

# *Evaluating Equity in support of the 5th Rail of the Healthcare Quintuple Aim*

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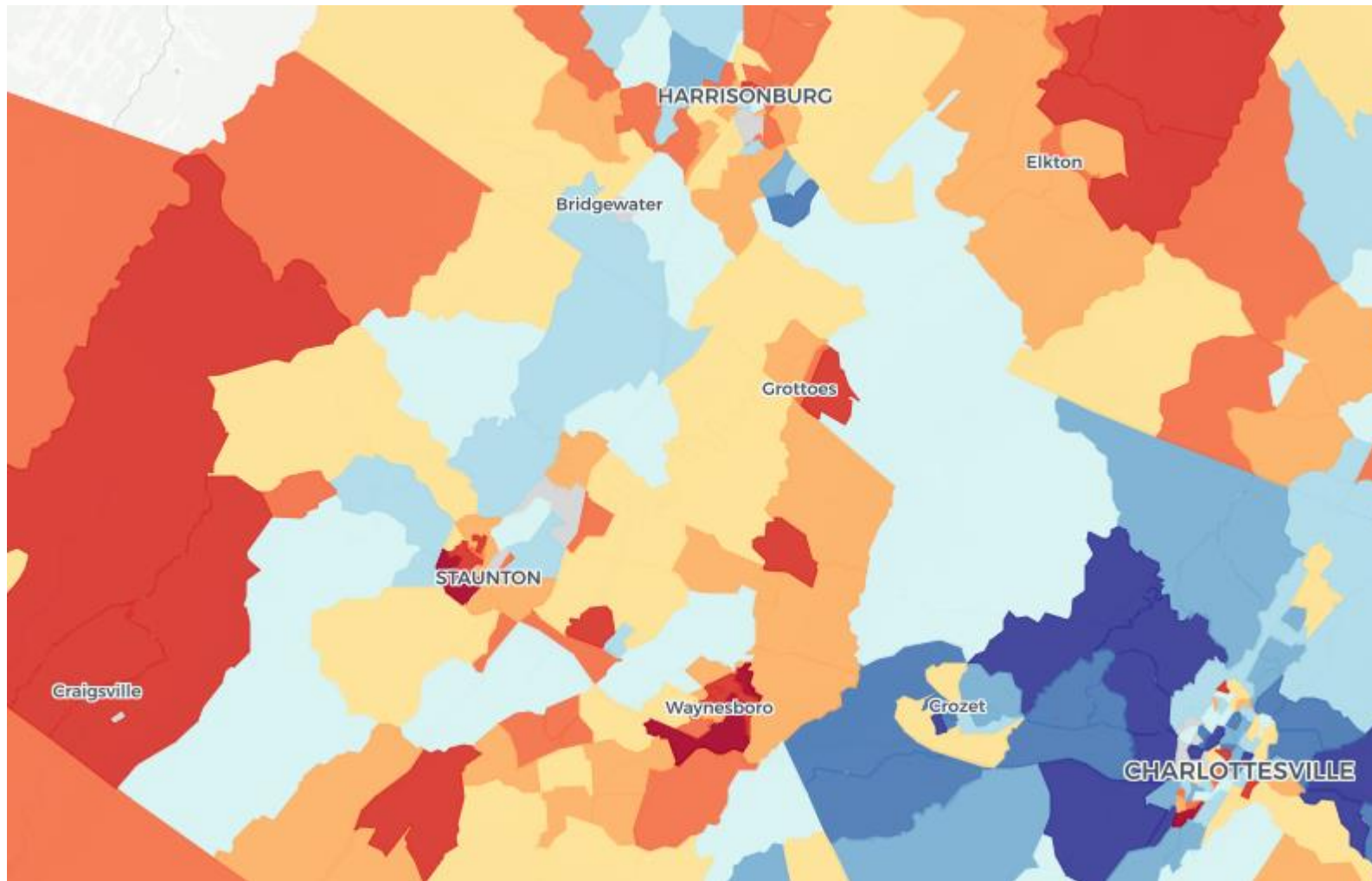
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## What is Health Equity?

- Social factors, including education, employment status, income level, gender and ethnicity have a marked influence on how healthy a person is.
- Wide disparities in the health status of different social groups exist.
- The lower an individual's socio-economic position, the higher their risk of poor health.

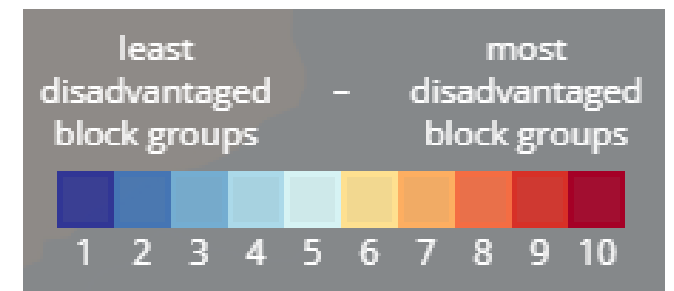
# The Area Deprivation Index– A Metric for Social Risk

Neighborhood Atlas, University of Wisconsin



Combines 17 metrics on housing quality, employment, poverty and education.

Measured at the level of census block groups → roughly 1500 persons. Close to neighborhood level



Our region's map of census tract ADI scores, 4/27/23

Source: <https://www.neighborhoodatlas.medicine.wisc.edu/mapping>

# Area Deprivation Index Map, Waynesboro VA



For patients seen at Augusta Health, we have mapped:

1. Address →
2. Lat & Long coordinates →
3. US Census tract →
4. ADI Score

Waynesboro ADI by Census Tract, 4/27/23

Source: <https://www.neighborhoodatlas.medicine.wisc.edu/mapping>

# Comparing Access to Primary Care and Race/Ethnicity

Race Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Asian vs White	1.179	1.040 to 1.332	p < 0.05
African American vs White	1.053	1.027 to 1.078	p < 0.05
Hispanic vs White	1.164	1.108 to 1.222	p < 0.05
Hawaiian/Pacific Islander vs White	1.378	0.853 to 2.107	p = 0.15
American Indian/Alaskan Native vs White	0.785	0.581 to 1.038	p = 0.08
Unknown vs White	1.092	0.989 to 1.20	p = 0.08
Ethnicity Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Hispanic or Latino vs Not Hispanic or Latino	1.110	1.055 to 1.168	p < 0.05
Unknown vs Not Hispanic or Latino	1.043	0.988 to 1.099	p = 0.12

## Comparing Access to Primary Care and Area Deprivation Index

A Pearson correlation coefficient was computed to assess the strength of the linear relationship between the Area Deprivation Index (ADI) and Access to Care. The value of R is: 0.914,  $p < .05$ . This is a strong positive correlation, which means that the higher ADI scores are associated with lack of access to primary care.

## Comparing Access to Primary Care and Disabled Status

A chi-square test was used to evaluate the association between two variables - in this case, Disabled Status and Access to Primary Care. A chi-square test of independence showed that there was a significant association between Access to Care and Disabled Status,  $X^2 (2, N = 99,899) = 863.82, p < .05$ .

Patient Count	Primary Care	
	No	Yes
Disabled Status		
No	75%	25%
Yes	61%	39%

# Comparing Mortality and Race/Ethnicity

Race Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Asian vs White	0.946	0.024 to 5.297	p = 0.94
African American vs White	0.851	0.568 to 1.232	p = 0.40
Hispanic vs White	0.351	0.042 to 1.275	p = 0.10
Hawaiian/Pacific Islander vs White	0	0 to 20.147	
American Indian/Alaskan Native vs White	0	0 to 11.513	
Unknown vs White	0	0 to 1.414	
Ethnicity Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Hispanic or Latino vs Not Hispanic or Latino	0.559	0.115 to 1.643	p = 0.32
Unknown vs Not Hispanic or Latino	0.301	0.036 to 1.094	p = 0.05



## Comparing Mortality and Area Deprivation index



A Pearson correlation coefficient was computed to assess the strength of the linear relationship between the Area Deprivation Index (ADI) and Mortality. The value of R is: 0.831,  $p < .05$ . This is a strong positive correlation, which means that the higher ADI scores are associated with higher in hospital mortality.

# Comparing Mortality and Disabled Status

A chi-square test was used to evaluate the association between two variables - in this case, Disabled Status and Mortality. A chi-square test of independence showed that there was no significant association between Mortality and Disabled Status,  $X^2 (2, N = 11,013) = 0.0942, p = .76$ .

Patient Count	Expired	
	No	Yes
Disabled Status		
No	95.54%	4.46%
Yes	95.35%	4.65%

# Comparing Readmissions and Race/Ethnicity

Race Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Asian vs White	0	0 to 1.933	
African American vs White	1.019	0.779 to 1.313	p = 0.87
Hispanic vs White	0.970	0.463 to 1.793	p = 0.96
Hawaiian/Pacific Islander vs White	0	0 to 11.117	
American Indian/Alaskan Native vs White	0	0 to 6.352	
Unknown vs White	0.211	0.005 to 1.179	p = 0.06
Ethnicity Comparison	Incidence	95%	p-value
	rate ratio	Conf Inter	
Hispanic or Latino vs Not Hispanic or Latino	0.9109	0.415 to 1.737	p = 0.82
Unknown vs Not Hispanic or Latino	0.0818	0.002 to 0.457	p < 0.05

## Comparing Readmissions and Area Deprivation Index

A Pearson correlation coefficient was computed to assess the strength of the linear relationship between the Area Deprivation Index (ADI) and Readmissions. The value of R is: 0.732,  $p < .05$ . This is a moderate positive correlation, which means that the higher ADI scores are associated with higher readmission percentages.

# Comparing Readmissions and Disabled Status

A chi-square test was used to evaluate the association between two variables - in this case, Disabled Status and Readmissions. A chi-square test of independence showed that there was a significant association between Readmissions and Disabled Status,  $X^2 (2, N = 11,013) = 80.36, p < .05$ .

Patient Count	Readmitted	
	No	Yes
No	92.58%	7.42%
Yes	85.15%	14.85%



## Conclusions

- Area Deprivation has the most significant association with poor outcomes
- Disabled Patient status for hospital readmissions.

## References:

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