Evaluation of Quality-of-Care Indicators Among Patients With Crohn's Disease and Ulcerative Colitis in the United States: 2019–2020

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OBJECTIVE

To provide an update on descriptive assessment of specific healthcare resource utilization (HRU) and medication metrics that are potential quality-of-care (QOC) indicators for Crohn's disease (CD) and ulcerative colitis (UC), and to understand where gaps in care may exist in the United States (US) for 2019 and 2020

CONCLUSIONS

This updated analysis of QOC indicators (2019–2020) in the US highlights areas for improvement that may provide better treatment outcomes and reduce HRU for patients with CD and UC, including:

- Routine annual gastroenterologist (GE) visits and assessment of objective measures of inflammation including biomarkers to reduce Inflammatory bowel disease (IBD)-related emergency department visits and hospitalizations
- Improved care coordination following IBD hospitalization with a follow-up GE visit within 30 days after discharge
- Starting appropriate steroid sparing therapies to reduce excessive steroid utilization
- Limiting use of oral mesalamine in CD, shown to be ineffective in CD, which may delay more appropriate treatment

Future research is needed to evaluate outcomes in patients that are not being routinely monitored and impact of reduced HRU due to COVID-19 on patient outcomes

References
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INTRODUCTION

- IBD, including CD and UC, affects an estimated 3.1 million people in the US[1–2]
- CD and UC are chronic conditions that significantly affect patients' quality of life and are associated with a high financial burden[3–4]
- Although there have been advances in treatment, including biologics, CD and UC can be difficult to manage and patient care may vary by provider
- Analysis of 2018 HRU and medication data in the US highlighted potential opportunities to improve care, including routine annual GE visits and improved care coordination following IBD hospitalization[5]
- Additional studies are warranted to evaluate quality improvement activities focused on QOC indicators, including new metrics based on IBD STRIDE II guidelines[6]

METHODS

Study Design and Participants

- This retrospective analysis used a large commercial US claims database (IBM® MarketScan® Commercial Database from 1/1/19 to 12/31/20) to identify patients with CD or UC
  - The database contains information from more than 30 million enrollees across the US and captures person-specific HRU and expenditures across inpatient, outpatient, and prescription drug services
- Eligible patients were ≥18 years of age at the start of the study period with at least 1 IBD (CD or UC) claim with an International Classification of Diseases (ICD)-9 555.xx or 556.xx code or an ICD-10 K50.xx or K51.xx code
  - Most recent claim was used for classification as CD or UC. If both CD and UC were listed in the most recent claim, then those patients were not counted in the UC or CD group
- Patients had continuous enrollment for the entire calendar year (2019 or 2020), including medical benefits for prevalence determination and HRU, and both medical and pharmacy benefits for all other analyses that required medication identification

Quality-of-Care Indicators

- Potential QOC indicators were selected based on clinical guidelines and recommendations from measures of quality organizations and included:
  - Prevalence of IBD, CD, and UC
  - Outpatient GE and IBD-related non-GE outpatient visits;
  - IBD-related emergency department visits or hospitalizations;
    ◦ Hospital readmission and outpatient GE visit within 30 days after an IBD-related hospital discharge
  - Excessive steroid use (prednisone equivalent ≥10 mg/day for ≥60 consecutive days or a single prescription of ≥600 mg prednisone)
    ◦ Excessive steroid users on corticosteroid (CS)-sparing therapy; excessive steroid users with central dual-energy X-ray absorptiometry (DEXA) or osteoporosis pharmacologic treatment
  - Use of targeted immunomodulators (TIMs) and oral mesalamine (CD only)
  - Imaging assessments (endoscopy, CT-Scan, ultrasound, or MRI)
  - Assessment of inflammatory biomarkers (fecal calprotectin [FCP], C-reactive protein [CRP])

Data Analysis

- Data were reported as percentage of patients achieving each metric for each calendar year (2019, 2020)
- Both national and state level results were reported

RESULTS

Diagnosed Prevalence of CD and UC

- A total of 41,555 CD and 52,507 UC patients were identified in the 2019 MarketScan dataset
- The 2019 prevalence of UC was slightly higher than CD at 0.3% and 0.4%, respectively, with the same prevalence reported in 2020 **(Table 1)**

Treatment Indicators

- In 2019, 17.1% CD and 14.5% UC patients were excessive steroid users, but only 34.5% with CD and 53.0% with UC were on CS-sparing therapy
- Despite evidence that oral mesalamine is ineffective in CD, 18.7% of patients with CD were prescribed it in 2019
- The rate of TIM use was over 2 times higher in CD vs UC patients (CD: 44.3%; UC: 18.9%) in 2019
- In 2019, opioids were prescribed for 28.8% of CD patients and 23.2% of UC patients; opioid use decreased by 2% in 2020 in both CD and UC patients
- Similar outcomes were reported in 2020

RESULTS CONTINUED

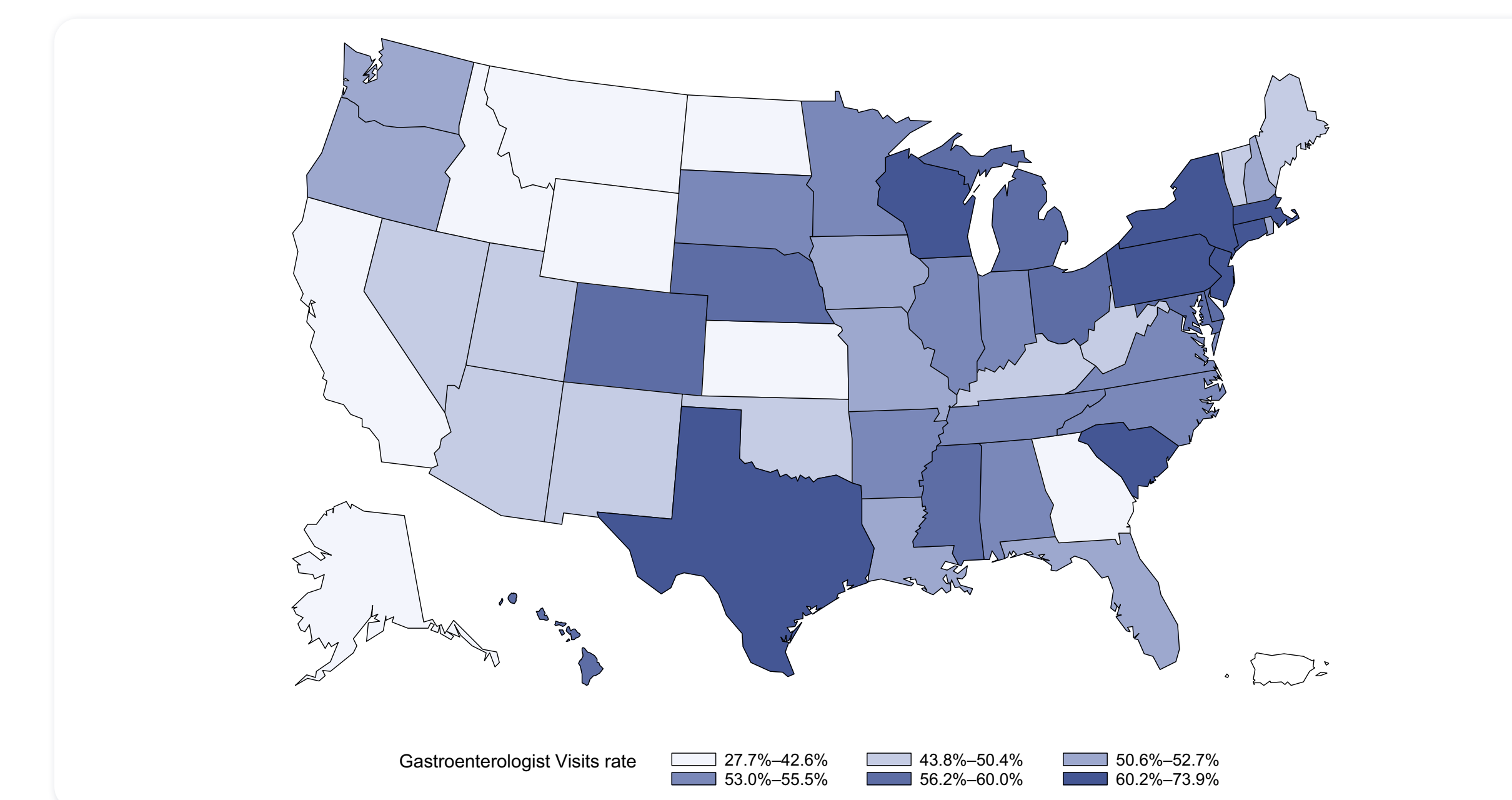### Table 1. Healthcare Resource Utilization and Care Coordination Indicators

Indicator, %	2019			2020		
	IBD	CD N = 41,555[a]	UC N = 52,507[a]	IBD	CD N = 39,025[a]	UC N = 47,940[a]
Diagnosis Rate	0.7	0.3	0.4	0.7	0.3	0.4
GE Outpatient Visits	57.0	60.2	54.5	55.0	57.5	52.9
IBD-Related Non-GE Outpatient Visit	41.2	38.5	43.8	43.5	41.3	45.6
IBD-Related ED Visits	7.6	11.2	4.7	7.0	9.9	4.5
IBD-Related Hospitalizations	8.6	10.3	6.4	7.7	9.1	5.9
Readmission within 30-days for any reason	11.5	11.1	12.1	10.6	11.1	10.3
GE Outpatient Visit within 30 days of IBD Hospitalization	33.0	34.7	31.4	31.8	32.8	30.4
Excessive Steroid Use[b]	15.8	17.1	14.5	15.2	15.8	14.5
Corticosteroid-Sparing Therapy[c,d]	56.2	65.5	47.0	57.8	66.9	49.4
DEXA or Bone Treatment[c,e,f]	8.4	8.9	7.9	7.4	8.0	6.9
Targeted Immunomodulator Use	30.3	44.3	18.9	34.3	48.4	22.2
Oral Mesalamine[g]	N/A	18.7	N/A	N/A	17.0	N/A
Opioid Use	25.8	28.8	23.2	23.7	26.8	21.0
Imaging[h]	62.5	59.4	64.2	56.6	54.0	58.0
Inflammatory Biomarkers[i]	42.1	49.8	35.8	42.7	49.9	36.9

CD, Crohn's disease; CT, computed tomography; DEXA, dual-energy X-ray absorptiometry; ED, emergency department; GE, gastroenterologist; IBD, inflammatory bowel disease; MRI, Magnetic resonance imaging; UC, ulcerative colitis.
[a]Sample size shown is based on continuous eligibility in medical benefit. Denominator for medication use outcomes focused on patients fully enrolled in both medical and pharmacy benefit, and thus were a subset of the larger population. [b]Excessive steroid use was defined as does ≥10 mg/day prednisone equivalent for ≥60 consecutive days or a single prescription of ≥600 mg prednisone. [c]In excessive steroid users only. [d]Treatments included thiopurine, methotrexate, or TIMs. [e]All indicators were within the respective calendar year. [f]Defined as prescription osteoporosis treatment, excluding vitamin and mineral supplements. [g]In patients with CD only. [h]Including endoscopy, CT scan, MRI, or ultrasound. [i]Including fecal calprotectin and C-reactive protein.

Healthcare Resource Utilization and Care Coordination Indicators

Figure 1. Among Diagnosed IBD Patients, a Substantial Proportion (45.0%) Did Not Visit a GE in 2020

- In 2019, over a third of IBD patients did not visit a GE (IBD: 43.0, CD: 39.8%, UC: 45.5%)
- In 2020, the percentage of IBD patients not visiting a GE was slightly higher than in 2019 (IBD: 45.0%, CD: 42.5%, UC: 47.1%)

Gastroenterologist Visits rate: 27.7%–42.6% | 43.8%–50.4% | 50.6%–52.7% | 53.0%–55.5% | 56.2%–60.0% | 60.2%–73.9%

CD, Crohn's disease; ED, emergency department; GE, gastroenterologist; IBD, inflammatory bowel disease; UC, ulcerative colitis.

Figure 2. Among Diagnosed IBD Patients, 31.8% Patients Had a GE Outpatient Visit Within 30 Days of IBD-Related Hospitalization in 2020

- GE outpatient visits within 30 days of IBD-related hospitalization among IBD patients were slightly lower in 2020 than in 2019 (31.8% vs 33.0%)
- In 2020 vs 2019, fewer IBD-related hospitalizations (7.7% vs 8.6%) and IBD-related ED visits (7.0% vs 7.6%) were reported possibly due to COVID-19

Gastro Specialty Visit within 30 days after Discharge: 15.4%–23.8% | 23.9%–27.3% | 27.8%–29.9% | 30.8%–31.5% | 33.3%–35.0% | 35.2%–66.7%

Figure 3. Among Diagnosed IBD Patients in 2020, 43.4% Patients Did Not Receive Imaging (Including Endoscopy, CT Scan, MRI, or Ultrasound) in 2020

- The percentage of patients with IBD who did not receive an imaging assessment increased from 37.5% in 2019 to 43.4% in 2020 (CD: 40.6% to 46.0%; UC: 35.8% to 42.0%) possibly due to COVID-19

Imaging rate: 46.8%–52.8% | 52.9%–54.2% | 54.9%–56.1% | 56.2%–57.6% | 57.7%–58.9% | 59.0%–65.0%
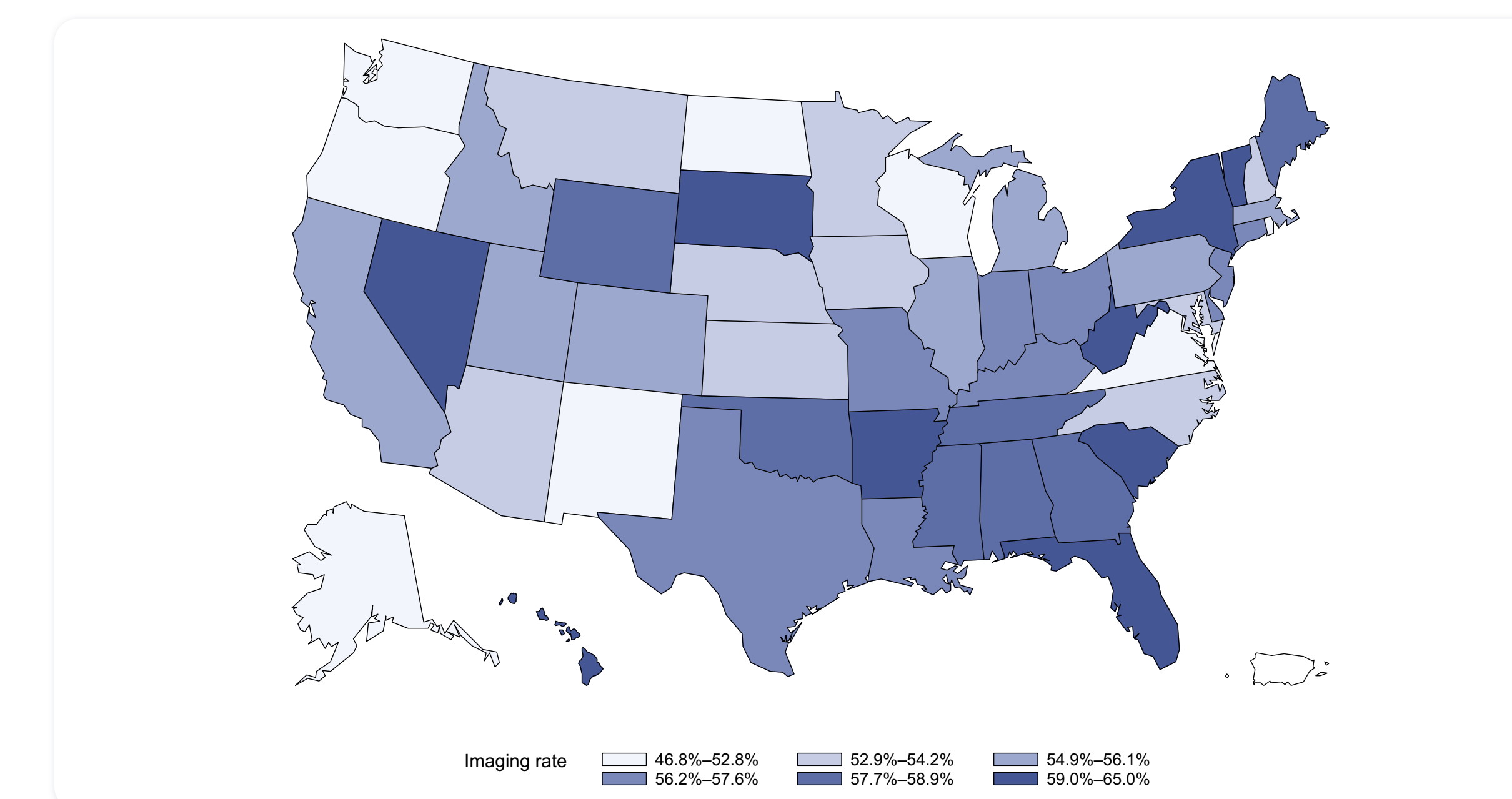
CD, Crohn's disease; CRP, C-reactive protein; CT, computed tomography; FCP, fecal calprotectin; IBD, inflammatory bowel disease; MRI, Magnetic resonance imaging; UC, ulcerative colitis.
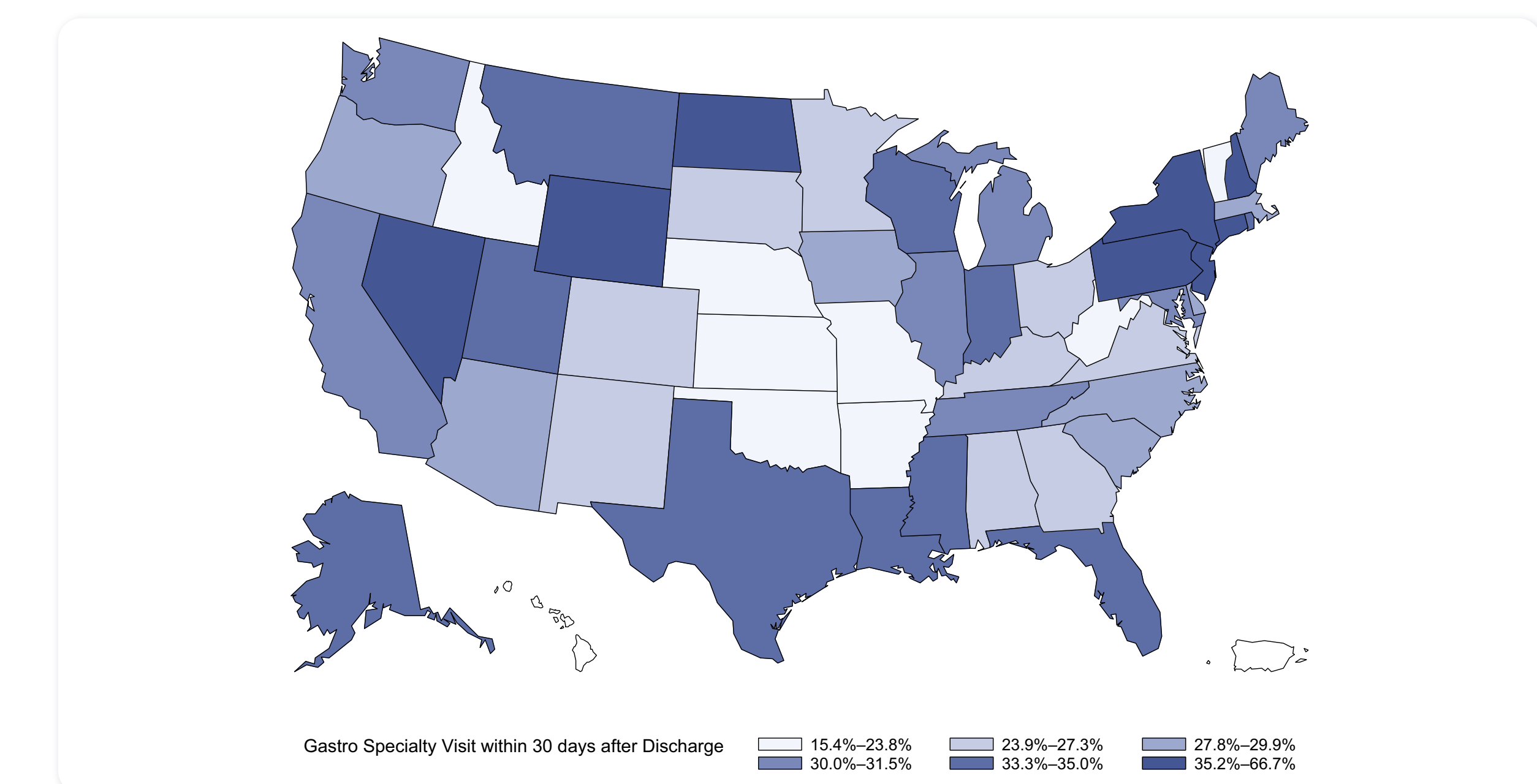
Figure 4. Inflammatory Biomarker Testing Rates Among Diagnosed IBD Patients Were <43% in 2020

- From 2019 and 2020, inflammatory biomarker (FCP and CRP) testing rates among patients with IBD were below 50% (42.1% and 42.7%, respectively)

Inflammatory Biomarkers rate: 20.0%–36.4% | 36.7%–40.5% | 40.6%–42.2% | 42.3%–45.0% | 45.1%–47.3% | 47.7%–63.0%