# Does Previous Enrolment in a Preoperative Intensive Medical Weight-Loss Program Improve Bariatric Surgery Outcomes?

Matthew Cornacchia[1], Amer Jarrar[1], Amy Neville[1], Caolan Walsh[1], Joseph Mamazza[1], Robert Dent[1], Ruth McPherson[2], Marry-Ellen Harper[3], Nicole Kolozsvari[1]
[1]The Ottawa Hospital; [2]The University of Ottawa Heart Institute; [3]University of Ottawa

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## BACKGROUND

- Obesity is a highly prevalent chronic disease. As of 2018, 36.3% and 26.8% of Canadians aged 18 and older were classified as overweight and living with obesity, respectively.[1]
- Bariatric surgery remains the gold standard for sustainable weight loss when compared to medical management.[2,3]
- Intensive medical programs (IMPs) consist of low-calorie diets with behavioural and education classes designed to provide patients with the knowledge and life skills to adopt a lifestyle that promotes healthy eating and physical activity.[4]
- **The objective of this study was to determine whether completion of a medical intensive program affects postoperative outcomes following bariatric surgery.**

## METHODS

- **Design:** Retrospective cohort study of patients who underwent previous enrollment in a preoperative IMP followed by bariatric surgery **(Intervention Group)**, versus those who underwent the standard surgical program **(Control Group)** at The Ottawa Hospital (TOH) Bariatric Centre of Excellence (BCoE) between September 2009 and January 2021.
- **Primary outcome: Post operative** 1-year percentage total body weight loss (%TBWL)
- **Data:** prospectively maintained Ottawa Hospital Weight Management Clinic medical program database and the Ontario Bariatric Network (OBN) Registry.
- **Analysis:** Groups were compared using a two-sample t-test. ANCOVA analysis was used to compare the primary outcome while adjusting for any confounding factors identified.

## RESULTS

**Table 1: Patient characteristics at baseline**

| | All patients (N=1562) | Control (N=1347) | Intervention (N=215) |
|---|---|---|---|
| **Age** | 45.01(10.18) | 44.64(10.3) | 47.34(9.08) |
| **Sex** | | | |
| Male n (%) | 266(17.03) | 220 (16.33) | 46 (21.4) |
| Female n (%) | 1296(82.97) | 1127 (83.67) | 169 (78.6) |
| **Medical comorbidities** | | | |
| Obstructive sleep apnea **n (%)** | 862(55.19) | 736 (54.64) | 126 (58.6) |
| Diabetes **n (%)** | 468(29.96) | 401 (29.77) | 67 (31.16) |
| Hypertension **n (%)** | 739(47.31) | 632 (46.92) | 107 (49.77) |
| **Type of surgery** | | | |
| Roux-en-Y gastric bypass n (%) | 1376(88.09) | 1191 (88.42) | 185 (86.05) |
| Sleeve gastrectomy n (%) | 186(11.91) | 156 (11.58) | 30 (13.95) |
| **Preoperative values** | | | |
| Initial total weight in LB | 272.66(53.36) | 273.14(54.43) | 269.7(46.11) |
| Initial waist circumference | 133.07(15.42) n=1296 | 133.46(15.56) n=1131 | 130.42(14.13) n=165 |
| Initial BMI | 44.65(7.36) | 44.74(7.5) | 44.08(6.41) |

**Table 2: Comparing IMP with standard surgical program for change in medical comorbidities**

| | Control | | | Intervention | | |
|---|---|---|---|---|---|---|
| **Co-morbidities** | Pre-op **N(%)** | 1 Year post op **N(%)** | %Δ | Pre-op **N(%)** | 1 Year post op **N(%)** | %Δ |
| **Sleep Apnea** | 736(54.6) | 568 (42.4) | -12.2 | 126(58.6) | 103(48.4) | -10.2 |
| **Hypertension** | 401(29.8) | 153 (11.4) | -18.4 | 67(31.2) | 25(11.7) | -19.5 |
| **Type 2 Diabetes** | 632(46.9) | 291 (21.6) | -25.3 | 107(49.8) | 54(25.2) | -24.6 |

**Table 3: Comparison of postoperative weight loss outcomes before IMP and standard surgical program**

| %TBWL | Control | | Intervention | | P-Value |
|---|---|---|---|---|---|
| | N | Mean(SD) | N | Mean(SD) | |
| 1 Year | 1347 | 26.8(9.9) | 215 | 24.37(10) | 0.01 |
| 5 Year | 116 | 23.2(12) | 21 | 26.79 (16.2) | 0.40 |

## Conclusion

- **Participation in an IMP had no clinically relevant impact on 1 Year weight loss outcomes.**
- **In instances where intensive preoperative programs are mandated, this simply delays treatment, is cost-prohibitive, increases patient attrition and is overall ineffective.**

### Limitations

- Information bias because of patients lost to follow up. This is significant in obtaining 5-year postoperative weight loss data and our ability to reach credible long term follow-up data at beyond 1 year.
- The study is naturally limited in data quality as a Retrospective review of prospectively maintained databases without review of individual charts.
- We are unable to assess the effect of the confounding bias related to other factors affecting weight loss including postoperative lifestyle behaviors, adherence to diet and physical activity or taking medications