The Impact of Social Determinants of Health (SDOH) on Completing Bariatric Surgery at a Single Academic Institution

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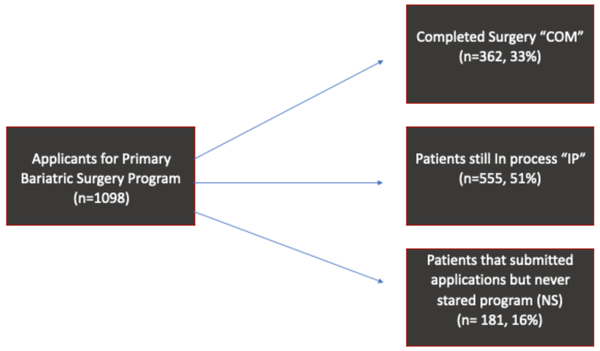
Background/Purpose

- Underutilization of bariatric surgery in patients with obesity is multifactorial. Only 1% of people eligible for bariatric surgery undergo surgical therapy per year.
- While factors such as cost, insurance coverage, and referral patterns play a role in overall access to Bariatric surgery, there is limited information on how SDOH affect a individual patient's ability to complete surgery when already in a program.
- The aim of this project was to understand the impact of SDOH on achieving surgery, in a time frame commensurate with insurance requirements (6-9 months), in a cohort of patients who applied to our program.

Methods

- Surgery candidates who applied for primary bariatric surgery from January-December 2021 were included and stratified into 3 groups including, those who completed surgery within 6-9 months, those who are still in the pre-surgery process >9 months, and those who never started.
- Data from the application included zip-codes, age, and insurance. Given clinical data could not be collected candidates who never started, zip-codes were used as a surrogate to determine SDOH, using the most recent 5-year American Community Survey results (2015-2020), to ensure equal treatment of groups. Specifically, data was derived for SDOH based on 4 domains including, demographic (gender/race), social (education/disability), economic (income/food stamps/poverty status) and housing (internet access, rent/own).
- Insurance and age data was specific to each patient. Zip-code level characteristics were summarized as medians and compared between study groups using non-parametric tests. Chi-square tests were used to compare insurance and age.

Results



Applications for Bariatric Surgery from January - December 2021

Figure 1

	Never Starters	In Progress	Completed Program	Total
Medicare (n,%)	6 (8.5%)	38 (53.5%)	27 (38%)	71
Medicaid (n,%)	39 (10.7%)	229 (63.1%)	95 (26.2%)	363
Private (n,%)	136 (20.5%)	288 (43.4%)	240 (36.1%)	664
Total	181	555	362	1098

Patient cohort by insurance status

Table 1

	Completed Program	In Progress	p value
Medicaid Medicare Private (n,%)	95 (26.2%) 27 (7.46%) 240 (66.3%)	229 (41.26%) 38 (6.85%) 288 (47.26%)	<0.0001
Proportion residing in zip code with ≤ high school education	43%	20%	0.0344
2020 average house hold incomes for reported zip codes	$54,739	$51,667	0.0163
Reside in a zip code where more people rent homes	45%	48%	0.05
Reside in a zip code where rent tends to be > 50% of income	8%	9%	0.0353
Reside in a zip code where households are more likely to be below poverty line	14.58%	16.82%	0.0095

Comparison Between Cohorts that Completed Surgery vs. In Progress.
Zip Code Level Data Utilized

Table 2

	Completed Program	Never Starters	p value
Medicaid Medicare Private (n,%)	95 (26.2%) 27 (7.46%) 240 (66.3%)	39 (21.55%) 6 (3.31%) 136 (75.14%)	0.05
Proportion residing in zip code that predominantly identifies as white	80%	85%	0.0447
2020 average house hold incomes for reported zip codes	$54,739	$53,573	**
Reside in a zip code where more people rent homes	45%	44%	**
Poverty Index averaged over reported zip codes	109.1	113.47	**
Reside in a zip code where households are more likely to be below poverty line	14.58%	15.16%	**

Comparison Between Cohorts that Completed Surgery vs. Never Starts. Zip Code Level Data Utilized.
** = Non significant difference

Table 3

Summary

- Compared to the COM group, IP patients were more likely to be younger and covered by Medicaid (41.26% vs. 26.2%, p<0.0001).
- Compared to the COM group, IP patients were more likely reside in zip codes characterized by a larger proportion of people with <high school education, lower median household income, more renters, more people whose rent was >50% of their income, and a larger proportion of households below the poverty level. Zip-code characteristics did not differ in race, gender, public assistance/food stamps need, internet access or disability.
- Comparison of NS to COM demonstrated the former was more likely to be younger, covered by private insurance, and reside in zip-codes having a greater proportion of white population. No other differences were significant.

Conclusions

1. Differences in zip-code level SDOH were identified between the IP and COM group.
2. This suggests efforts must be focused on granular analyses of barriers faced by this population to decrease time to surgery and associated attrition rates.

Future directions

A. Study individual patient demographics and medical history via chart review

B. Utilize CMS surveys to better understand social risks affecting individual patients