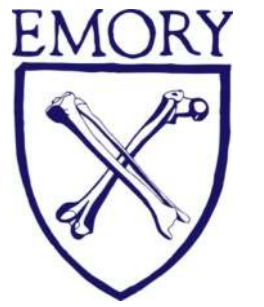




Composite Markers of Economic Distress Predict Complications and Loss to Follow-up in Orthopaedic Trauma



A one year prospective cohort study

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KEY POINTS

- Distressed Community Index (DCI)¹ stratifies social demographics and is associated with loss to follow up
- Religion, community acceptance, living in adjacent counties, not owning a cell phone and DCI are all associated with patients never returning to clinic after surgery

INTRODUCTION

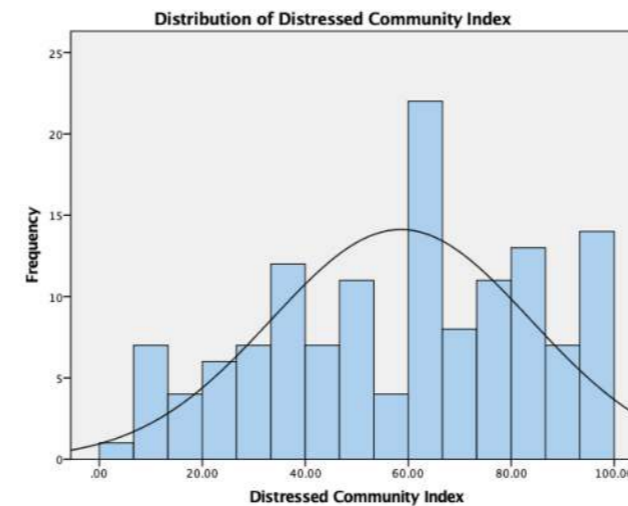
- Trauma care ranks 2nd in US health expenditures, accounting for approximately \$92.1 billion in 2012²
- CMS found social risk factors were associated with^{3,4}:
 - poor outcomes
 - worse physician and hospital performance in quality metrics
- Safety-net systems have increased financial penalties in the current value-based model
- Current quality of care metrics are not consistently collected and reported
- DCI > 60 defines the most distressed communities in the U.S.

METHODS

- Prospective cohort study at a ACS level 1 hospital
- N=139. English speaking adults with a new traumatic orthopaedic injury requiring surgery
- Followed from admission through 1 year follow up
- 167 validated survey metrics for personal and environmental factors, substance use, and injury / admission specific characteristics
- Univariate (chi-square tests, t-tests, and Mann Whitney U tests) and multivariate (logistic regression) analysis was performed
- Primary outcome was lost to follow up, defined as never returning to clinic after discharge

RESULTS

Patient Demographics	
Male	86 (61.9%)
African American	88 (63.3%)
Single	62 (44.6%)
Live alone	29 (21.0%)
High school or less	88 (57.3%)
Unemployed or disabled	40 (25.3%)
Uninsured Medicaid/Medicare	55 (40.1%) 33 (24.0%)
<\$5,000 yearly income	61 (43.9%)
<\$500 in savings	76 (55.0%)
No secure housing	34 (24.5%)
Religious	113 (82.5%)
Religion affects medical decision making	48 (35.3%)



Mean DCI score was 58.12 (± 25.3)
56% of the patient population live in distressed neighborhoods

Difference in mean DCI among social risk factors				
Variable		Mean (SD)	test statistic	p-value
Do you live alone?	Yes	68.8 (22.5)	t(125) = -2.508	0.013
	No	55.9 (24.9)		
Disability or unemployed?	Yes	66.8 (23.9)	t(137) = -3.317	0.001
	No	55.6 (25.2)		
Are you spiritual or religious?	Yes	61.2 (24.6)	t(130) = -2.678	0.008
	No	46.2 (25.8)		
Do you identify as African American?	Yes	63.3 (24.2)	t(132) = -2.907	.044
	No	50.5 (25.2)		
Do you feel safe in your neighborhood?	Yes	56.8 (24.9)	t(131) = -2.762	.007
	No	77.4 (22.8)		
Do you live in Fulton or DeKalb County?	Yes	64.2 (23.2)	t(132) = -3.345	.001
	No	49.8 (26.0)		

Social determinants of health associated with loss to follow up		
	X ² (df)	P-value
Religious beliefs influence your medical decisions	4.259 (1)	0.039
Not owning a cell phone	7.596 (1)	0.006
Not having access to internet	4.216 (1)	0.04
Not accepted by community	3.597 (1)	0.058
Live in Fulton or DeKalb county	4.45 (1)	0.035
Alcohol or drug addiction history	8.47 (1)	0.004
Treated for substance use disorder	16.44 (1)	<.001
Cocaine use	4.04 (1)	0.044
Male	.035 (1)	0.853
African American	.001 (1)	0.972
High school education or less	.20 (1)	0.655

Binary logistic regression predicting lost to follow up after discharge

	OR	95% CI	P value
DCI Quintile	2.45	1.15-5.20	0.02
Religion influences medical decisions	12.50	2.44-64.14	0.002
Don't feel accepted by neighbors	11.34	1.42-90.74	0.022
Live in Fulton or DeKalb	0.09	.02-.52	0.007
African American	.37	.08-1.83	0.22
Age	1.03	.98-1.07	0.21
Male	1.28	.26-6.21	0.76
Graduated high school or less	0.25	.05-1.32	0.10
BMI	0.91	.80-1.03	0.13
Positive PHQ2	0.67	.08-5.47	0.71
Positive PTSD screen	3.53	.80-15.49	0.10
ISS	1.06	.96-1.16	0.26
X ² = 34.19 R ² =0.453			

CONCLUSION

- 56% of the orthopaedic trauma patient population lives in the most distressed areas, compared to 30.7% of all Atlanta residents
- Living in the most distressed ZIP codes is associated with:
 - African American race
 - Living alone
 - Unemployment or receiving long term disability
 - Religious beliefs
 - Safety
- Loss to follow up is associated with DCI, religion, community acceptance, and not living in adjacent counties

NEXT STEPS

- Using a standardized, community based metric on admission for a trauma, such as DCI, could allow rapid risk stratification of patients
- DCI has the potential to contribute to peri-operative planning with need for social workers, post-operative placement, and even CMS reimbursement rates

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