Evaluating An Existing BMI Reduction Program In A Rural Family Practice: A Quality Improvement Project

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INTRODUCTION

Medicare's Intensive Behavioral Therapy (MIBT)

- Obesity is the fastest growing public health issue of our time and is defined as a body max index (BMI) of 30 or greater (Thorpe, 2009).
- The 2012 direct healthcare cost of obesity was $147 billion and the estimated 2018 cost is $344 billion (Carroll, Fiscella, Epstein, Sanders, & Williams, 2012).
- Many chronic diseases are directly associated with obesity: heart disease, stroke, type 2 diabetes, and certain types of cancers (Hoerger et al., 2015).
- The 5A's Framework counseling in MIBT is provided by a primary provider in a primary care setting for Medicare patients who are obese. The 5A's Framework consists of: (1) Assess, (2) Advise, (3) Agree, (4) Assist, and (5) Arrange.
- Medicare funds face-to-face visits weekly for the first month, face-to-face visits every other week for months two through six, and face-to-face visits every month for months seven through twelve. Prior to implementing visits seven through twelve the patient must have lost three kilograms. If the patient has not lost three kilograms the program ends. MIBT counseling will take a minimum of fifteen minutes and may be implemented and billed on the same day as a normal visit.
- The lack of weight counseling is pragmatic; from 1995-1996 weight counseling decreased to 7.8% of visits and from 2007-2008 weight counseling decreased to 6.2% of visits, OR 0.64, 95% CI [0.53, 0.79] (Kraschnewski et al., 2013).
- Behavioral therapy programs for obesity have not been a priority for the majority of private insurance companies or government funded insurance programs. Medicare was reimbursing for gastric bypass surgery in 2006 before it considered MIBT in 2011. MIBT is cost effective preventive care versus costly reactive care (Hoerger et al., 2015).

Statement of Purpose/Project PICOT

- The purpose of this study is to evaluate an existing BMI reduction program utilizing MIBT in a small rural family practice clinic. The following PICOT question will guide this project: In Medicare eligible obese patients in a small rural family practice clinic (P), how do patients who opted into MIBT (I), compare to patients who opted out of MIBT (C), in BMI reduction (O), from January 2012 to December 2016 (T)? The primary outcome statement: Has implementing MIBT in a rural family clinic improved the BMI by 10% or more?

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MATERIALS AND METHODS

Methodology

This is a descriptive and longitudinal QI project of a small rural family clinic's implementation of MIBT. The primary group consists of adult Medicare patients of a BMI of 30 or greater who opted into MIBT. The secondary group consists of adult Medicare patients of a BMI of 30 or greater who opted out of MIBT. The only exclusions were non-Medicare patients. Sample size calculations were 128 charts for each group from January 2012 to December 2016. Using a confidence interval of 95%, a maximum of 5% margin of error, a population size of 128, with a 50% response distribution, a minimum of 97 charts were required at baseline and follow-up (Raosoft, Inc., n.d.). Ratio level data were analyzed with SPSS Independent-Samples t test, ANOVA, and Cohen's d coefficient as an index to describe the magnitude of the effect from the intervention with values .20, .50, and .80 corresponding with small, medium, and large respectively (Holcomb, 2013; Polit, 2010). IBM SPSS Statistics version 24 (Chicago, IL) was utilized for statistical understanding. The level of significance was set at $p \leq .05$. Nominal level data were analyzed with descriptive statistics and Chi-square of Independence.

RESULTS

Percent Change in Initial BMI to Final BMI

	N	Mean	Std. Deviation	Std. Error	Interval for Mean Lower Bound	Interval for Mean Upper Bound	Minimum	Maximum
2013 Opt into BMI program	32	2.1022	4.62760	.81805	.4338	3.7706	-11.73	11.89
2013 Opt out of BMI program	32	-2.1369	5.95212	1.05220	-4.2828	.0091	-27.74	4.89
2014 Opt into BMI program	32	3.1113	6.69748	1.18396	.6966	5.5259	-4.81	31.32
2014 Opt out of BMI program	32	-.1934	2.94652	.52088	-1.2558	.8689	-9.51	4.30
2015 Opt into BMI program	32	.7909	4.89288	.86495	-.9731	2.5550	-9.95	13.40
2015 Opt out of BMI program	32	.0412	2.86992	.50734	-.9935	1.0760	-6.19	6.75
2016 Opt Into BMI Program	32	2.6509	5.81905	1.02867	.5529	4.7489	-10.40	14.42
2016 Opt out of BMI Program	32	-.9884	4.03619	.71350	-2.4436	.4668	-12.65	5.07
Total	256	.6722	5.13848	.32115	.0398	1.3047	-27.74	31.32

Demographics

- **Gender & Age Significance** This project consisted of a four year baseline chart review of two groups (n = 256) and a follow-up chart review (n = 256). All of the 256 subjects were included in the analysis. There was no statistical significance between gender in the opted into and opted out of MIBT for all years $\chi 2$ (2) = 1.36, p = .987. There was statistically significant difference between age in the opted into and opted out of MIBT for all years combined F (7, 248) = 2.70, p = .01.

Results

- **2013 Initial and Final BMI** The initial mean BMI of the opted into MIBT was 38.6 (SD = 7.89) and final mean BMI was 37.7 (SD = 7.37) this was statistically significant t(31) = 2.50, p = .020, 95% CI [.165, 1.63]. The initial mean BMI of the 2013 opted out of MIBT was 34.9 (SD = 4.06) and final mean BMI was 35.6 (SD = 4.47) this was statistically significant t(31) = -2.16, p = .039, 95% CI [-1.42, -.0406]. The percent mean change in BMI of the 2013 opted into MIBT was 2.1% (SD = .818) and the opted out of MIBT was -2.14% (SD = 5.95) this was statistically and clinically significant t(62) = 3.181, p = .002, 95% CI [1.57, 6.90] d = .8
- **2014 Initial and Final BMI** The initial mean BMI of the opted into MIBT was 39.3 (SD = 6.69) and final mean BMI was 35.6 (SD = 4.47) this was statistically significant t(31) = 2.65 , p = .013, 95% CI [.832, 6.44]. The initial mean BMI of the 2014 opted out of MIBT was 34.8 (SD = 3.67) and final mean BMI was 34.9 (SD = 4.22) this was not statistically significant t(31) = -.495 , p = .62, 95% CI [-.512, .312]. The percent mean change in BMI of the 2014 opted into MIBT was 3.11% (SD = 6.70) and the opted out of MIBT was -.193% (SD = 2.95) this was statistically and clinically significant t(42.6) = 2.56, p = .014, 95% CI [.695, 5.91], d =.6

RESULTS

- **2015 Initial and Final BMI** The initial mean BMI of the 2015 opted into MIBT was 39.7 (SD = 7.05) and final mean BMI was 39.3 (SD = 6.91) this was not statistically significant t(31) =1.02, p = .31, 95% CI [-.378, 1.13]. The initial mean BMI of the 2015 opted out of MIBT was 34.9 (SD = 5.53) and final mean BMI was 37.7 (SD = 7.33) this was not statistically significant t(31) = -1.67, p = .10, 95% CI [-6.24, .620]. The percent mean change in BMI of the 2015 opted into MIBT was .791% (SD = 4.89) and the opted out of MIBT was .0412% (SD = 2.87) this was not statistically significant but was clinically significant t(50) = .748, p = .45, 95% CI [-1.26, 2.76], d = .2
- **2016 Initial and Final BMI** The initial mean BMI of the 2016 opted into MIBT was 38.7 (SD = 7.16) and final mean BMI was 35.9 (SD = 6.04) this was not statistically significant t(31) = 1.68, p = .10, 95% CI [-.608, 6.28]. The initial mean BMI of the 2016 opted out of MIBT was 35.5 (SD = 5.63) and final mean BMI was 35.9 (SD = 6.04) this was not statistically significant t(31) = -1.39, p = .17, CI [-.931, .175]. The percent mean change in BMI of the 2016 opted into MIBT was 2.65% (SD = 5.82) and the opted out of MIBT was -.988% (SD = 4.04) this was statistically and clinically significant t(55) = 2.91, p = .005, 95% CI [1.13, 6.15], d = .7

CONCLUSIONS

Conclusion

- Clinical significance was found for BMI loss for patients who opted into MIBT versus patients who opted out of MIBT from 2013 to 2016. The primary objective was not met as the clinic could not improve BMI reduction by 10% or more from 2013 to 2016.
- Recommendations were made from themes in the literature: (1) Primary providers require continuing education in the implementation of the 5A's Framework in MIBT, (2) To decrease ambivalence to obesity, BMI should be discussed with every patient and as appropriate MIBT should be offered, (3) All steps of the 5A's Framework should be provided electronically to the patient and team, (4) A need for a multidisciplinary approach in a rural area, and (5) Continue to monitor and publish clinic BMI changes.
- A systematic approach for screening and treating obesity will be more successful. An intuitive documentation system is critical to help primary providers and medical assistants systematically perform all elements of the 5A's Framework. Communication between team members and the patient can be followed retrospectively online by all members of the team and the patient. Standardized forms, measuring patient's level of physical activity, nutrition, and BMI, can help create reproducible interventions. Ultimately publishing studies will result in further assisting primary providers in treating obesity.

Strength and Limitations

- This evaluation can only be generalized to similar clinics practicing in rural areas in the Midwest, United States. Patients dictated how long they participated in MIBT which could potentially affect how much weight they lost. Many potential participants were never offered the program. The community in which the clinic is located became a food desert in 2016 and does not have a gym. Future studies should include clinics in larger cities with more resources and include obese youth and adult patients.

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