistic Regression adjusted for all variables in the table.

Mo1773

COST DRIVERS AND TRENDS IN INFLAMMATORY BOWEL DISEASES

K. T. Park, Orna G. Ehrlich, John I. Allen, Perry Meadows, Eva Szigethy, Kimberlee Henrichsen, Sandra C. Kim, Rachel Lawton, Sean Murphy, Miguel D. Regueiro, David T. Rubin, Nicole M. Engel-Nitz, Caren Heller

Background: The Crohn's & Colitis Foundation's Cost of Inflammatory Bowel Disease (IBD) Care Initiative seeks to quantify the wide-ranging healthcare costs affecting patients living with IBD. We aimed to (1) describe the annualized direct and indirect costs of care for patients with Crohn's disease (CD) or ulcerative colitis (UC), (2) determine the longitudinal drivers of these costs, and (3) characterize the cost of care for newly diagnosed patients. **Methods:** We analyzed the Optum Research Database from the years 2007 to 2016, representing commercially- and Medicare Advantage-insured patients in the United States. Inclusion for the study was limited to those who had continuous enrollment with medical and pharmacy benefit coverage for at least 24 months (12 months prior through 12 months after the index date of diagnosis). Workplace productivity loss was calculated as number of hours lost due to health care encounters multiplied by the patients' estimated average wage derived from the Bureau of Labor Statistics. Comparisons between IBD patients and non-IBD patients were analyzed based on demographics, health plan type, and length of follow-up. We used generalized linear models to estimate the association between total annual costs and various patient variables. **Results:** There were 52,782 IBD patients (29,062 UC; 23,720 CD) included in the analysis (54.1% females). On a per-annual basis, patients with IBD incurred over a three-fold higher direct cost of care compared to non-IBD controls ($22,987 vs $6,956 per-member per-year paid claims) and more than twice the out-of-pocket costs ($2,213 vs $979 per-year reported costs) (Figure 1), with all-cause IBD costs rising after 2013 (Figure 2). Patients with IBD also experienced significantly higher costs associated with workplace productivity losses as compared to controls. The study identified several key drivers of cost for IBD patients: treatment with specific therapeutics (biologics, narcotics, or steroids), emergency department use, and healthcare service utilization associated with relapsing disease, anemia, or mental health condition. Additionally, the study found that annual costs of care were highest during the first year of the initial IBD diagnosis (mean >$25,000). **Conclusion:** The costs of care for IBD have increased in the last 5 years and are driven by specific therapeutics and disease features. In addition, compared to non-IBD controls, IBD patients are increasingly incurring higher costs associated with healthcare utilization, out-of-pocket expenditures, and workplace productivity losses. There is a pressing need for cost-effective strategies to address these burdens on patients and families affected by IBD.

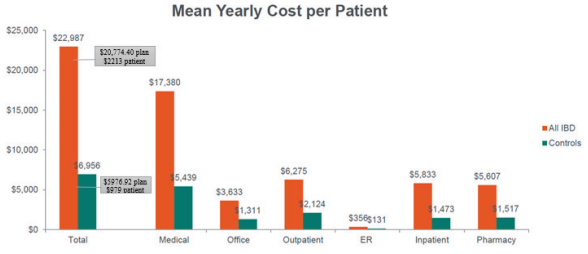


Figure 1. Yearly Cost by Site of Service and Patient Costs