

Protocol:

Intensive Weight Management Programme (IWMP)

Outline:

The Bariatric Medicine & Surgery (BMS) service in Galway University hospital provides a multidisciplinary team (MDT) approach for the management of severe obesity (BMI >40kg/m²).

There are a variety of interventions that are open to patients attending the service including a diet & physical activity programme (CROI CLANN) as well as Bariatric surgery for suitable candidates; however these do not meet the needs of all patients. The aim of this intervention is to support patients in the improvement of medical risk factors through an intensive weight management programme over a period of 24 weeks.

This document outlines the standard operating procedures underlying the roles of the multidisciplinary team, which consists of consultant/registrar, obesity CNS & dietitian responsible for the management of the BMS service.

Definitions and abbreviations:

- Bariatric Medicine & Surgery (BMS)
- Galway University Hospital (GUH)
- Multidisciplinary Team (MDT)
- Body Mass Index (BMI)

General protocol overview:

Initial medical assessment

- Baseline bloods taken include, but are not restricted to: Urea & electrolytes, liver function tests (LFT), renal profile (RP), bone profile, fasting glucose, HbA1c, thyroid function tests (TFT), full blood count (FBC), fasting lipids, vitamin B₁₂, folate
- Patient is commenced on other medication as appropriate (e.g. anti-hypertensives, nicotine patches).
- The need for oral hypoglycaemic agents or insulin in patients with Type 2 diabetes is monitored. As a general guide insulin sensitisers (e.g. metformin) may be continued. However if the patient is currently taking sulphonylureas (e.g. diamicron MR), insulin secretagogues (e.g. replaglanide) or insulin, the dose should be reduced by 50% as soon as the patient commences the liquid low calorie diet. Blood glucose should then be monitored pre-meal and at bedtime (qds) for 3 days with a view to discontinuing these medications if any blood sugars are ≤ 5 mmol/L. *Note:* it is not unusual for insulin doses in excess of 100u per day to be discontinued in these patients once the liquid low calorie diet regime has begun.
- Referral to other clinical teams is made as appropriate e.g. cardiology, surgical.

Dietary strategy: meals and supplementation:

- Patient is commenced on low calorie milk based diet (see Appendix 3). Other food based options (a conventional calorie controlled diet) may be considered if the milk diet is not tolerated by individuals.
- Nutritional supplements are advised to ensure the liquid low calorie diet is nutritionally complete, which are:
 1. Multi-vitamin (Sona Balance, Sona Multiplus or Boots A-Z multivitamin & mineral) – once daily
 2. Omega 3,6,9 fatty acids (Omecor) – once daily
- In addition patients are recommended to drink a salty drink daily (e.g. Stock cube or ½ teaspoon salt in water) to meet sodium requirements
- Patients are also commenced on a bulking laxative (e.g. Fybogel) in an effort to prevent constipation. If patients are already on laxative therapy, this should be continued.

Programme inclusion criteria and specifications:

- Of note, all cases being considered for commencement are discussed by the Bariatric MDT.
- BMI >35 kg/m²
- A maximum of three patients may be commenced on the milk diet at each bi-weekly clinic.

Exclusion criteria:

- Age <18 or >75 years
- Pregnancy or breastfeeding
- Significant renal disease
- Significant cardiac disease
- Recent MI or CVA
- Uncontrolled hypothyroidism
- Significant learning difficulties
- Significant psychiatric disorders
- Inability to commit to clinic visit schedule
- Inability to tolerate milk

Initiation of IMWP: procedures:

- Body weight, height, blood pressure, baseline ECG recorded.
- Full history and physical examination by medical team, CNS & Dietitian, including a comprehensive nutrition history.
- Programme protocol discussed with patient, including potential risks and benefits.
- Nutritional requirements calculated and a dietary regimen is devised for the patient by dietitian.
- Coping strategies and distraction techniques with respect to hunger are discussed with the patient prior to initiation. Written information is provided.

- Weight loss goals and time frames are discussed with the patient.
- Baseline blood tests taken.
- Smoking cessation advice and resources given, when appropriate.

Ongoing monitoring (weight loss phase – weeks 1 to 8):

- Patient on low-calorie milk-based diet only, as described below.
- Fortnightly visits to clinic, with body weight and blood pressure monitoring.
- Medication reviewed by medical team.
- Patient is reviewed by the Dietitian.
- The weight loss phase is used as an opportunity to provide education on various topics such as:
 - Record keeping
 - Physical activity
 - Environmental control
 - Food labelling
 - Calories in foods
 - Healthy eating
 - Weight loss maintenance
- Blood test taken, which include (but are not restricted to) urea & electrolytes, LFT, renal profile, FBC, TFT's, lipid profile, HbA1c.

Food reintroduction phase (weeks 8 to 16):

Weeks 1 & 2: Patients are asked to include a meal (dinner) consisting of a specific quantity of a protein food as well as a specific quantity of vegetables. This meal should be weighed using a digital food scales. The milk volume allocation should be reduced accordingly. The protein requirements of the patient should continue to be met by the diet. Monitoring should otherwise continue as in phase 1.

Weeks 3 & 4: Patients are asked to include 2 meals per day (lunch & dinner) consisting of 2 portions of protein foods, 4 portions of vegetables and 2 portions of carbohydrate foods. All foods should continue to be weighed. The milk volume is reduced substantially at this stage. Monitoring should otherwise continue as in phase 1.

Weeks 5 & 6: Patients are asked to include 3 meals per day (breakfast, lunch & dinner). Individual preferences should be taken into account. Again milk volume should be reduced as appropriate. Monitoring should otherwise continue as in phase 1.

Weeks 7 & 8: Patients can introduce some low calorie snacks into their diet. The full food reintroduction phase is now complete. Milk can continue to be included within healthy eating guidelines. At this stage a healthy eating regimen should be established in line with healthy eating guidelines. Monitoring should otherwise continue as in phase 1.

Weight maintenance phase (week 16-24):

- Patients continue to attend every 2 weeks.
- Monitoring continues as per phase 1 & 2.
- Issues such as relapse management, planning meals in advance, managing difficult meal timing and goal setting. Self-monitoring is vital at this stage and participants are encouraged to continue this practice on discharge.

Ongoing Support:

On completion of the IWMP, patients are followed up to ensure continued support and to aid with relapse management. Upon completion they are offered follow up appointments after 8 weeks, 16 weeks, 24weeks and afterwards if requested.

Premature discharge of participant from IWMP:

- Self-discharge
- Not tolerating milk volume
- Adverse effects as a results of programme
- Non-compliance with milk/laxatives/multivitamins
- Multiple lapses resulting in participants consuming excess calories
- Non-attendance at appointments
- On instruction from medical team

Low calorie milk-based diet outline:

Time	Allowance
8am	325ml semi-skimmed milk
10am	325ml semi-skimmed milk
12pm	325ml semi-skimmed milk
2pm	Either: 1 stock cube in a glass of water or 1 small sachet of salt in a glass of water
3pm	325ml semi-skimmed milk
6pm	325ml semi-skimmed milk
8pm	325ml semi-skimmed milk
10pm	325ml semi-skimmed milk

Supplements:

- Centrum Advance or Boots A-Z multivitamin (one a day)
- Omega 3,6,9 supplement.
- Fybogel 1-2sachets per day.

Notes:

- Unrestricted: Water, Tea, Coffee (no sugar; milk used from allowance above)
- Maximum 500mls “diet” minerals.

Summary:

Daily dietary intake	Quantity	Electrolytes	Quantity
Fluid volume	2275 ml	Sodium	53 mmol
Energy	1045 kcal	Potassium	87 mmol
Protein	75 g	Calcium	68 mmol
Fat	36 g		
Carbohydrate	113 g		

Nutritional intervention details:

Composition of the milk based low calorie diet (Luton & Dunstable hospital low calorie liquid diet)

	2272 ml (4 pints) Semi-skimmed milk	SonaBalance or Boots A-Z multivitamin (1 dose)	Total	Irish RDA 1999 (18-64yr)	
				Male	Female
Energy	1045 kcal	0 kcal	1045 kcal		
Protein	75g	0 g	75 g	0.75g/kg/day	
Fat	36g	0 g	36 g		
n-6 PUFA	Trace	0		2 % of dietary energy	
n-3 PUFA	Trace	0		0.5% of dietary energy	
Carbohydrate	113g	0 g	113g		
Sodium	53 mmol	0 mmol	53 mmol		
Potassium	87 mmol	0	87 mmol	79 mmol	79 mmol
Calcium	2726 mg	162 /200mg	mg	800 mg	800 mg
Magnesium	272 mg	100 /60mg	372/332 mg		
Phosphorus	2135 mg	109 /0mg	mg	550 mg	550 mg
Iron	1.36 mg	18 /14mg	mg	10 mg	14 mg
Zinc	9 mg	15 /10mg	24 /19mg	9.5 mg	7 mg
Vitamin D	22.7 ug	10/5 ug	32.7/27.7 ug	0-10 ug	0-10 ug
Vitamin K		25/75ug	25/75 ug		
Vitamin A		1050 /400ug	1050/400ug		
Vitamin E	68 mg	30/12 mg	98/80 mg		
Vitamin C	22.7 mg	60/80 mg	82.7/102.7mg	60 mg	60 mg
Vitamin B6	1.36 mg	2/1.4 mg	3.36/2.76 mg	15 ug / g protein	
Thiamine	0.9 mg	1.5 /1.1mg	2.4/2 mg	100 ug / MJ	
Riboflavin	3.86 mg	1.7/1.4 mg	5.6/5.26mg	1.6 mg	1.3 mg
Niacin	2.27 mg	20/16 mg	22.27/18.27 mg	1.6 mg/MJ	
Vitamin B12	9.08 ug	6/2.5 ug	11.58 ug	1.4 ug	1.4 ug
Folate	113 ug	400/200 ug	513/313 ug	300 ug	300 ug

RDA, recommended daily allowance;

PUFA, polyunsaturated fatty acids.

Low calorie dietary regimen following food re-introduction in phase two/ three:

Meal	Food	Kcals	Protein g
Breakfast	<ul style="list-style-type: none"> • 2 slices of brown / white bread • 1 pat of Low Low • Tea / coffee (no sugar) 	140 25	4 0
Mid-morning	<ul style="list-style-type: none"> • 1 medium piece of fruit 	40	0
Lunch	<ul style="list-style-type: none"> • 1 scoop of mashed potato • 2 slices of meat / 1 breast of chicken (no breadcrumbs or batter) / 1 fillet of fish (~ 3oz) • 4 tablespoons veg of the day • 200ml low fat milk • 1 diet yoghurt 	70 130 – 180 40 90 60	2 21 – 30 1 7 7
Mid-afternoon	<ul style="list-style-type: none"> • 1 medium piece of fruit 	40	0
Tea	<ul style="list-style-type: none"> • 2 slices of white / brown bread • 1 pat Low-Low • 1 small tin of tuna / 2 oz hard cheese / 2 slices of ham / 1 chicken breast / 2 boiled eggs • Heaped plate of lettuce / tomato / onion / sweetcorn / beetroot / mixed bean salad NO coleslaw/potato salad/mayonnaise/dressing • Tea / coffee (no sugar) 	140 25 180 – 240 40	4 0 14 – 21 1 - 7
Before bed	<ul style="list-style-type: none"> • 1 diet yoghurt 	60	7
Total		1134	75