Variations in weight management services in Scotland: a national survey of weight management provision

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Abstract

Background: Despite National guidance recommending their use, there is uncertainty regarding the best way to deliver weight management services across the UK and worldwide.

Methods: To ascertain access, provision and interventions used in lifestyle tier 2 and specialist tier 3 weight management services in Scotland, a survey was distributed to all mainland health boards covering pathways for referral, eligibility criteria, intervention format, and definitions of attendance completion and adherence.

Results: 9 Health boards provided information on their weight management services. The provision of services was low. Only 4 health boards offered services for those with a BMI 25-30kg/m^2. Lifestyle tier 2 services were mainly weekly or fortnightly group sessions for 8 to 12 weeks delivered by dietitians or community workers. Specialist tier 3 services were largely similar to lifestyle tier 2 services. The provision of specialist interventions including pharmacotherapy, cognitive behavioural therapy sessions and low calorie prescribed diets was low.

Conclusions: This national survey has illustrated large disparities in the provision of weight management across Scotland, a likely consequence of uncertainty regarding best practice. There is a clear requirement for the evaluation of existing services to identify those which lead to the largest improvements in health outcomes and are cost-effective.

Keywords: Obesity, weight management, survey, service provision

Introduction

Mirroring the situation worldwide, obesity is a widespread problem across Scotland with an estimated prevalence of 27% and a further 38% of adults overweight in 2013[1]. The cost implications of this disease burden are considerable and the total cost to the National Health Service (NHS) in Scotland of obesity and obesity related illness exceeded £175 million between 2007 and 2008[2].

Current United Kingdom(UK) national guidelines recommend the provision of multicomponent lifestyle weight management programmes by the NHS to promote modest weight loss[3, 4] as part of a tiered approach to weight management. These programmes typically form the lifestyle tier 2 and Tier 3 components of the four tiered obesity care pathway developed by the NHS Commissioning Board [5], with tier 1 representing population based public health interventions and obesity prevention and tier 4 representing bariatric surgery (Figure 1). Although there are wide variations in the provision of these services, lifestyle tier 2 programmes typically consist of dietary advice, physical activity and behavioural therapies and are generally delivered over 12 weeks. Often these programmes are delivered within the primary care setting, though some areas have commissioned commercial organisations to deliver weight management services in the community. Specialist treatments for more severely obese patients such as pharmacotherapy, specialist dietary advice and psychological interventions are delivered by multi-disciplinary teams as part of tier 3 services.

Despite the ongoing delivery of these lifestyle weight management programmes, the evidence for their effectiveness in improving patient health outcomes remains uncertain[3]. In particular, the UK National Institute for Health and Care Excellence (NICE) identified a series of gaps in the evidence base regarding the long-term efficacy of these lifestyle interventions. To date, only a handful of studies have published data from the UK into the efficacy of lifestyle[6-9] and specialist weight management interventions[10-14], though these studies have generally been limited to 12 month follow-up and have been conducted within research settings.

A severe lack of published evidence regarding the effectiveness of weight management interventions has led to a great deal of uncertainty regarding the best way to deliver these services across the UK and worldwide. We have therefore surveyed mainland health boards in Scotland in order to examine access, provision and interventions used in lifestyle tier 2 and specialist tier 3 weight management services.

Methods

To survey the available services, contact was made via email or phone with the leads of the weight management programmes in the eleven mainland health boards in Scotland during September 2014; when the service lead was not known, contact was made initially with Public Health Departments. Service leads were either senior dieticians or senior public health nutrition/ health improvement staff with dietetic backgrounds. Weight management programmes were defined as tier 2 services (which in Scotland are funded through a centrally allocated budget so are well defined within health boards) and NHS run specialist tier 3 services. Standardised questionnaires were used to obtain the following information regarding the available weight management service:

- The pathway for referral
- Eligibility criteria
- Intervention format
- Components of intervention provided
- Definitions of attendance, completion and adherence

To develop the questionnaire, the 40 component CALO-RE taxonomy was used to identify the behaviour change techniques used within the intervention[15]. Questionnaires were 6 pages long and estimated to take less than one hour to complete, completed by the lead of each service by email or post and returned to the investigator. Data was extracted from returned questionnaires and combined into tables. Referral data were standardised based on health board population size to allow comparison between boards and anonymity of the results. Follow-up contact was made by email and/or phone up to three times to remind about questionnaire completion and to clarify unclear details.

Results

Of the 11 mainland health boards in Scotland approached, 9 were willing to provide information regarding their lifestyle tier 2 and specialist tier 3 services and one provided information that they did not have a tier 3 service but were unwilling to provide detail of their tier 2 service. One service was unwilling to provide any information on services. 2 of the 9 participating health boards did not have an NHS-funded lifestyle tier 2 service.

Table I provides information regarding the provision of and access to lifestyle tier 2 and specialist tier 3 weight management services by health boards. Of the 9 participating health boards, half accept self-referrals into lifestyle tier 2 services. All referrals into specialist tier 3 services are via general practitioners or secondary care clinicians.

Since many of the services are newly-established, few were able to provide information regarding completion rates. Of the services that could, completion rates were over 50%, though one lifestyle tier 2 service and one specialist tier 3 service reported 40% and 20% completion rates, respectively. However, each service has distinct definitions for completers making comparison of completers by service difficult. Typically, to define completers services use a specified percentage of sessions attended, though one lifestyle tier 2 and one specialist tier 3 service use patient progress data.

Table II presents details regarding the eligibility criteria and intervention format of the programmes delivered. Both lifestyle tier 2 and specialist tier 3 services are typically available to patients over the age of 18, though two tier 2 services offer the intervention to patients aged 16 years or above. Only one health board has an upper age limit of 44 for their specialist tier 3 service.

No trend in BMI eligibility criteria was observed for either lifestyle tier 2 or specialist tier 3 services. Only three lifestyle tier 2 services offer their intervention to overweight patients (>25-29.9kg/m²) with the remaining programmes offering the service to patients with BMIs above 30kg/m² only. The lower BMI limit for specialist tier 3 services ranged from 30kg/m² to 40kg/m² and no upper limit was set. However, the lower limit for specialist tier 3 services was generally reserved for patients with comorbid conditions such as cardiovascular disease or osteoarthritis. Within these health boards, patients without a comorbid condition and with a BMI 5kg/m² higher than this lower limit were eligible for referral. Only two health boards reported different eligibility criteria based on BMI for South Asians. The majority of services were not available to pregnant women, people with uncontrolled substance misuse or uncontrolled psychological illness. All health boards conduct pre-intervention assessments prior to the patient's attendance at the specialist tier 3 assessment, whilst pre-intervention assessments are not routinely conducted in lifestyle tier 2 services.

Lifestyle tier 2 services are almost universally group sessions that are delivered on a weekly or fortnightly basis for 8 to 12 weeks. Two of these services offer follow-up review sessions. A wide range of clinicians deliver these services including dietitians and community workers. The components of lifestyle tier 2 weight management sessions vary but generally consist of the promotion of healthy eating and increased physical activity rather than specific diets and exercise programmes. Most lifestyle tier 2 services promoted calorie deficit targets. To encourage physical activity, two lifestyle tier 2 services provide patients with pedometers, whilst two others offer reduced gym membership.

The formats of specialist tier 3 services were largely similar to lifestyle tier 2 services with the provision of weekly or fortnightly group sessions for 8 to 12 weeks. Four services offered one to

one appointments with dietitians or psychologists. Specialist tier 3 interventions were widely comparable to lifestyle tier 2 services. The provision of specialist interventions including pharmacotherapy, cognitive behavioural therapy sessions and low calorie prescribed diets was low.

Discussion

Main finding of this study

Across the country of Scotland, a variety of weight management interventions are delivered. There are differences in referral criteria, referral pathways, provision, length and frequency of follow-up, dietary intervention, quantity and type of physical activity intervention and provision of specialist interventions. Whilst most health boards provide both lifestyle tier 2 and specialist tier 3 services, three health boards approached had only a lifestyle tier 2 or specialist tier 3 service. This information, in addition to the numbers of patients referred annually indicates that the provision of weight management services is generally low. In particular, the provision of services for overweight patients remains severely limited with only four health boards offering the service to overweight patients. This pattern of provision may have important implications for obesity prevention as overweight patients may be more likely to subsequently become obese[16].

What is already known on this topic?

A lack of consistency in the delivery of these obesity services was observed with widely different routes of access, eligibility criteria and intervention components by health board. National guidelines, including those for patients with type 2 diabetes and cardiovascular disease are in agreement that lifestyle weight management programmes should be routinely offered to patients who are either overweight or obese[3, 4, 17, 18]. Despite this, a great deal of uncertainty persists regarding the best way to organise and deliver these services[5, 19]. Indeed, even within the commissioning guide for specialist tier 3 services, the authors highlight a severe lack of published evidence as a limitation of the guidelines and presented a series of research recommendations. This lack of detailed guidance has created a situation whereby service planning is difficult and has subsequently led to large disparities in service provision between areas.

A limited number of UK-based studies have investigated the best way of referring or sign-posting patients into services, maintaining adherence and the components of the intervention which are most effective at improving patient health outcomes[6-8, 20-24]. This published research has typically focussed upon the effectiveness of patient referral to commercial weight management providers such as WeightWatchers or Slimming World [20, 23-26]. In these studies, referral to commercial organisations has been shown to be a cost-effective and practical approach to achieving short-term

weight loss. For example, data from the Lighten Up randomised controlled trial indicated that despite primary-care based interventions being more expensive to provide, these services resulted in smaller weight reductions than commercial programmes from baseline to programme end (mean difference 2.3kg [1.3-3.4])[8]. Another randomised controlled trial reported a mean weight difference of -3.16kg (-4.23, -2.11) after 12 months for those attending the commercial service compared to patients attending standard care[7]. Research focussed upon evaluating primary care based interventions has reported mixed findings. One systematic review concluded that these services result in negligible reductions in patient weight at 12 and 24 months[6]. Data from the Counterweight programme, a primary care based service delivered by non-specialist staff have reported similar findings with a mean weight change of -3kg at 12 months[14].

Investigations into specialist tier 3 interventions for patients with higher BMIs have also reported modest reductions in patient weight [11, 22]. Twenty eight percent of patients attending and completing the Glasgow and Clyde weight management service achieved a weight loss of 5kg or more in 12 months, whilst the mean loss for patients attending the Fakenham weight management service was 10kg (8%) amongst the 68% of patients who completed 12 months. A lack of evidence for the effectiveness of these specialist weight management services for patients with more severe treatment requirements has possibly contributed to the observed lack of distinction between lifestyle tier 2 and specialist tier 3 services being observed in Scotland and lack of treatment options in each health board. Whilst the eligibility criteria for available lifestyle tier 2 and specialist tier 3 services are reasonably divergent, the interventions are not. Though considerable overlap in the interventions is to be expected, there appears to be limited specialist care treatments delivered in tier 3 services. Furthermore, within each health board a lack of evidence regarding what approaches are effective for patients with different needs and characteristics may have led to a "one size fits all" approach for patients. Only two reviews were identified which have examined the effectiveness of specific components of weight management services at helping patients lose weight[27, 28]. Both of these reviews reported large heterogeneity in the interventions provided and were unable to conclusively identify specific components of interventions which were associated with greater weight loss.

What this study adds:

We have provided a comprehensive survey of available weight management services in Scotland. This is the first study to provide detailed information regarding the huge diversity in the provision of services across a country in the UK and clearly demonstrates the huge uncertainty regarding best practice.

A general lack of data and a number of challenges in comparing studies conducted within different settings with distinct eligibility criteria has led to a clear lack of consensus regarding the most effective mode of intervention delivery. This problem has been recognised in the recent NICE guidelines for the management of obesity and has led to the publishing of a number of research recommendations[3]. In particular, studies which investigate the long-term effectiveness of weight management services are necessary to identify the services that are most effective at helping patients achieving clinically relevant weight reductions. None of the services surveyed in this study have evaluated and published service outcomes, expect for one service[22] which had recently redesigned services after completing an evaluation; results from the new service are not yet available. Given the extent of the obesity problem across Scotland, research should examine the effectiveness of the service by patient characteristics to ensure weight management services are delivered in a manner which is effective for all individual patients.

Limitations of this study:

The main weakness in this work is the unavailability of data from newly established services. Of the health board areas surveyed, the majority of these services were new and therefore it was not possible to obtain information regarding patient outcomes such as attendance. Unfortunately, this is an inevitable problem when funding changes frequently leading to the regular commissioning and decommissioning of healthcare services.

Information collected on the behaviour change techniques within each service, using the CALO-RE taxonomy [15] was not sufficiently in depth to allow comparisons between services. This "tick box" approach did not give sufficient detail on how, where and by whom the techniques were delivered by and also information on the training of staff of development of the interevtion. This is an area that requires further research and would be a useful component of any service evaluation and comparison of outcomes.

A further limitation was non-responders. Of the 11 health board areas approached, two were not willing to participate and provide all information. Nonetheless, a response rate of over 80% represents a reasonable level of response and has been able to provide a detailed picture of current services across Scotland. The health boards that were unwilling to provide information were small and non-response may be a reflection of a lack of a clearly defined and comprehensive weight management services. While the survey was Scotland-wide, given the paucity of evidence in this area it is likely that results would be similar across the whole of the UK in terms of limited provision and variation in services.

Conclusions

In conclusion, this national survey has illustrated the large disparities in the provision of weight management services across Scotland, a likely consequence of widespread uncertainty regarding best practice. There is a clear requirement for the evaluation of existing services to identify the services which lead to the largest improvements in health outcomes and remain cost-effective. National guidelines have identified this as a research priority.

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Conflicts of Interest

The authors report no conflicts of interest.

Authorship

SR carried out the survey and analysis and wrote the first draft of the publication. JL conceived the idea for study, contributed to the analysis and redrafted the publication.

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Table I. Provision and Access of lifestyle tier 3 and specialist tier 3 services by health board

Health Board	Tier	Referral Pathway	Numbers referred (per 100,000 of population)	Definition of completion	Proportion completers (%)	Opt-in	Time to service
1	2	Dietetics or self-referral	124.6	Attended 75% of sessions	40%	Respond to invitation letter	Variable
	3	GP or secondary care electronic referral	105.4	Attended 75% of sessions	72% (according to pilot)	Respond to invitation letter	1-2 months
2	2			** No Service **			
	3	GP referral via national electronic referral system. Consultant referral via letters	39.2*	Attended 75% of sessions	Unknown	Respond to invitation letter	Within 1 month
3	2	Mostly self-refer but can be by GP	New service, data unavailable	Attended 70% of sessions	Unknown	Yes, call dedicated phone-line	Within 1 month
	3	GP referral via national electronic referral system	New service, data unavailable	Attended 70% of sessions	Unknown	Respond to invitation letter	3-4 months
4	2	Self-referral or by GPs, practice nurses	131.7	Has made positive changes and maintained at 6, 9 & 12 month reviews	63%	Advisers call patients	Within 1 month
	3	Patients have attended lifestyle tier 3 service or by GP referral	32.2	Attended 75% of sessions	Unknown	Respond to invitation letter	2-3 months
5	2	95% self-referral, some by GP	140.2	Undecided (new service)	Unknown	Self-referral	3 months
	3	GPs and secondary care consultants via national electronic referral systems	100.1	Attended for 1 year	20%	Respond to invitation letter	3-4 months
6	2			** No service **			
	3	GP and secondary care referral via national electronic referral system	134.4	Achieved 10% weight loss in year 1	Unknown	Respond to invitation letter	Within 1 month

7	2	95% self-refer. Some by health practitioner	197.9	Attended 5 of 8 sessions	77%	Self-referral	1-2 months
	3	GP and secondary care referral	155.4*	Unknown – new service in development	Unknown	Respond to invitation letter	Unknown
8	2	GP referral via national electronic referral system	73.4*	Attend 4 of 6 sessions	54%	Respond to invitation letter	Within 3 months
	3	GP referral via national electronic referral system	84.7*	Attend 4 out of 7 sessions	50%	Respond to invitation letter	Within 3 months
9	2	GP or secondary care electronic referral	175.8*	Attend 12 sessions in 16 weeks	Unknown	Respond to invitation letter	2 weeks
	3	GP or secondary care electronic referral	175.8*	Attended 80% of sessions	70%	Respond to invitation letter	1-2 months
10	2	** Unwilling to provide data **					
	3	** No service **					

- Based on capacity figures.

Table II: Summary of lifestyle tier 3 and specialist tier 3 interventions by health board

Health Board	Tier	Eligibility Criteria	Pre-intervention assessment	Intervention format	Intervention
1	2	- 16 years or over - Weight has an adverse impact on physical or mental wellbeing - Patients motivated to make behaviour changes - History of dieting/recent weight gain - Have a poor relationship with food (diet quality/diet quantity/disordered eating)	None	Primary care based Weekly group sessions for 6 to 8 weeks (total of 12 hours) delivered by nurses, dietitians and allied health professionals. One-to-one sessions offered too.	*Diet*: Promotion of healthy relationships with food. No targets or monitoring. *Physical Activity*: Promotion of increased physical activity. No monitoring.
	3	- 18 to 44 years - BMI 35-40kg/m² - Has had Type 2 diabetes for less than 5 years OR - Completed lifestyle tier 2 - Ready to engage - Plus one of: o Chronic dieting history o Weight cycling o Disordered eating o Social isolation due to weight issues	Face to face assessment with dietitian	Primary care based 8 appointments phased over 6 months delivered by specialist dietitians. One to one sessions with dietitians available via video conferencing.	*Diet*: Promotion of healthy relationships with food. No targets set and verbal monitoring only. *Physical activity*: Promotion of increased physical activity. Referral to hydrotherapy pool or physiotherapist. No monitoring. *Specialist*: None
2	2	** No service **			
	3	- 16 years or over - BMI >35kg/m with co-morbidities or BMI >40kg/m (2.5kg/m less for South Asians) - Are motivated to make lifestyle changes - Without active alcohol or substance misuse - Without unstable psychiatric illness - Not pregnant - Without unstable hypothyroidism or Cushing's Syndrome	Face to face assessment with dietitian & postal questionnaire	Primary care based Weekly group sessions for 8 to 12 weeks delivered by dietitians. One to one sessions offered with psychologists or dietitians if not suitable for group programme.	*Diet:* Aim for 600kCal deficit. Self-monitoring using food diaries and mobile phone apps. *Physical Activity*: Decreased sedentary activity encouraged. Provision of pedometers to aim for 10,000 steps per day. Self-monitoring using activity diaries

					and mobile phone apps. *Specialist:* None
3	2	- Aged 16+ - BMI 25-35kg/m²* - No comorbidities *2.5kg/m² lower for South Asians, Chinese and Japanese individuals	None	Primary care based Weekly sessions for 10 weeks delivered by community workers	*Diet:* Aim for 600kcal deficit through low energy diets. No monitoring. *Physical Activity:* Encouragement of 1 hour of physical activity per day. Gym memberships offered.
	3	- 18 years or over - BMI >35kg/m² or >30kg/m² with obesity-related comorbidities (2.5kg/m² less for South Asians) - If 16-18 years old, must have BMI which puts them on or above 98th centile *2.5kg/m² lower for South Asians, Chinese and Japanese individuals	Face to face assessment with dietitian	Primary care based Nine fortnightly group sessions followed by monthly for 8 months delivered by dietitians. Yearly appointments afterwards.	*Diet*: Aim for 600kcal deficit based on promotion of healthy eating. Self-monitoring only. *Physical Activity:* Promotion of 1 hour per day physical activity. Structured 1 hour sessions for 12 weeks with physiotherapist available. No monitoring. *Specialist:* Clinical psychologists sessions following assessment.
4	2	- 16 years or over - BMI >25kg/m² - Ready to make positive lifestyle chance - Without uncontrolled medical conditions - Without active alcohol or substance addiction	Initial assessment appointment	Primary care based 1 to 1 fortnightly sessions for 3 months. Follow-up sessions 6, 9 and 12 months with lifestyle advisers	*Diet*: Promotion of healthy eating using food education. Individual calorie targets and weight loss goals are set. Self-monitoring by diaries and weight losses recorded on database. *Physical Activity:* Promotion of increased physical activity. Some leisure centres offer reduced gym membership prices. Pedometers and Step count sheets provided for self-monitoring

	3	- 18 years and over - BMI >35kg/m² or >30kg/m² with comorbidities - Without alcohol or substance addiction - Without major psychiatric diagnosis - Have engaged with lifestyle advisor - Are motivated to make lifestyle changes - Patients living with Scottish Borders	Face to face assessment with member of weight management team	Primary care based Eight fortnightly group sessions delivered by dietitians. Individual appointments with dietitians or psychologists	*Diet:* Promotion of healthy balanced diets. No calorie targets set. Self-monitoring using diaries. *Physical Activity*: Promotion of 150 minutes of exercise per week. Self-monitoring. *Specialist:* Orlistat prescription to some patients. Psychologists deliver CBT
5	2	- 18 years or over - BMI 30-40kg/m² - No or few comorbid conditions - Not pregnant or breast feeding - Without a diagnosed eating disorder - Without unstable psychiatric illness	Dietitian scores patients readiness to change during initial information session	Primary care based Fortnightly group sessions for 3 months. Follow-up sessions 6, 9 and 12 months with lifestyle advisers	*Diet*: Promotion of healthy eating using food education. No calorie targets set but aim to reduce calorie intake. Individual goals monitored and reviewed at every meeting. *Physical activity:* One group session dedicated to exercise. Pedometer use is encouraged and some dietetic assistants trained to be walk leaders
	3	- 18 years or over - BMI >40kg/m² with at least one comorbidity. - Not pregnant - Without unstable psychiatric illness - Without a diagnosed eating disorder	Face to face assessment with dietitian	Primary care based Fortnightly group sessions for 3 months. Follow-up sessions 6, 9 and 12 months with lifestyle advisers. May be more intensive if patient on Counterweight plus.	*Diet*: Variable. Goal setting and prescribed eating plan with Counterweight one to one. Total diet replacement (810kcal) for 12 weeks, followed by food reintroduction for 12 weeks and weight maintenance with counterweight plus. Self-monitoring. *Physical Activity:* Promotion of increased physical activity. Self-monitoring. *Specialist:* Specialist low energy

					liquid diets offered
6	2		** No service **		
	3	- 18 years or over - BMI >35kg/m² or BMI >30kg/m² with comorbidities - Not pregnant - Without active substance misuse - Without unstable psychological illnesses	Face to face assessment with dietitian	Primary care based Weekly group sessions for 8 weeks delivered by dietitian and psychologist Six one to one sessions with dietitians offered. Review appointments available every 3 months until end of year 1 and 3 reviews offered in year 2.	*Diet:* Promotion of healthy balanced diets. Some individual targets set. Self-monitoring using diaries. *Physical Activity*: Promotion of regular physical activity. Some physical activity sessions offered using specialist gym equipment. Self-monitoring with pedometers. *Specialist*: Orlistat prescription to some patients. Provision of low carbohydrate diets and information on newer diets
7	2	- 18 years or over - BMI >25kg/m² - No exclusion criteria set regarding pregnancy status or disability status	Administrative staff check BMI of opting-in patient only	Primary care based Weekly group sessions for 8 consecutive weeks delivered by dietitians and dietetic assistants	*Diet*: Promotion of healthy eating using food education. Individual portion plans are based upon 600kcal daily deficit. *Physical Activity:* Promotion of increased physical activity. Signposting to exercise groups.
	3	- 18 years or over - BMI >35kg/m² or >30kg/m² with comorbidities - Completion of Tier 2 service - Without unstable psychological illness	Face to face assessment which includes screening for psychological difficulties	Nine fortnightly sessions followed by monthly sessions for four months. Twelve month maintenance phase.	Unknown – Service in development
8	2	- 18 years or over - BMI >30kg/m² - Not pregnant - Without active substance misuse	No assessment	Fortnightly group sessions for 3 months. Follow-up sessions 6, 9 and 12 months. Exercise sessions	*Diet:* Promotion of healthy balanced diets. Some individual targets set. Self-monitoring with food diaries

		- Without unstable psychological illness - Without unstable hypothyroidism - Patients who are motivated and ready to make lifestyle changes		run by leisure centres.	*Physical Activity:* Specialist exercise sessions with aerobic and weight exercises
	3	- 18 years or over - BMI >40kg/m² or >35kg/m² with comorbidities - Not pregnant - Without active substance misuse - Without unstable psychological illness - Without unstable hypothyroidism	Full assessment with dietitian	Fortnightly group sessions for 14 weeks delivered by dietitians. Weekly exercise specialist sessions.	*Diet:* Promotion of healthy balanced diets. Some individual targets set. Self-monitoring with food diaries *Physical Activity:* Specialist exercise sessions and sign-posting to exercise groups. Sessions delivered by physiotherapists. Specialist: None. Specialist interventions offered in Tier 4 services, an additional non-surgical lifestyle service within this health board linked to bariatric surgery provision.

9	2	- 18 years or over
		- BMI 30-40kg/m²* and one of:
		  - Impaired fasting glucose
		  - Impaired glucose tolerance
		  - High diabetes risk
		  - Cardiovascular disease
		  - Dyslipidaemia
		  - Osteoarthritis of hip/knee
		  - Surgical requirement for weight loss
		  - Secondary care blood pressure clinics
		* 2.5kg/m² lower for South Asians and other ethnic groups
			Eligibility assessment by administrative staff	Referral to commercial service
				Weekly group sessions for 12 weeks with trained leader. If a patient loses 5kg, get another 12 week course
					Diet: Weight-watchers pro-points programme. Targets based upon points.
					Physical activity: Promotion of increased physical activity

	3	- 18 years or over - BMI >45kg/m* or BMI >30kg/m²* and a comorbidity: o Chronic kidney disease	Face to face assessment with dietitian (use questionnaire)	Primary care based Nine fortnightly group sessions followed by monthly sessions for four	*Diet*: Aim for 600kcal deficit based on promotion of healthy eating. Self-monitoring only. *Physical Activity*: Promotion of

		○ Type 2 diabetes ○ Severe psoriasis ○ Liver fibrosis/cirrhosis due to non-alcoholic fatty liver disease ○ Sleep apnoea *2.5kg/m² lower for South Asians	months. Sessions delivered by dietitians.	aerobic and resistance exercises. Exercise classes held in specialist gym, supervised by specialist physiotherapist. No monitoring. *Specialist*: Orlistat prescribed to some patients. Optional monthly sessions for four months to prescribe low calorie diets, delivered by dietitians. Matched care psychology offered to some patients following assessment
10	2	** Unwilling to provide data **		
	3	** No service **		

Figure Legend

Figure 1. Tiered model of weight management services.