

# COVID-19 VACCINE HESITANCY REMAINS HIGH IN IBD PATIENTS

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## Background and Aims

Despite the global impact of the COVID-19 pandemic, vaccine hesitancy remains common in the general population. Adults who were on immunosuppressive medications were among the earlier groups recommended by the CDC to receive the COVID-19 vaccine. It is unclear whether similar vaccine hesitancy is seen in patients with Inflammatory Bowel Diseases (IBD). We sought to investigate the barriers to vaccination by examining the rate of COVID-19 vaccine hesitancy in patients with IBD as well as associated demographic and socioeconomic risk factors.

## Methods

We performed a retrospective chart review IBD patients seen at University of Maryland Medical Center, a tertiary referral medical center, between March 2020 and October 2021. Data obtained from patients' charts included demographics; substance use history; disease phenotype; number of years since diagnosis; number of clinic visits; number of IBD-related surgeries and endoscopic procedures; and IBD therapy including biologics, thiopurines, methotrexate, corticosteroids, and 5-ASA. Information on COVID vaccination and routinely recommended vaccines were also collected which included influenza, pneumococcal, and shingles vaccines.

## Results

- 813/1349 (60.3%) IBD patients received at least one dose of either the Pfizer/BioNTech, Moderna, or Johnson & Johnson vaccines.
- In a multivariate regression, COVID vaccination was **positively** associated with:
  - ✓ **Older age** (OR 1.022, p-value=1.65e-5)
  - ✓ **Female sex** (OR 1.46, p=0.00194)
  - ✓ **Asian and White races** (OR 2.84, 1.66, p= 0.02330, 0.00169)
  - ✓ **# of clinic visits** (OR 1.37, p= 1.11e-08)
  - ✓ **Biologic use** (OR 1.78, p= 7.82e-5).
- True while controlling for IBD type; marital status; insurance type; employment status; years since diagnosis; and tobacco, alcohol, and illicit substance use history.
- Years since diagnosis and age were not found to have a significant interaction suggesting **older age independently predicts likelihood of vaccination**.
- There was **negative** association between vaccination status and **total # of IBD related surgeries** (OR 0.890, p= 0.02857).
- There was no association between COVID vaccination and the number of endoscopic procedures in the past 12 months, employment status, other types of vaccination (influenza, Pevnar/Pneumovax, Shingrix), or with the use of other IBD medications.

TABLE 1: Demographics

	Total (n=1349)
Age, mean (IQR)	43.9 (31-55.5)
Female, n (%)	711 (52.7)
Race, n (%)	
White	1031 (76.4)
Black	252 (18.7)
Hispanic	35 (2.6)
Asian	29 (2.1)
American Indian/Alaska Native	1 (0.0007)
Unknown	1 (0.0007)
Marital Status, n (%)	
Single	685 (50.8)
Married	663 (48.9)
History Of Substance Use, n (%)	
Alcohol Abuse	
Never	1248 (92.5)
Current	74 (5.5)
Former	27 (2.0)
Tobacco Abuse	
Never	873 (64.7)
Current	344 (25.5)
Former	132 (9.8)
Illicit Drug Abuse	
Never	1123 (83.2)
Current	158 (11.7)
Current	68 (5.0)
Employment Status, n (%)	
Employed	870 (64.5)
Insurance, n (%)	
Commercial	1011 (74.9)
Medicaid	139 (10.3)
Medicare	191 (14.1)
None	8 (0.006)

Table 2: Vaccination and IBD History

Vaccination, n (%)	
COVID-19	813 (60.3)
Influenza	1170 (86.7)
PCV13/ PPV23	
Yes	929 (68.9)
No	381 (28.2)
Not Indicated	14 (1.0)
Unknown	25 (1.9)
Shingles	
Yes	248 (18.4)
No	793 (58.8)
Not Indicated	303 (22.5)
Unknown	5 (0.4)
IBD phenotype, n (%)	
Crohn's Disease	908 (67.3)
Ulcerative Colitis	391 (29.0)
Indeterminant Colitis	50 (3.7)
Years Since Diagnosis, mean (IQR)	14.7 (6-21)
IBD therapy, n (%)	
Biologics	992 (73.5)
Steroids	232 (17.2)
Immunomodulators	224 (16.6)
5-Aminosalicylates	233 (17.3)
Clinic visits in 1 year, mean (IQR)	1.8 (1-2)
IBD-related surgeries, mean	0.8
Endoscopic procedures, mean	0.6

Abbreviations: IQR, Interquartile Range; PCV13, 13-valent pneumococcal conjugate vaccine; PPV23, 23-valent pneumococcal polysaccharide vaccine

## Conclusions

- COVID-19 vaccination rate for IBD patients (60.3%) was significantly lower than that of general population in Maryland (95%) and USA (88.4%).
- Female, older, White, Asian, and/or current biologic use patients were more likely to be vaccinated.
- Greater communication with gastroenterologists via clinic visits (in-person/telehealth) had a positive impact on COVID-19 vaccination.
- Prior vaccinations are not a predictor for willingness to be vaccinated against COVID.
- Patients with more severe IBD history are less likely to be vaccinated
- Future vaccination campaigns need to specifically target younger, minority, and male patients; and those with more severe IBD history.

## Future Directions

- Compare with non-IBD patients as controls
- Online/mail questionnaire
- Follow-up recent vaccinations records and examine what factors led to new, first-time vaccination