



# Health Insurance Carrier Does Matter: Clinically Significant Variation in Weight-Related Diagnoses for Medicaid vs Medicare vs Private Insurance vs Self Pay in 83,059 Morbidly Obese Patients

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## Background

Clinical management of morbidly obese patients is a growing challenge. In this milieu, every bit of new information adds to the therapeutic acumen. However, the interaction of insurance status with weight-related medical illnesses is unknown.

## Objectives

To identify variations in the distribution of weight-related medical problems according to the type of health insurance carried by morbidly obese patients.

## Methods

Pre-operative data on 83,059 patients from the Surgical Review Corporation's BOLD database who were about to undergo laparoscopic Roux-en-Y gastric bypass was examined in four groups: Medicaid (n=3,305), Medicare (n=8,643), Private insurance (n=60,163), and Self-Pay (n=1,493). Continuous variables were analyzed using an ANOVA with treatment in the model. Pair-wise comparisons were performed on the least squares means of the treatments calculated from the ANOVA model to find differences in the treatment groups. Distribution of obesity co-morbidities was examined by using a general linear model with treatment in the model and modified for a binomial distribution to account for the co-morbidities being dichotomous variables.

## Results

	Medicaid	Medicare	Private Insurance	Self-Pay	p Value
n (# of patients)	3,305	8,643	60,163	1,493	----
Age (yrs)	49 ± 10	<b>54 ± 12</b>	44 ± 11	44 ± 12	<0.0001
Weight (kg)	138 ± 29	136 ± 31	132 ± 26	139 ± 32	<0.01
BMI	<b>50 ± 9</b>	49 ± 9	47 ± 8	49 ± 9	<0.0001
Sex (F/M %)	87/13	76/24	78/22	73/27	<0.0001
Diabetes Mellitus	38.06%	<b>57.31%</b>	36.69%	34.7%	<0.0001
Hypertension	55.61%	<b>78.16%</b>	58.49%	55.26%	<0.0001
Congestive Heart Failure	3.33%	<b>7.47%</b>	1.58%	1.61%	<0.0001
Ischemic Heart Disease	3.3%	<b>10.75%</b>	3.72%	2.48%	<0.0001
Hyperlipidemia	36.01%	<b>58.72%</b>	42.36%	39.52%	<0.0001
Angina	4.6%	<b>6.07%</b>	2.46%	1.61%	<0.0001
GERD	51.29%	<b>57.17%</b>	49.04%	41.13%	<0.0001
Liver Disease	7.59%	<b>8.45%</b>	7.26%	5.09%	<0.001
Cholelithiasis	25.36%	<b>30.63%</b>	21%	16.68%	<0.0001
Asthma	<b>26.81%</b>	26.37%	17.45%	12.93%	<0.0001
Sleep Apnea	52.13%	<b>60.44%</b>	46.89%	43.07%	<0.0001
Musculoskeletal Pain	48.68%	<b>59.18%</b>	45.31%	42.6%	<0.0001
Back Pain	57.73%	<b>62.94%</b>	48.62%	43.80%	<0.0001
Gout	4.51%	<b>7.35%</b>	3.41%	2.41%	<0.0001
Irregular Menses	27.08%	<b>31.07%</b>	23.85%	16.68%	<0.001
Fibromyalgia	4.96%	<b>8.9%</b>	2.83%	1.61%	<0.0001
Depression	45.66%	<b>50.47%</b>	34.19%	34.19%	<0.0001
Psychologic Impairment	27.84%	<b>31.17%</b>	15.81%	14.27%	<0.0001
Unemployed	46.38%	<b>78.01%</b>	10.99%	14.47%	<0.0001

## Conclusions

- ✓ Weight-related medical problems vary according to the patients' healthcare insurance status.
- ✓ **Medicare** participants are oldest and have the highest rates of DM, HTN, CHF, ischemic heart disease, HPL, angina, GERD, liver disease, cholelithiasis, OSA, musculoskeletal pain, back pain, gout, irregular menses, fibromyalgia, depression, psychologic impairment and unemployment.
- ✓ **Medicaid** had the highest BMI and asthma rates, and was second only to Medicare in most co-morbidities.
- ✓ **Private Insurance** patients had fewer obesity-related problems than did Medicaid and Medicare, and the lowest unemployment rate.
- ✓ Among **Self-Pay** individuals, nearly all other obesity-related co-morbidities were lower than all other groups.
- ✓ **These results suggest that index of suspicion for weight-related medical problems should be heightened when treating obese Medicare and Medicaid patients.**

## References

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