Evaluation of a One-to-One Low-calorie Meal Replacement Program (LCMRP) on the Management of Adult Obese Patients with a BMI $\geq 35$ with 2 risk factors or BMI $\geq 40$ in the Outpatient Population

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Disclosure

I have no sponsorship, monetary support or conflict of interest from any commercial source.

Katzmarzyk P T, Mason C CMAJ 2006;174:156-157
Nobody is immune

- The growing epidemic is seen across:
  - Ethnic groups
  - Gender
  - Age groups
  - Economic levels

- Four-fold increase in morbid obesity in Canada in 20 years.
Bariatric Medical Clinic Mission

The HHS Bariatric Medical Clinic is a center of excellence that provides comprehensive services led by a multidisciplinary team for obese adults in the HNHB LHIN and surrounding areas. We provide collaborative, evidence-based, patient-centered care in a non-judgmental, inclusive environment focusing on identification and treatment of obesity-related health conditions, safe weight management, healthy lifestyle changes, and pre/post surgical care.
Staffing

Multidisciplinary Team

- 4 Physicians
- 1.0 FTE Nurse Practitioner
- 0.9 FTE RD
- 0.8 FTE SW
- 0.5 FTE OT
- 1.0 FTE Administrative Support
Role of Clinic

- BMI > 40
- BMI > 35 with co-morbid illness
- >18yrs
- Contra-indications to Surgery
- Patients declining surgery
- Direct referral (not through portal)
**Status March 2009**

**Two Centres of Excellence**
1. Humber River Hospital
2. New program at SJHH with Medical Program at Hamilton Health Sciences

No Network

200+ OOC approvals/month

**Status March 2010**

**Four Centres of Excellence**
1. Hamilton Bariatric Centre of Excellence
   (St. Joseph’s Healthcare Hamilton & Hamilton Health Sciences Centre)
2. University of Toronto Collaborative Bariatric Surgery Program
   - Humber River Regional Hospital
   - Toronto East General Hospital
   - St. Michael’s Hospital
   - St. Joseph’s Health Centre
   - The Hospital for Sick Children
   - University Health Network’s Toronto Western Hospital site
3. Ottawa Bariatric Centre of Excellence
4. Guelph Bariatric Centre of Excellence

**Two Regional Assessment and Treatment Centres**
1. Windsor Regional Hospital
2. Thunder Bay Regional Hospital (opened July)

**Two Pediatric Regional Assessment & Treatment Centres**
1. Hospital for Sick Children
2. Children’s Hospital of Eastern Ontario

**Ontario Bariatric Network**

OOC approvals <30/month
Future Vision of Network

Network Advisory Board

- Toronto Collaborative Centres of Excellence (including Humber)
- Ottawa Centre of Excellence
- Windsor Regional Assessment & Treatment Centre
- Kingston
- Pediatric Centres
- Hamilton Centre of Excellence
- Sudbury Assessment & Treatment Centre
- Guelph Centre of Excellence

MOHLTC

The number of bariatric surgery procedures capable of being performed yearly is small in comparison with the number of individuals with severe obesity. Flegal KM, Carroll MD, Ogden CL, Curtin LR Prevalence and trends in obesity among US adults, 1999-2008. JAMA 2010;303: 235-241
It is critical that nonsurgical treatment approaches be developed and used.
Treatment Options available

- Lifestyle/Behavioral modification (26 weeks)
- LCMR + B-Mod (26 weeks + Maintenance, Total = 1 year)
- Individual counseling (one-to-one) +/- partial meal replacement
- Pharmacotherapy
- Treatment of co-morbid illness
Modest Weight Loss Prevents Diabetes in Overweight and Obese Persons with Impaired Glucose Tolerance

58% (95% CI=48-66)
Effect of Weight Loss With Lifestyle Intervention on Risk of Diabetes Incidence

![Graph showing the relationship between change in weight from baseline and incidence rate per 100 person-years. The graph indicates an increasing trend as weight decreases from the baseline.]

Diabetes Care 2006
Low Calorie Meal Replacement Program

Phase I
weeks 1-12 (12 weeks)

- Optifast program, 4 shakes a day
- Medical supervision
- Laboratory measures
- Weekly group sessions for information and support
Low Calorie Meal Replacement Program
Phase II
weeks 13-19 (7 weeks)

- Gradual introduction of food (transition)
- Weekly group sessions for nutrition information with continued behavior modification
Low Calorie Meal Replacement Program
Phase III
weeks 20 and beyond

- Group information and support
- Ongoing physical activity plan
- Focus on long-term healthful eating
- Regular weighing
- Continued food inventory
Partial meal replacement program

- 2-3 meal replacement shakes per day × 6 months
- 1-2 regular meals incorporated with shakes each day (900-1100 Kcal)
- Visits with physician and Dietitian at initial assessment
- Visits with physician every 3-4 weeks
- One-to-one education and support
Partial meal replacement program

- Patients who are unable or unsuitable for the group intervention
- Patient cannot afford the money for the full meal replacement
- Old age >70
- Patient Medical condition not suitable for full meal replacement
- Transportation
Evaluation of a one-to-one low calorie meal replacement program (LCMRP) on the management of adult obese patients with a BMI $\geq 35$ with 2 risk factors or BMI $\geq 40$ in the outpatient population
Much of the current research pertains to the management of overweight and mildly obese individuals (BMI 25-35), but there remains paucity of research available for the management of severely obese patients (BMI ≥ 35).
Intervention

- LCMRP is a 1-to-1 program for severely obese patients who are required to consume 2-4 LCMR’s each day, which may be combined with food for a total daily intake of 900-1100 kcal.
Objectives

- To provide an evidence-based weight management strategy for the severely obese population that improves patient outcomes.
Study Design

- A retrospective chart review conducted on 15 patients.
- Data will be collected over a 6 month period.
- Laboratory measurements (HbA1c, ApoB, FBG, CRP, Lipid Profile) will be obtained at base line and at 6 months.
- Patient's weight, BP, and BMI will be collected at base line, 3 month, and 6 month periods.
Results

- Average weight loss at 3 months was 10.5Kg, which corresponded to a 7.1% weight reduction from baseline.
- Average BMI decreased by 3.3 from baseline.
- SBP and DBP decreased by 10mmHg, and 2.1mmHg from baseline, respectively.
Weight change over the course of the LCMRP

![Graph showing weight change over the course of the LCMRP](image-url)
% Wt Loss across genders

![Bar chart showing % Weight Loss for males and females](chart.png)
SBP decrease over LCMRP
Conclusion

- This interim analysis is based on 3 months evaluation, and suggests that patients who are unable or unsuitable for the group intervention are able to attain clinically significant weight loss with medical supervision.
Study Limitations

- This is a quality assurance / retrospective type of research.
- Small sample size.
- Six month data collection is currently in progress.
- More research required to evaluate the long term effect of the meal replacement.
The end