

# Impact of Social Vulnerability Index on Outcomes in Patients with Alcohol Related Liver Disease

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## Background

- Alcohol related liver disease affects diverse communities with individual and social characteristics that can impact outcomes<sup>1,2</sup>
- Vulnerable patients with alcohol related liver disease have been reported to have worse outcomes
- The CDC developed a Social Vulnerability Index (SVI) that integrates metrics characterized by four themes: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation<sup>3</sup>
- The SVI assigns a score between 0 and 1, where higher scores represent an increased risk of social vulnerability

## Aim

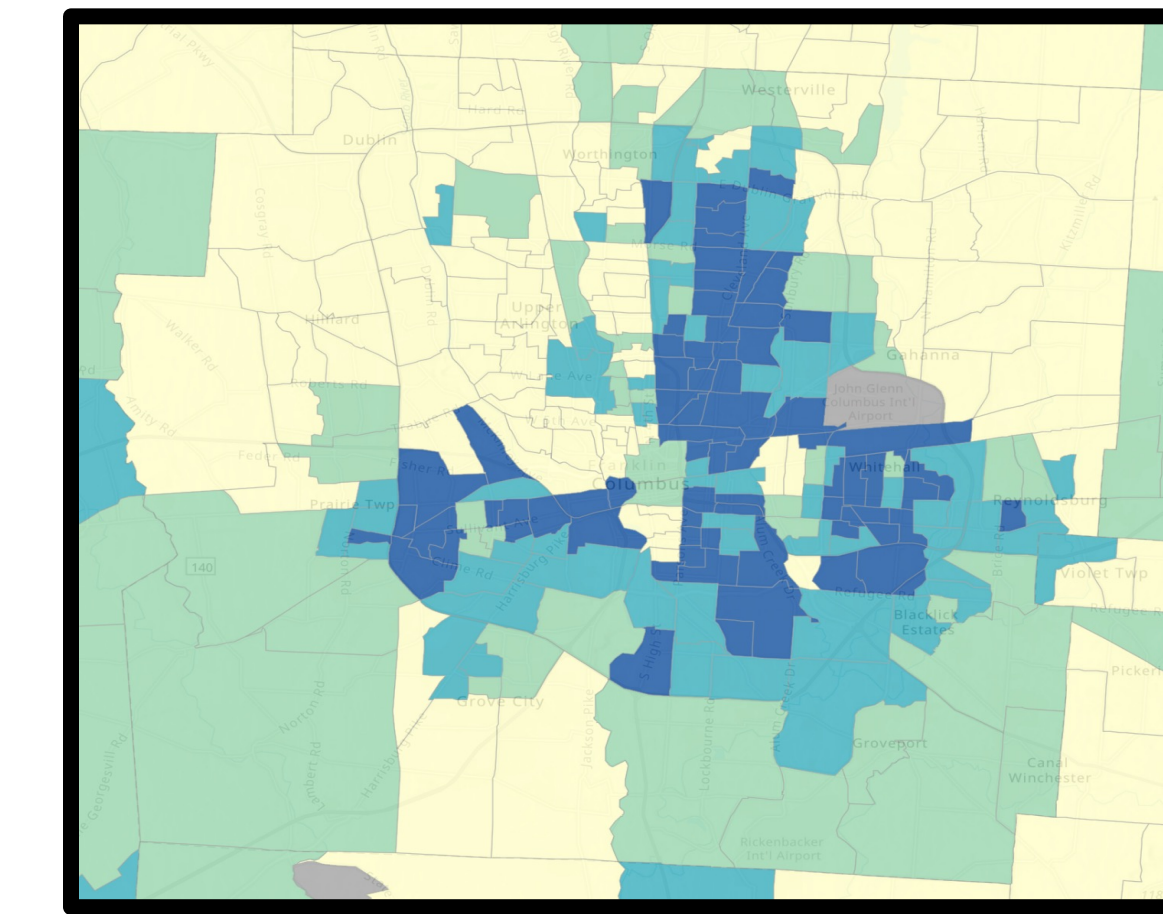
- To assess the impact of SVI on outcomes of patients hospitalized with alcohol related liver disease with access to social support services

## Study Design

- Retrospective review of hospitalizations for alcoholic hepatitis and alcoholic cirrhosis at our institution between March and August 2019
- All patients were assigned a low or high SVI score based on their residential census tract. Patients with a low-to-moderate score were combined with the low SVI group and those with a moderate-to-high score were combined with the high SVI group.
- Demographics, hepatic decompensation, critical care needs, readmission and mortality were compared
- Statistical analysis was performed using univariate analysis and association analysis was utilized to adjust for demographic variables

## Results

**Figure 1: SVI by Census Tract in Franklin County**



Counties are divided by census tracts and assigned an SVI score. 47% of patients resided in Franklin county where our institution is located.

**Table 1: Patient Demographics Based on SVI**

	Alcoholic Hepatitis			Alcoholic Cirrhosis		
	Low SVI n=32	High SVI n=41	p-value	Low SVI n=116	High SVI n=227	p-value
<b>SVI [mean (SD)]</b>	0.25 (0.15)	0.72 (0.13)	<b>&lt;0.001</b>	0.26 (0.15)	0.73 (0.13)	<b>&lt;0.001</b>
<b>Age [mean (SD)]</b>	46.9 (11.4)	49.2 (11.2)	0.398	58.49 (10)	56.2 (10.1)	<b>0.028</b>
<b>Sex</b>						
Female	9	13	0.941	53	75	0.902
Male	23	28		113	152	
<b>Race</b>						
African American	0	14	<b>&lt;0.001</b>	9	53	<b>&lt;0.001</b>
White	32	23		145	163	
Other	0	3		10	9	
<b>Marital Status</b>						
Divorced	4	4	0.269	31	39	0.104
Married	12	8		57	53	
Separated	0	2		3	9	
Single	16	26		67	111	
Widowed	0	1		8	15	
<b>Employment</b>						
Disabled	3	7	0.48	49	94	<b>0.008</b>
Employed	11	8		23	25	
Retired	2	2		32	24	
Self-employed	0	0		3	0	
Unemployed	16	24	59	84		

**Table 2: Disease Severity and Outcomes Based on SVI**

	Alcoholic Hepatitis			Alcoholic Cirrhosis		
	Low SVI n=32	High SVI n=41	p-value	Low SVI n=116	High SVI n=227	p-value
<b>Maddrey's/MELD-Na [mean (SD)]</b>	42.8 (25.4)	39.6 (33.7)	0.663	22.9 (9.82)	21.7 (9.48)	0.312
<b>Intubation</b>						
No	27	38	0.287	145	188	0.275
Yes	5	3		21	39	
<b>Vasopressors</b>						
No	28	40	0.161	151	201	0.544
Yes	4	1		15	26	
<b>Hemodialysis</b>						
No	29	40	0.313	153	208	0.995
Yes	3	1		13	19	
<b>Mortality</b>						
No	29	39	0.648	151	205	0.964
Yes	3	2		15	22	
<b>Readmission</b>						
No	26	31	0.77	119	159	0.809
Yes	6	10		47	68	

## Discussion

- African American patients were more likely to have a high SVI in alcoholic hepatitis and alcoholic cirrhosis
- Patients with a disability and alcoholic cirrhosis were also more likely to have a high SVI
- MELD-Na scores, severity and outcomes of alcohol related liver disease were similar between patients with high and low SVI
- Similar outcomes across SVI were likely a result of multi-disciplinary interventions at our institution to reduce healthcare barriers. All admitted patients are screened to identify needs for rehabilitation counseling, transplant workup, and care coordination after discharge.
- Early identification of barriers by a multi-disciplinary care team likely decreases the influence of social vulnerability on outcomes

## Conclusions

- Most patients admitted for alcohol related liver disease had a high SVI; however, SVI did not impact outcomes in our cohort of patients
- This may be a result of extensive care coordination efforts at our institution aimed at reducing barriers for vulnerable patients

## References

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3. Flanagan, B.E., et al., *Measuring Community Vulnerability to Natural and Anthropogenic Hazards: The Centers for Disease Control and Prevention's Social Vulnerability Index*. J Environ Health, 2018. **80**(10): p. 34-36.