

IMPACT OF SOCIOECONOMICS ON HOSPITAL QUALITY



FOCUS: STATE OF MICHIGAN

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Prepared by the Economic Alliance for Michigan

Socioeconomics & Hospital Safety

FOCUS: STATE OF MICHIGAN

SUMMARY

The aim of this report was to investigate whether or not socioeconomic factors impact a hospital's level of quality and patient safety within the State of Michigan. An analysis was performed using data from the U.S. Census Bureau and the Centers for Medicare and Medicaid Services (CMS). The results indicate that hospitals surrounded by a poor socioeconomic service area scored lower in quality of care and patient safety. It is recommended that further investigation into what other factors affect the CMS star rating of a hospital, such as patient payer mix, readmission rates and nurse-to-patient ratios.

BACKGROUND

Researchers determined medical errors lead to an estimated 400,000 preventable injuries per year and accounted for an estimated 251,454 deaths in the United States in 2013. Among leading causes of death, medical error related deaths ranks third, just below heart disease and cancer.¹

Throughout the U.S., various nonprofit groups and foundations focus on bringing awareness to the need for increased hospital quality of care and patient safety. In July 2016, CMS released its first ever star ratings for hospital quality via Hospital Compare's website. The star ratings are measured using 64 of the more than 100 measures CMS monitors.

In September 2016, Bloomberg News BNS published a report suggesting CMS star ratings skew lower for hospitals servicing poorer areas.² Is this happening in Michigan? The reasons behind why one hospital provides higher quality of care and patient safety is complex. This report only focuses on the selected socioeconomic parameters to determine the level of involvement those parameters have on patient care in a hospital setting.

¹ Makary, Martin A, & Daniel, Michael. (2016, May 3). Medical error—the third leading cause of death in the US. *BMJ*, 353. i2139. Retrieved from <http://www.bmj.com/content/353/bmj.i2139>.

² Williamson, Michael D. & Alexander, Madi. (2016, September 16). Medicare Ratings Skew Poorly for Hospitals in Low-Income Areas. *Bloomberg BNA*. Retrieved from <http://www.bna.com/medicare-ratings-skew-n57982077111/>.

METHOD

The research was conducted by using CMS Hospital Compare star ratings for hospitals in Michigan and demographic data from the U.S. Census Bureau. Concentrating on the cities where hospitals are located, data sets were created to demonstrate the socioeconomics of a hospital's immediate potential patient base. Seven factors were examined: median household income, percentage of people below the poverty level in the past twelve months, percentage of people who identify themselves as African-American, percentage unemployed, percentage of high school graduates, type of geographic area (urban/rural), and the percentage of people who are privately insured.

FINDINGS

The results suggests a link between socioeconomics and the level of hospital quality of care. Six of the seven factors demonstrated evidence of lesser quality of care and patient safety to populations in areas of higher percentages of poverty and unemployment, lower percentages of high school graduates and privately insured residents, and urban areas with a higher concentration of African-American residents.

Michigan's average star rating is 3.1, with four hospitals obtaining a one-star rating and four hospitals earning a five-star rating. Within each hospital's immediate service area, all four one-star hospitals fell in the lowest income bracket, highest unemployment percentage, highest African-American percentage, highest bracket for poverty, lowest percentage for high school graduates and residents with private insurance.

Average star ratings for each factor also showed a possible link between socioeconomics and quality of care, with the exception of household income. The largest fluctuation in star ratings was within immediate hospital service areas and the percentage of population identifying as African-Americans. Those areas with the highest populations of African-Americans received 1.2 less of an average star rating than those areas with the lowest percentage of African-Americans. Immediate hospital service areas with the highest unemployment rates had 0.9 less of an average star rating than those areas with the lowest unemployment rates.

When comparing the socioeconomic factors between one-star hospitals and five-star hospitals, the results are self-evident. The average of all one-star hospitals and immediate population service base has \$20,697 less in household median income, +28.3% in poverty, +9.4% in unemployment, +72.7% African-American base, 12.8% less high school graduates and 36% less population with private insurance than the average of all five-star hospitals and immediate service areas.

DATA

CHARTS 1 & 2: Hospital star ratings and various socioeconomic factors (Michigan)

Measure	Household Median Income		% identify as African-American		% People in Poverty past 12-months		% Unemployed	
	25 highest	25 lowest	10% and higher	1% and lower	25 highest %	25 lowest %	25 highest %	25 lowest %
# of 5 stars	1	0	0	1	0	3	0	4
# of 4 stars	5	16	7	20	10	8	10	19
# of 3 stars	13	6	4	13	10	13	12	17
# of 2 stars	6	6	17	1	11	5	13	2
# of 1 stars	0	4	4	0	4	0	4	0
# of 1 & 2 stars combined	6	10	21	1	15	5	17	2
# of 4 & 5 stars combined	6	16	7	21	10	11	10	23
% 5 stars	4.0%	0.0%	0.0%	2.9%	0.0%	10.3%	0.0%	9.5%
% 4 stars	20.0%	50.0%	21.9%	57.1%	28.6%	27.6%	25.6%	45.2%
% 3 stars	52.0%	18.8%	12.5%	37.1%	28.6%	44.8%	30.8%	40.5%
% 2 stars	24.0%	18.8%	53.1%	2.9%	31.4%	17.2%	33.3%	4.8%
% 1 stars	0.0%	12.5%	12.5%	0.0%	11.4%	0.0%	10.3%	0.0%
% 1 & 2 stars combined	24.0%	31.3%	65.6%	2.9%	42.9%	17.2%	43.6%	4.8%
% of 4 & 5 stars combined	24.0%	50.0%	21.9%	60.0%	28.6%	37.9%	25.6%	54.8%
Avg. Star Rating	3.0	3.1	2.4	3.6	2.7	3.3	2.7	3.6

Measure	% High School Graduate		% with Private Insurance		Geographic Area		Uncompensated Care Ratio to Net Expenses	
	25 highest %	25 lowest %	25 highest %	25 lowest %	Urban	Rural	10 highest %	10 lowest %
# of 5 stars	3	1	3	0	3	1	0	2
# of 4 stars	9	15	5	13	11	27	2	7
# of 3 stars	15	9	15	9	20	20	5	8
# of 2 stars	4	11	6	9	20	2	2	4
# of 1 stars	0	4	0	4	4	0	3	0
# of 1 & 2 stars combined	4	15	6	13	24	2	5	4
# of 4 & 5 stars combined	12	17	8	13	14	28	2	9
% 5 stars	9.7%	2.5%	10.3%	0.0%	5.2%	2.0%	0.0%	9.5%
% 4 stars	29.0%	37.5%	17.2%	37.1%	19.0%	54.0%	16.7%	33.3%
% 3 stars	48.4%	22.5%	51.7%	25.7%	34.5%	40.0%	41.7%	38.1%
% 2 stars	12.9%	27.5%	20.7%	25.7%	34.5%	4.0%	16.7%	19.0%
% 1 stars	0.0%	10.0%	0.0%	11.4%	6.9%	0.0%	25.0%	0.0%
% 1 & 2 stars combined	12.9%	37.5%	20.7%	37.1%	41.4%	4.0%	41.7%	19.0%
% of 4 & 5 stars combined	38.7%	40.0%	27.6%	37.1%	24.1%	56.0%	16.7%	42.8%
Avg. Star Rating	3.4	3.0	3.2	2.9	2.8	3.5	2.5	3.3

Chart 1 & 2 sources: U.S. Census Bureau. American Fact Finder. DP03 Selected Economic Characteristics, DP05 ACS Demographics and Housing Estimates & S1501 Education Attainment; 2014 ACS 5-year estimates, All Places in Michigan (zip code 48038 used as Clinton Township, 48054 for East China, 48322 for West Bloomfield and 48382 for Commerce Township). Uncompensated Care Ratio to Net Expense: State of Michigan Department of Health and Human Services and Department of Insurance and Financial Services, The Healthy Michigan Plan 2014 Report on Uncompensated Care and Insurance Rates, (2015, December 31), retrieved from https://www.michigan.gov/documents/mdhhs/105d8-9-2013_PA_107-Report_12-31-15_512683_7.pdf. Star ratings obtained from Center for Medicaid and Medicare Services (CMS) and retrieved from <https://www.medicare.gov/hospitalcompare/results.html#dist=25&state=MI&lat=0&lng=0>, 108 hospitals used.

CHART 3: Star rating averages and various socioeconomic factors (Michigan)

Factor within Hospital Service Area	Average of all one-star hospitals	Average of all five-star hospitals	Difference
Average household median income	\$25,741	\$46,438	-\$20,697
% people in poverty past 12-months	40.3%	12.0%	28.3%
% unemployed	14.1%	4.7%	9.4%
% identify as African-American	74.4%	2.2%	72.2%
% high school graduate	79.0%	91.8%	-12.8%
% with private insured	39.0%	75.0%	-36.0%

Chart 3 source: U.S. Census Bureau. American Fact Finder. DP03 Selected Economic Characteristics, DP05 ACS Demographics and Housing Estimates & S1501 Education Attainment; 2014 ACS 5-year estimates, All Places in Michigan (zip code 48038 used as Clinton Township, 48054 for East China, 48322 for West Bloomfield and 48382 for Commerce Township). Star ratings obtained from Center for Medicaid and Medicare Services (CMS) and retrieved from <https://www.medicare.gov/hospitalcompare/results.html#dist=25&state=MI&lat=0&lng=0>, 108 hospitals used.

CONCLUSIONS

Initial research and findings indicate that socioeconomic factors do indeed impact hospital quality of care and patient safety. Hospitals with an immediate service area comprised of a population with higher percentages of poverty, unemployment, African-Americans and/or lower percentages of high school graduates and those privately insured have lower CMS star ratings. Also, average of all one-star rating hospitals and immediate service areas versus the average of all five-star rating hospitals and immediate service areas demonstrate a large gap in wealth difference along with poverty and unemployment levels.

This introductory analysis spawns other questions. What other factors influence the ratings at one-star hospitals? Presumably, these hospitals have a larger Medicaid patient base – how does this affect readmission rates and financial status? For example, one-star hospitals averaged 9.4% more in uncompensated care to net expenses than five-star hospitals. Further research is needed to fully understand the reasons why Michigan’s one-star rating hospitals are closely tied to the poorer areas of the state.

ABOUT THE ECONOMIC ALLIANCE FOR MICHIGAN (EAM)

Founded in 1982, the EAM is comprised of businesses and unions working together with one clear objective – continued growth of Michigan’s economy by inspiring job growth and strengthen Michigan’s competitiveness for attracting companies and talent. A main objective of the EAM is bringing attention to lawmakers and the public about the rising health care costs and its effect on the economy. The EAM is the Michigan Regional Leader for The Leapfrog Group. Learn more about the EAM at www.eamonline.org.