

# Epidemiology of Interstitial Lung Disease in Patients with Inflammatory Bowel Disease

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## Background

- Though rare, Interstitial Lung Disease (ILD) appears to be associated with Inflammatory Bowel Disease (IBD) based on data derived from case series.
- The pathogenesis is unclear but the changes in the lung are thought to represent the same type of inflammatory changes that occur in the bowel.
- We sought to describe the epidemiology of ILD in patients with IBD using a large commercial database.

## Methods

- Data obtained from (Explorys Inc, Cleveland), an aggregate of EHR data from 27 integrated healthcare systems in the United States between 3/2017-3/2022.
- We identified all patients in the database with Crohn's disease (CD) or Ulcerative Colitis (UC) based on Systematized Nomenclature of Medicine-Clinical Terms (SNOMED-CT).
- We compared the prevalence of ILD at least 30 days post-CD or post-UC diagnosis to a control cohort of patients without CD or UC.

Table 1. Prevalence of ILD after at least 30 days post-CD diagnosis

	CD	Prevalence per 100,000	No CD	Prevalence per 100,000	Odds Ratio	95% CI	p-value
<b>TOTAL</b>	2750	1892	253640	804	2.38	2.29-2.47	<0.001
<b>Adult (18-65)</b>	1250	1225	92020	497	2.48	2.35-2.63	<0.001
<b>Senior (65+)</b>	1480	3583	142000	1873	1.95	1.85- 2.05	<0.001
<b>Female</b>	1610	1827	129250	746	2.48	2.36-2.6	<0.001
<b>Male</b>	1140	2014	124580	888	2.29	2.16- 2.43	<0.001
<b>Caucasian</b>	2290	2098	181110	1085	1.95	1.88-2.04	<0.001
<b>African American</b>	310	2391	37420	1040	2.33	2.08-2.61	<0.001
<b>Asian</b>	30	1685	3430	690	2.47	1.72-3.55	<0.001

Table 2. Prevalence of ILD after at least 30 days post-UC diagnosis

	UC	Prevalence per 100,000	No UC	Prevalence per 100,000	Odds Ratio	95% CI	p-value
<b>TOTAL</b>	2370	1914	254000	804	2.41	2.31-2.51	<0.001
<b>Adult (18-65)</b>	910	1155	92360	498	2.32	2.18-2.48	<0.001
<b>Senior (65+)</b>	1450	3260	142010	1874	1.78	1.69-1.87	<0.001
<b>Female</b>	1290	1740	129570	746	2.35	2.23-2.48	<0.001
<b>Male</b>	1080	2191	124610	888	2.5	2.35-2.66	<0.001
<b>Caucasian</b>	2020	2120	181370	1086	1.97	1.89-2.06	<0.001
<b>African American</b>	240	2556	37500	1041	2.49	2.19-2.83	<0.001
<b>Asian</b>	20	1163	3440	692	1.69	1.09-2.63	0.02

## Results

- Overall prevalence of ILD was higher in CD (1.89%) and UC (1.91%) compared to non-IBD patients (0.8%), with odds ratio (OR) for CD 2.38 [95% CI, 2.29-2.47, p< 0.001], and UC 2.41 [95% CI, 2.31-2.51, p< 0.001].
- Odds of ILD in IBD patients tended to be higher in the cohort aged 18-65 versus age > 65, in African Americans compared to Caucasians, and was otherwise similar across gender.
- IBD patients on treatment with sulfasalazine, azathioprine, infliximab, or adalimumab tended to have lower odds of developing ILD compared to non-IBD patients on the same medications

## Conclusions

- There is a significantly higher prevalence of ILD in patients with CD and UC compared to patients without IBD.
- Interestingly, IBD patients on treatment with any of the various anti-inflammatory agents, most of which are independently associated with ILD, had lower odds of developing ILD compared to non-IBD patients on the same drugs. This data suggests that anti-inflammatory medications and IBD may be independent risk factors for development of ILD.