

Hanna Terhaar BS<sup>1</sup>, Evan Liu BS<sup>1</sup>, Dr. Nahiba Yusuf, PhD, MPH<sup>2</sup>

<sup>1</sup>University of Alabama at Birmingham Heersink School of Medicine

<sup>2</sup>University of Alabama at Birmingham Department of Dermatology and Epidemiology

## Background

Immune-mediated diseases have been found to be associated with lymphoid disorders. However, studies on the association between immune mediated disorders and lymphoid disorders has been very limited, especially in diverse populations.

## Objectives

The objective of this study is to evaluate the relationship between a variety of immune diseases and lymphoid malignancies.

## Methods



**Population-level retrospective cohort study utilizing NIH All of Us database from the United States**



**Patients with electronic health records enrolled from 2017-2023**



**Exposure:** Immune Related Diseases



**Outcomes:** Lymphoma, Plasma Cell neoplasms, Lymphoid Leukemia



**Analysis**

- Cross-sectional analysis of Database Version 7
- Multivariable logistic regressions



**Multivariable models were adjusted for demographic variables such as age, race and sex**

## Conclusion

The majority of immune mediated diseases was found to be significantly correlated with an increased incidence of lymphoid malignancies. These associations were disease-dependent.

## Results

**Table 1:** Multivariable-adjusted Odds Ratio (mOR) and 95% CI by Lymphoid Disease

	Participants with Lymphoma (with/without disease, n = 3,139)	Lymphoma mOR (95% CI)	Participants with Leukemia (with/without disease, n = 1000)	Leukemia mOR (95% CI)	Participants with Plasma Cell Neoplasms (with/without disease n = 1246)	Plasma Cell Neoplasms (95% CI)
Crohn's Disease	65/3074	1.48 (1.12 - 1.93)	21/979	1.37 (0.83-2.15)	30/1216	1.48 (1.12-1.93)
Ulcerative Colitis	71/3068	1.64 (1.25 - 2.11)	28/972	2.13 (1.38 - 3.16)	31/1215	1.64 (1.25-2.11)
Hyperthyroid	155/2984	1.19 (1.00 - 1.41)	44/956	1.14 (0.82 - 1.55)	77/1169	1.19 (1.00-1.41)
Hypothyroid	919/2220	2.64 (2.42 - 2.88)	281/719	2.46 (2.11 - 2.86)	335/911	2.64 (2.42 - 2.88)
Type 1 Diabetes	146/2993	1.98 (1.65 - 2.34)	39/961	1.67 (1.19-2.29)	53/1193	1.98 (1.65 - 2.34)
Rheumatoid Arthritis	184/2955	1.52 (1.29-1.78)	60/940	1.67 (1.25-2.19)	85/1161	2.37 (1.89 - 2.95)
Scleroderma	27/3112	1.29 (0.85 - 1.89)	9/991	1.48 (0.70-2.73)	12/1234	1.29 (0.85-1.89)
Sjogren's Syndrome	118/3021	1.93 (1.57 - 2.35)	33/967	1.68 (1.14-2.40)	49/1197	1.93 (1.57 - 2.35)
Systemic Lupus	101/3038	2.37 (1.89 - 2.95)	30/970	2.47 (1.63 - 3.61)	60/1186	2.37 (1.89 - 2.95)
Dermatomyositis	8/3131	1.55 (0.68 - 3.02)	1/999	0.64 (0.04-2.90)	2/1244	1.55 (0.68 - 3.02)
Multiple Sclerosis	41/3098	1.43 (1.03 - 1.94)	10/990	1.17 (0.58 - 2.08)	32/1214	1.43 (1.03 - 1.94)
Alopecia Areata	20/3119	1.91 (1.17 - 2.94)	6/994	2.09 (0.82 - 4.33)	13/1233	1.91 (1.17 - 2.94)
Atopic Dermatitis	135/3004	1.77 (1.47 - 2.12)	32/968	1.33 (0.91-1.87)	43/1203	1.77 (1.47 - 2.12)
Psoriasis	188/2951	1.73 (1.47 - 2.01)	53/947	1.49 (1.10 - 1.96)	65/1181	1.73 (1.47 - 2.01)
Vitiligo	34/3105	2.33 (1.60-3.28)	6/994	1.28 (0.51-2.64)	10/1236	2.33 (1.60 - 3.28)

CI: Confidence Intervals; Blue = significant; Red = Not significant