

Dietetic Obesity Management Interventions in Children and Young People: Review & Clinical Application

BDA OBESITY SPECIALIST GROUP

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Introduction

The purpose of this document

This document was developed and written to be a companion document to the BDA Obesity Specialist Group's *Dietetic Obesity Management Interventions in Adults: Evidence Review & Clinical Application* [1]. It is set out to mirror that document, it has substantially the same headings and some of the same text. Where it differs significantly is around the areas directly relating to childhood weight management.

As with the adult obesity paper this document does not set out to suggest dietetic approaches to childhood weight management. It aims to facilitate ongoing discussion amongst the dietetic profession about how best to evolve our practice in light of evidence, to consider how to address areas of practice with a limited evidence base so the best quality of patient care can be provided. It was also written to be used as a guide in discussions with those commissioning services on what the fundamentals of a dietetic led child weight management service should look like.

This document focuses on the individual elements of the dietetic consultation, whether these be in one to one consultations or group work.

The structure of the document

This document takes the reader through the dietetic consultation as it generally occurs in practice. From the initial referral to the first meeting with the child/young person (CYP) and their family¹ through to the components of CYP weight management programmes and consideration of maintenance. At each stage it considers the evidence and where this is not clear current best practice.

Aim of Dietetic Care

The overall aim of dietetic care in CYP weight management should be to deliver evidence based dietetic weight management care, which helps maintain positive lifestyle changes that are best suited to the CYP and their family's particular needs and expectations. The programme used should promote a healthier body mass index (BMI) for the CYP and positive healthy family lifestyle changes that should be able to be maintained as the CYP gets older.

¹ The term child/young person (CYP) and their family is used throughout this document for consistency, but it is recognised that in different settings the term client or patient may be more relevant for some readers.

Possible Objectives of Dietetic Care

1. Qualities of the Dietitian

- To demonstrate the ability to work in an empathetic and non-judgmental manner and recognise the needs of the individual CYP and their family. The importance of rapport is often mentioned by families as an important quality and attribute in a dietitian [2].

2. Preparation and Planning

- To carefully consider the important principle of “first do no harm” and to avoid any potential negative consequences of treatment. Including an awareness of disordered eating / eating disorder signs and symptoms and a knowledge of how to refer into local Child and Adolescent Mental Health Services (CAMHS) and other appropriate child services.
- To consider the CYP and their family’s cultural, economic, social needs and preferences in the tailoring of treatments and the choice of options available.
- To gather optimal background information on the CYP and their family typically through a robust referral system, triaging and discussions with referrers.

3. Developing Patient Skills for Weight Management

- To work with the CYP and their family towards regulating eating patterns and adopting healthier food choices.
- To help the CYP and their family recognise the important role of physical activity and work towards incorporating increased activity into their daily routine.
- To help the CYP and their family recognise the important role of reduced sedentary behaviours (screen time) and work towards reducing sedentary behaviours.
- To help the CYP and their family develop the knowledge and skills needed to implement and maintain changes in eating, activity and sedentary behaviours.
- To help the young person and their family recognise the important role of triggers and emotional well-being in lifestyle behaviours, and to help families access further support when required.
- To help parents/carers recognise the role of parenting skills and boundaries in supporting their CYP make positive lifestyle behaviour changes and to help parents/carers access further support when necessary.
- To contribute towards improving the CYP and their family’s confidence through the development of achievable goals and helpful skills.

4. Developing Patient Skills for Healthy Lifestyle Maintenance

- To help the CYP and their family recognise the importance of healthy lifestyle maintenance following weight management intervention.
- To help the parents/carers and in turn the CYP in the development of a meaningful set of skills (cooking, shopping, meal planning, problem solving and coping strategies) and a support network that will contribute towards longer term maintenance of changed behaviours.

5. Clinical Indicators

- To help the CYP achieve a reduction in BMI, measured as a reduction in BMI standard deviation (SD) score, and/or improved body composition.
- To work with the CYP and their family, through relevant lifestyle changes, towards, where relevant, improving the management of co-morbidities and risk factor reduction.
- To work towards improving the quality of life and self-esteem of the CYP.

6. Audit

- To monitor and evaluate the outcomes of dietetic interventions to facilitate and inform future practice or service developments.

7. Continuing Professional Development

- To be familiar with current evidence relating to lifestyle treatments and consider this while tailoring interventions to meet the needs of individual patients.
- To reflect on own dietetic practice, consider own skill mix and identify and address any areas requiring professional development.

8. Working with Others

- To recognise the value of dietetic care in the context of the wider child weight management field and to acknowledge the skills and expertise of other professionals and organisations.

9. Safeguarding

- To be familiar with local safeguarding / child protection policies and know how and when to escalate concerns.
- To be aware of good practice around transparency and know to discuss any concerns with parents/carers before escalating.
- To undertake all necessary training on safeguarding and child protection as outlined by legislation and by local practice.

The Referral Process and Criteria

It is recognised that the precise criteria for receiving referrals for CYP's weight management will vary from one dietetic service to another depending on local priorities, resources and expertise.

However, actively managing the referral process is an important aspect of optimising the utilisation of dietetic time and skills as well as ensuring that CYP and their families are directed towards the most appropriate and helpful services. Working collaboratively with referrers to improve the referral process and raising the issue of weight [3,4] may have the additional benefit of enhancing other health professionals' understanding of the dietitian's role in the management of child healthy weight. Public Health England (PHE) and NHS Health Scotland have both developed online tools for helping service gatekeepers consider how to raise the issue of CYP's weight with parents (see useful information). Dietitians may wish to use these in their own training or signpost their services' gatekeepers to these online training programmes.

In the United Kingdom (UK) referrals into a CYP weight management tier 2 or 3 services is usually based on the CYP's current BMI. The agreed cut offs for clinical use in the UK are –

- $\geq 91^{\text{st}}$ BMI centile for overweight
- $\geq 98^{\text{th}}$ BMI centile for obesity [5–7].

For children up to 4 years the World Health Organisation (WHO) BMI data is used and for those 4 years plus the UK 1990 BMI data is used [5,8]. The current CYP's UK BMI charts include a 99.6th centile line and further SD score lines which are helpful for more drilled down referral criteria and triaging. Table 1 outlines the current centile and SD lines on the UK BMI centile charts and their clinical definitions. Waist circumference is not recommended to be used as a measurement for referral [9].

Services should consider their pathway for CYP with a BMI $\geq 91^{\text{st}}$ BMI centile (WHO/UK1990 BMI centile charts), when the referrer believes the patient would benefit from the expertise of a dietitian and that the parent/carer is willing and able to interact with the programme.

The following referral criteria are suggested as a baseline for considering who might benefit most from specialist dietetic support:

- Priority should be given to those with increased medical risk e.g. metabolic syndrome, cardiovascular disease (CVD) risk, type 2 diabetes, sleep apnoea, non-alcoholic fatty liver disease (NAFLD)
- Priority should be given to a CYP with a BMI $\geq 99.6^{\text{th}}$ centile (WHO/UK 1990

- BMI centile charts).
- Children under 2 years with excess weight, for a child of this age the dietitian should enter into discussions with a paediatric endocrinologist [6].
- Rapid growth for a child under two years, i.e. increasing through the centile lines.

Table 1: Clinical diagnostic criteria for overweight and obese children and young people (aged <18) in the UK (Based on Gagahan & Stewart [8])

Clinical terminology	BMI centiles*	SDS or z-score*
Overweight	≥91 st centile	≥+1.33 SDS
Very overweight (Obesity)	≥98 th centile	≥+2 SDS
Severe obesity	≥99.6 th centile	≥+2.67 SDS
		≥+3.00 SDS
Morbid obesity		≥+3.33 SDS
		≥+3.66 SDS
		≥+4.00 SDS

*defined relative to the WHO/UK 1990 reference chart for age and sex.

Priority should be given when it is noted on the referral, or becomes clear, that there are safeguarding / child protection issues or when the child attending the service is part of a child protection plan.

Importance of assessment

A comprehensive assessment is an essential first step in childhood dietetic weight management interventions. Understanding, on the part of the practitioner, and depending on their age, the CYP and the parent of what has contributed to the development of the CYP's obesity. How this then impacts on their life and the factors that influence possible change to eating, activity and sedentary behaviours, are all important to tailor the dietetic intervention to meet the needs of the individual and their family.

Building a picture of current lifestyle habits with both positive and negative influences upon these behaviours provides the groundwork on which recommendations can be based and a plan of action agreed. The dietitian needs to have cognisance of the effect

of socio-economic status, social deprivation and health inequalities that increase risk of obesity due to environments, such as living near fast food restaurants, buying reduced priced foods/drinks high in sugar and fat.

Assessment

The assessment session should be used to start building rapport with the CYP and their parents [2] as well as obtaining the clinical information below. Some of this information may be collected over the first one to two sessions depending on whether the programme includes a parent only first session. An initial parent only session can allow the parent a 'safe space' to discuss aspects of their child's weight and their concerns, in practice this can be very informative. At this early stage and throughout the process it is important to emphasise a whole-family approach to behaviour change wherever possible, especially for younger children

At the assessment it is fundamental to explore and obtain information that gives a full clinical picture as well as the holistic view of the CYP's health and well-being [10,11]. The BDA's Model and Process for Nutrition and Dietetic Practice (2016) is a good process to use as a template for recording in case notes to ensure that these points are all covered [12].

Clinical assessment

The following should all be discussed and recorded to help build a picture [10,11].

- BMI – plot on a BMI centile chart (WHO/UK 1990)
- For children under 2 years – plot weight and length on growth centile charts (WHO/UK 1990)
- Weight history patterns, including any previous attempts at weight control
- Diagnosed comorbidities such as hypertension, hyperinsulinaemia, dyslipidaemia, type 2 diabetes, fatty liver, intracranial and exacerbation of conditions such as asthma
- Weight-related symptoms present such as exercise intolerance, shortness of breath, acanthosis nigricans, joint pain.

Explore the child's world

In childhood obesity it is important to ensure that the CYP's world is viewed from a holistic perspective. The dietitian also has a responsibility to remain aware of any issues or concerns which may relate to safeguarding and child protection (page 25). Therefore, at assessment it is necessary to consider wider issues around family

structure, social interactions, areas related to self-esteem such as bullying, poor social interaction and any other concerns for the CYP's safety. Having an understanding of the family structure including if the parents live together, are their 'step' parents in the child's life. A study from Norway (2019) showed that CYP living in a blended family were at a higher risk of weight gain [13]. Explore during assessment and as necessary throughout programme -

- Emotional/psychosocial concerns e.g. low self-esteem, bullying, teasing, disordered eating patterns
- Family support and structure - consider who is important at home and who does the CYP spend time with? Are there any other significant carers such as grandparents?
- Sleep patterns are known to affect childhood weight [14,15] and this may be explored as part of a holistic approach to the CYP's world
- Reviewing social and school history provides an opportunity to engage with the child by 'exploring' their world, including hobbies and pastimes [11].

In Scotland the Getting It Right For Every Child (GIRFEC) tool is a good example of a systematic assessment methodology to review the CYP's world holistically [16].

Assessment for infants and young children

There are a number of factors which are known to be factors which influence overweight in infants and young children and these should be considered in the assessment by the dietitian.

- Birth weight >4kg or large for gestational age
- Small for gestational age
- Rapid growth in infancy, upwards crossing of 1 centile space for weight or length
- Sleep duration
- Early introduction of solids, < 4 months
- Less than 10.5 hours of sleep per night at age 3 years
- A toddler/preschool intake of ≥ 500 ml/day of milk
- A toddler/preschool activity level < 3 hours per day
- A toddler/preschool screen time >30 minutes per day [15,17].

Use of Body Mass Index in classifying childhood obesity

Using BMI is the standard method of identifying and categorising overweight and obesity in CYP [6,7,9]. BMI should be recognised for what it is, a convenient proxy

measurement for body fat [18]. Its usefulness lies in it being relatively simple to calculate then plot on BMI centile charts (WHO/UK 1990) and interpret. In childhood it has a low rate of false positives for diagnosing overweight and obesity in CYP [19].

BMI is calculated as weight (kg) ÷ height (m)². From the age of 2 up to 18 years this figure should then be plotted at the correct age on a gender specific BMI centile chart to be clinically meaningful. In the UK the WHO/UK 1990 charts should be used and can be purchased from Harlow Printing (<http://www.healthforallchildren.com>) and see our useful information section. The 91st and 98th centiles on the WHO/ UK 1990 charts for age and gender are recommended as the clinical cut-offs to diagnose overweight and obesity respectively. Table 1 above gives the recognised diagnostic criteria and differing degrees of overweight and obesity. It is worth noting that in the UK different cut off points are used for the same classifications at an epidemiological level, at risk of overweight being the 85th centile and overweight being the 95th centile [6].

SD scores, otherwise known as z-scores², are currently referenced on the WHO/UK 1990 BMI charts and for higher levels of obesity are useful for categorising degrees of obesity (see table 1). In clinical practice there is no need to calculate SD scores. However, when evaluating a service or writing for scientific publications outcomes should be described as changes in SD scores, this is further discussed under Evaluation of Weight Management Programmes on page 30.

Waist

Previous versions of the UK BMI charts had waist centiles on one side, however the use of a waist measurement as a diagnostic tool was never effective, mainly due to no agreement around the association with body fat and cut points for diagnosis of overweight or obesity [9]. However, for assessment and consequently following up monitoring waist measurement can often be a useful tool to show changes in body shape and distribution. If taking waist measurement, it is important to use a consistent and practiced technique.

Behavioural lifestyle assessment

A comprehensive behavioural lifestyle assessment is an important tool for a dietitian and more effective when undertaken by a skilled practitioner. The areas listed below are standard areas to explore with most patients.

Suggested Areas to Cover in Behavioural Lifestyle Assessment [10]:

² The term SD scores are used throughout this document.

- The story so far, what led up to the referral – opportunity for the CYP and their parent to tell their story and to feel heard and understood
- Understanding, depending on age, the CYP's thoughts on referral
- Understanding the parent's thoughts on referral
- Expectations of treatment
- Motivation to change lifestyle
- Weight history
- Previous attempts to change behaviour
- Beneficial to assess the lifestyle / weight struggles of family members
- CYP's understanding of obesity
- Parents' understanding of obesity
- Potential barriers to change
- Current lifestyle: dietary intake, physical activity levels and time spent in sedentary behaviours
- Support networks, including extended family, school and friends
- Reward systems/strategies used to reinforce new behaviours

Although the main assessment tends to take place at the initial appointment it is possible to stage the process across visits and this may be necessary in those individuals with a complicated history and depending on the age of the CYP. Ongoing evaluation will occur at subsequent appointments as part of the review process.

Understanding the patient's thoughts on the referral

It is commonly assumed that if a parent and their child attends an appointment they must want to be seen by the practitioner, are enthusiastic about managing their weight, and implementing the recommended treatment programme. However, the reality may be very different and it is worth spending a few minutes at the start of the consultation establishing what prompted the request for help, or led up to the referral, and whether or how, they envisage the dietitian supporting them. These first few minutes of an interview are a critical time for building a bond and rapport. Taking the time to understand the events that have brought them to the appointment and what they hope to gain from the practitioner can make an important contribution to this process. Clarifying that the dietitian's role is not to tell them what to do, but rather to explore with them the elements involved in the development of their unhealthy weight and possible treatment options, can be an invaluable start to a consultation [20].

When working with CYP the dietitian should understand that the CYP and the parents may indeed have differing reasons for attending and vastly different motivation to make changes. This dissonance can be one of the practitioner's main challenges in supporting lifestyle changes during the programme and is why an initial parent only

session can be helpful.

Some parents are hesitant about starting a weight management programme for their child as they have concerns about the CYP subsequently developing an eating disorder. It is good to note that a recent systematic review by Jebeile et al (2019) in fact demonstrated that 'structured and professionally' run weight management programmes were associated with reduced prevalence, risk, and symptoms of eating disorders in CYP [21].

If during the discussion it becomes apparent the CYP and/or parent is not interested or is unable to manage behaviour change at this time, they should be given the option of returning when their circumstances or feelings have changed [5]. However, it is important to ensure this process is truly collaborative rather than the dietitian measuring readiness for change and deciding on behalf of the CYP and their family whether they are ready or not to make changes to their lifestyle. There are certain situations when a family not engaging in the weight management process may be of concern from a child safe guarding perspective. Therefore, it is important that the dietitian is aware of the wider social complexity of cases referred and when necessary implements the appropriate aspect of the safe guarding/child protection pathway if a family fail to engage.

Expectations of treatment

For most CYP attending for weight management the clinical goal is weight maintenance with height growth leading to a decrease in BMI and BMI SD score. In teenagers particularly those in the higher obesity range ($\geq 3.33SD$) then weight loss of no more than 0.5-1kg per month is a reasonable target [6,22,23]. Figure 1 demonstrates how weight maintenance can successfully lead to a reduction in BMI and BMI SD score.

Motivation to change lifestyle

Understanding a patient's motivation for treatment is an important aspect of assessment and influences the decision to commence or defer treatment. In many instances assessing motivation is not a simple process that can be determined by asking one or two questions alone. Indeed, motivation levels seem to be task specific so it is perfectly possible for the same individual to have high motivation to change one behaviour but low motivation to change another. It is also important to recognise motivation is needed throughout the change process not just at the start of treatment and usually fluctuates depending on the CYP's circumstances and family support.

Figure 1: Case study example of a 10yr old girl and treatment effect (Taken from Gagahan & Stewart [8])

Appt. (Age)	Weight (kg)	Height (m)	Weight change	BMI	BMI SD Score
10	50	1.3	-	29.6	3.14
10 ½	50.5	1.325	+0.5 kg	28.8	2.95
11	50.5	1.36	0 kg	27.3	2.63
		Change +0.06 m	Change +0.5 kg	Change -2.3	Change of -0.51*

*SDS clinically effective change in adiposity-indicator to reduce cardiovascular disease risk[24,25]

The variation in motivation seems to relate to two key components

- The importance the person ascribes to the specific change (willingness to change)
- The confidence they have in their ability to undertake that change (ability to change).

It is possible to use scoring systems to evaluate the importance both the CYP and their parent may ascribe to changing a behaviour, *on a scale of 0-10, where 0 is not important at all and 10 is extremely important, where would you place yourself?* [26]. In practical experience most CYP struggle to cope with giving confidence a score but depending on age can relate to *'how difficult will you find making this change'*.

Care is required in the use of these motivation scoring systems and these should ideally be used by practitioners who have had sufficient training on the underpinning theory and associated skills[27]. For a more detailed description of how to practically undertake behaviour change refer to the Changing Health Behaviour chapter in the Manual of Dietetic Practice 2019 [28].

Potential difficulties or barriers to change

Discussing and identifying potential barriers and difficulties in changing eating and activity behaviour is an important aspect of the assessment process and forms the basis from which strategies to address some of these issues can be developed. A useful starting question might be *'What might be difficult about making this change'*.

Commonly CYP and their parents feel strongly about wanting to manage their weight but may feel they are unable to put changes into practice – the *"I want to but I can't"*

scenario. This often reflects ambivalence towards changing behaviours and should be considered a normal part of the process of change. It has been suggested exploring ambivalence through discussing or writing down the pros and cons of changing or of remaining in status quo can help the CYP better understand their feelings about changing food or activity habits. Helping CYP and their parents become more aware of the difference between where they are now (current behaviours) and where they want to be (intended behaviours) can prove a very motivating strategy [27,29]. Asking the CYP to visualise what would it look like if they had their weight under control can also help with this process of considering pros and cons of change. The use of this type of motivational approach requires practitioners with strong interpersonal skills and specific training in this technique [30].

In working with CYP and their parents it should be remembered that there may be differing levels of ambivalence in the room. This is certainly one of the main challenges working in CYP weight management compared to adult weight management. There will be times when the dietitian will need to consider if the ambivalence from the parent towards behaviour change is in fact a child safeguarding issue (see Child Protection and Safe Guarding on page 25).

Current lifestyle

In childhood weight management there are three areas of lifestyle behaviour which should be seen as having equal importance in requiring change –

- Dietary
- Physical activity levels
- Sedentary behaviours (often discussed as screen time)

Establishing a picture of the current lifestyle of the CYP is clearly a central aspect of the dietetic weight management intervention. However, it must be recognised that the methods currently available will only allow an overall impression of energy balance and nutrient composition as they rely on self-report. Indeed, striving for a more accurate evaluation through the use of more and more questioning will most likely not only be futile but has the potential to adversely influence the patient-practitioner relationship through increased resistance on the part of the CYP and increased frustration on the part of the dietitian.

The behavioural approach used by dietitians has led to the development of the ‘typical day’ approach using various core communication skills such as reflection, paraphrasing, open questions and summarisation as strategies for eliciting dietary intake, physical activity and screen time information while minimising any associated shame or embarrassment [31].

Technologies have facilitated the use of mobile phones and apps for self-monitoring

of food intake and activity. In working with CYP the use of these would be age dependant. Mobile devices allow the easy use of food photographs to guide portion size estimation and provide instantaneous feedback on nutritional composition of foods and meals as they are entered. Electronic dietary assessment can also be utilised and accessed by practitioners via email or web portals and can provide opportunities to enhance communication with patients. Research which has compared traditional paper recording with website and mobile electronic assessment has found improved acceptability, user satisfaction and improved adherence to self-monitoring using the electronic approaches [32–34]. This is important given behavioural self-monitoring is a key predictor of successful behaviour change [35].

Pedometers/wrist wearing activity monitors are a means of objectively measuring baseline day to day walking and other ambulatory activity that often represents a large proportion of daily activity. Although the accuracy of these devices may vary, they can provide a useful measure of baseline activity and a visible means of monitoring changes in activity behaviour. The activity monitor is worn on the patient's wrist or waist, depending on the device, and measures the number of steps taken in the day. This can subsequently be related to levels of activity.

However self-monitoring, whether paper based or electronic, must be used sensitively for CYP. The self-monitoring is often shared with the parent or for younger children carried out by the parent. It can also be seen as boring by CYP therefore, imaginative ways such as drawing foods/activities or tick charts could be deployed.

Agreeing a way forward

Once the initial assessment process has been completed it is important to consider and discuss with the CYP and their parents the options available and together agree a management programme that includes an active weight management phase and a weight maintenance phase [5,22].

This forms the basis of negotiating goals and developing a change plan with the CYP and their parents. This must be undertaken in a collaborative way to ensure the dietitian is not setting goals on behalf of the family and they are actively involved in defining what is realistically possible. Goal setting is often linked with SMART criteria – specific, measurable, achievable, realistic and time specific although this is a theoretical concept and in practice goal setting is about the what, when and how of change. Clarifying the details of what has been agreed between the CYP, family and the dietitian by writing down the goal and how it is going to be achieved can be helpful in strengthening commitment and understanding.

Specifically working with CYP and their parents on two or three goals at a time, waiting

until these have been achieved before renegotiating on the next stages can be important to gradually building up the CYP and family's confidence in their ability to achieve small behavioural goals [20,30].

Skilled dietitians, who work through the assessment process in a non-judgemental manner, build rapport and trust with the CYP and their parents, who establish the details of factors contributing to obesity and the current scenario will have created an excellent foundation of shared understanding from which the next steps in the management process can be developed.

Programme Design and Organisation

There is no clear evidence on what makes the perfect programme for treating childhood obesity. Within the UK there are a number of programmes operating in varying ways. Along with the limited evidence other factors may have guided how a programme has been designed e.g. commissioning restrictions, staff's past experience. Obtaining this information would be useful if you are reviewing someone else's programme before implementing it yourself.

NICE (2014) do not suggest any particular format to deliver programmes aimed at CYP just the components it needs to contain. However, it is useful to note that they interpret a lifestyle weight management programme as being one that is likely to aim for weight maintenance whilst the child grows and this is often delivered in the community [9]. Whereas, a specialist obesity services (tier 3 services) tends to be more clinical, for those with severe or complex obesity or with other special needs, therefore implying that this location may be hospital based.

With a well-recognised association between health, social inequalities and food insecurity and the prevalence of childhood obesity in the UK, a dietetic service and/or pathway requires to take this in to consideration and not exacerbate this gap.

Groups and 1:1 programmes

Given the potential numbers that would be suitable to attend a programme there is an economic preference to offer group sessions rather than seeing people on a one to one format. However, those at a higher BMI and with more complex social, medical and special needs may benefit from 1:1 sessions. Hayes et al (2015) reviewed a number of group programmes with or without an individual contact element as part of the programme. Those programmes that were more successful i.e. there was a loss of 0.25 BMI SD score points contained an element of individual contact [36].

Length of consultation and frequency of contact

Little research has explored the effect of short or long consultation session time although NICE states that there should be “adequate time in the consultation to provide information and answer questions” [5]. As an example the SCOTT 1:1 dietetic programme for children aged 8 – 15 years, offers two initial one hour consultations followed by a further eight review sessions of 30 minutes [29]. While, as an example of a group programme, the MEND group programme for 7 – 13 year olds offers 2 hour long group sessions over 10 weeks [37].

Current evidence around frequency of contact required for best results is poor. However, there does appear to be some suggestion that programmes with more frequent contacts are more effective [38]. NHS Health Scotland have stated as essential in their standards of CYP weight management care that sessions should be delivered weekly or fortnightly [22]. As small changes in a CYP’s weight and height can show an effect in their BMI it would be good practice to weigh the child and take length or height measurement at every session they attend.

Duration of programme

Ho et al (2012) in a systematic review found that changes in weight and BMI SD scores were greater when the duration of a programme was longer than six months [39]. The NHS Health Scotland 2019 CYP weight management standards state as essential that all interventions, group or 1:1, have a minimum of eight sessions [22].

Age appropriate

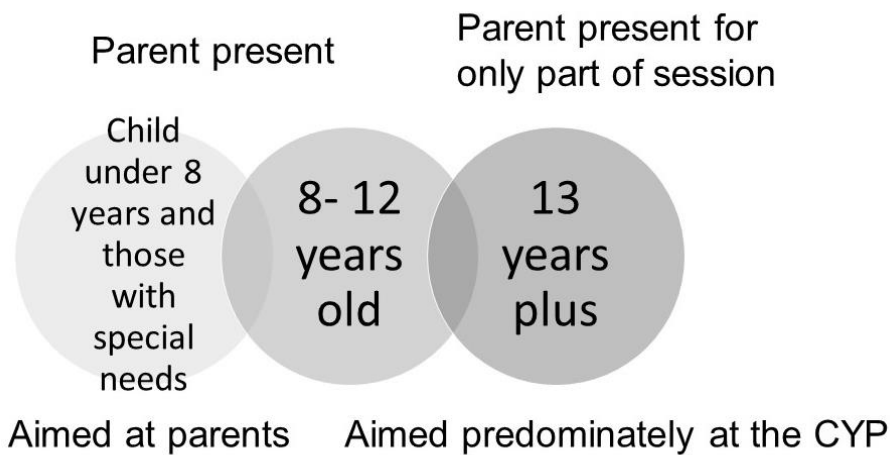
Recent Cochrane reviews have shown the efficacy of programmes aimed at differing age groups [40] and these are briefly summarised in table 2 below. While Stewart et al (2018) gave a suggestion based on expert opinion on the interaction at varying ages in interventions between the dietitian and CYP and their parent (see figure 2).

Loveman et al 2015 review found that parent only programmes had similar effects to parent and child programmes [41].

Table 2: Summary of Cochrane reviews conclusions on child/young people's programmes

Age range	Number of trials in Cochrane review	Mean different in BMI SDS [40]	Cochrane Review	Conclusion
< 6 years	7	-0.3	Colquitt et al 2016 [42]	Low quality evidence with high risk of bias. Multi component interventions appear to be effective treatment options.
6-11 years	70	-0.04	Mead et al 2017 [43]	Low quality evidence, high risk of bias. Multi component behavioural change interventions that incorporate diet, physical activity and behavioural change may be beneficial in achieving small, short term reductions. Post intervention follow up important.
12-17 years	44	-0.13	Al-Khudairy et al 2017 [44]	Low quality evidence Multidisciplinary interventions involving a combination of diet, physical activity and behavioural change reduced BMI and moderate quality evidence reduced weight in overweight and obese adolescents.

Figure 2: Suggestions on programme interactions based-on age (Taken from Stewart et al [45])



Programme Components – Evidence of What Works

Evidence and guidelines clearly state that CYP and their parents seeking advice for weight management should be offered evidence-based, personalised, specific, age and culturally appropriate advice. Evidence suggests that multi-component weight management programmes are beneficial in achieving small to moderate reductions in body weight status in CYP [5,40,46].

Programmes should ensure

- Age and culturally appropriate diet and healthy eating
- Behaviour change
- Positive parenting support
- Encourage the whole family to make changes
- Decreasing sedentary behaviours
- Increasing physical activity levels
- Have ongoing support and follow up after completion [5,22,39,46].

Consideration should be given to the need of children with special and complex needs with programmes modified or specially written to meet their needs [5,22].

In a systemic review of qualitative studies Burchett et al (2017) found that the more successful programmes incorporated demonstrations of behaviours to change rather than these just being discussed, for example including cooking sessions and integrated physical activities. It was important for the whole family to be on board and for the CYP to have a supportive social network [47].

Dietary component

All dietary components of a weight management programme aimed at CYP should ensure an intake of a balanced diet in line with the Eatwell Guide [48]. CYP are still growing and developing. It is, therefore, essential for a dietitian to consider the age appropriate intake of protein, vitamins and minerals [49].

A recent systematic review with meta-analysis suggested that targeting the following dietary aspects are the most successful in influencing weight management in CYP -

- decreasing total energy intake
- increasing the consumption of fruit and vegetables; as two distinct concepts, not combined
- decreasing sugar sweetened beverages (SSB)
- decreasing energy dense, nutrient poor foods (EDNP) such as
 - Savoury – fried foods, crisps, fast foods
 - Sugar – chocolate, biscuits, ice-cream, desserts [50].

An association with a decrease in EDNP foods with a significant reduction in adiposity was seen. Duncanson et al (in press) also recommend that personalised dietary changes should be given and that this was most effective when delivered by a dietitian [50]. The same authors in a 2017 report for the WHO suggested that targeting specific dietary components e.g. SSB or EDNP rather than general healthy eating advice was more effective for weight management. Sustaining these dietary changes long term had the potential to improve energy balance and decrease BMI SD score. The authors recommended that at the clinical point of discussion with the CYP and their family potential dietary changes should be discussed as foods and not as nutrients [51].

Gow et al 2014 showed that no particular macro nutrient manipulation was more effective than any other, the most important aspect was a decrease in total energy [52]. While, Ho et al 2012 noted that the most popular method of energy control was using a traffic light or modified traffic light approach [39].

Green – low energy foods, eat freely. Go.

Yellow – moderate energy foods, eat occasionally. Caution, be aware.

Red – high energy foods, eat rarely. Stop, think how many I am eating.

The authors also noted that a few studies had taken the approach of aiming to reduce total energy intake by 30 or 15 %. Both these approaches demonstrated effective weight loss across different age groups, settings and countries [39].

Snacking behaviours

Styne et al suggested particularly targeting decreasing snacking within the target of decreasing the overall energy intake [53]. A systematic review by Avery et al (2017) showed that there was an association between CYP watching TV with a poorer dietary intake and weight gain. In particular a positive association was seen between watching TV and eating EDNP foods such as pizza, fried foods and sweets [54].

This illustrates the importance for the dietitian of exploring with the CYP and their parents the circumstances in which food and particularly snacks are eaten. Recording of a lifestyle diary that looks at timing of food eaten is one useful manner of doing this. There are a number of strategies that can be suggested to help control overeating of snacks and EDNP foods such as –

- Not eating when the television is on
- Only eating food from a plate
- Eating as a family sitting at the table
- The CYP and parent agreeing a defined number of daily snacks, for example a piece of fruit and 2 plain biscuits. The parent puts the agreed snacks into a 'snack' box and the CYP helps themselves to the snacks until the box is empty
- Agreeing and restricting the amount of 'pocket' money a CYP has to spend on food outside the home.

Formula diets

There are no recommendations in any guidelines that partial or full meal replacements should be used with children or adolescents. However, we can speculate that following on from the outcomes of trials in adults such as DiRECT [55] that research in this area will be conducted in the coming years.

Physical activity

As part of a multi component CYP's weight management programme incorporating physical activity is an important aspect [5,22]. How the physical activity fits into the programme will vary by delivery, age of the CYP and local circumstances. For some the physical activity will be delivered to the individual CYP, to groups of CYP or to the CYP and their parents/family. In group programmes the physical activity element is usually part of the group programme sessions such as in the MEND programme [37]. Whereas for 1:1 programmes the physical activity is typically delivered at a separate session and often by a partner organisation such as a local leisure service.

In 2019 the UK Chief Medical Officers updated the recommendations for physical activity across age groups [56]. The new recommendations are summarised below in table 3.

Table 3: Summary of UK recommendation on physical activity levels for children and young people 2019 [56].

Age	Recommendation	Example Activities
Under 1 year	At least 30 minutes of tummy time across the day	
1-5 years	180 minutes per day	Jump, climb, messy play, throw/catch, skip, object play, dances, games, play, swim, walk, scoot, bike.
5-18 years	Aim for average of at least 60 minutes per day across the week	Play, run/walk, bike, active travel, swim, skate, sports, PE, skip, climb, workout, dance.

Sedentary behaviours

The new 2019 guidelines state that CYP should reduce time spent in sedentary behaviours and try where possible to replace with being physically active [56]. Typically in weight management for CYP the suggestion has been that sedentary behaviours most notably screen time should be no more than 2 hours per day [6].

Use of Behavioural change techniques

It is recommended that all weight management programmes for CYP and their families should include behavioural change aspects [5,40]. Behavioural change tools that have been successfully incorporated into CYP's weight management programmes include-

- Self-monitoring
- Stimulus control
- Goal setting
- Reward giving for reaching goals
- Problem solving [11,57].

Behavioural change tools that have been shown to continue to improve targeted dietary aspects post intervention are self-monitoring of dietary intake, including a CYP or family led self-evaluation of their recorded dietary intake compare to

recommendations. As well as techniques to help the CYP and their parents identify and problem solve their own priorities for health behaviour changes, how they can implement and then evaluate progress on their agreed priorities [51]. NICE describes incorporating these tools in a CYP's weight management programme as a 'package' [5].

Positive parenting skills

Although not termed as behavioural change Sahota et al (2010) also noted the importance in programmes of ensuring that parents use praise, role modelling and positive social reinforcement with their children [57]. Supporting parenting in these skills of positive, authoritative parenting approach is known to be a successful component of CYP weight management [5,58].

Cognitive behavioural therapy (CBT)

CBT is not widely used in programmes for CYP but could have an effective place in work with teenagers [57] and is recommended for use for those with bingeing and bulimic tendencies [59]. CBT as a part of a programme for teenagers should be undertaken by appropriately trained and supervised staff.

Pharmacological Management

There is currently no medication licenced for the use in CYP to treat obesity. The NICE and SIGN guidelines [5,6] can offer advice around the restricted use of Orlistat when additional action is needed in conjunction to diet and lifestyle advice. The criteria for use is split into those under 12 years old and those 12 years and over. Metformin has also been used, again off licence, as a weight loss medication for CYP [60] and McDonagh et al's 2014 systematic review found that metformin with lifestyle changes could lead to a BMI reduction which was small but statistically significant [61].

Drug trials are occurring in the area of licencing drugs for CYP for the treatment of obesity so changes in this aspect of care are likely to occur in the future.

Surgical Treatment

Bariatric surgery is not common practice in CYP. However, for post-puberty young people who have a BMI $>40\text{kg/m}^2$ and have taken part in a diet and lifestyle

programme for 6 months it could be considered via a specialist team [5,6]. This should only be conducted by a specialist team given the lifelong implications of a procedure.

There is limited data on the effectiveness of bariatric surgery in this age group but it is growing. In the Cochrane review on the effects of surgical treatment, Ells et al (2015) only found one randomised control trial to include in its review. Whilst the data showed greater weight loss at 2 years in those who had a gastric band procedure [34.6kg vs 3.0kg], the strength of this data based on one study was not sufficient to alter clinical practice [62].

Research is regularly reviewed for the effectiveness and preferred type of surgery specifically within the adolescent age group. Paulus et al (2015) reviewed three styles of surgery (laparoscopic adjustable gastric banding, Roux-en-Y gastric bypass, and laparoscopic sleeve gastrectomy) and summarised that all were effective for significant weight loss, the greatest loss being seen in the Roux-en-Y gastric bypass. However, this procedure is where the greater complications and long term nutritional deficiencies were found so it was felt this procedure should only be considered when someone's BMI exceeds 50kg/m² [63].

Rapport and Attitudes to Obesity

Weight bias and negative attitudes towards obesity is well known even amongst health professionals [64]. Pont et al (2017) found a number of studies documenting that CYP who are living with overweight and/or obesity are bullied far more than their peers who were a healthy weight [65]. These are important factors to consider when interacting with the CYP and their family.

As with a number of paediatric chronic conditions it is recognised that the language used in consultations can have a large impact on the CYP and their family. Faircloth et al (2019) found when surveying parents, the term "unhealthy weight" was non-offensive whilst stimulating the need for change whereas "obese" was offensive [66]. In 2017 the American Academy of Pediatrics [65] issued a policy statement to help raise awareness of the stigma experienced by CYP with obesity. They also recognised the importance of language and suggest using terms such as "unhealthy weight" or "very unhealthy weight" rather than "obese" and "morbidly obese" along with using people first approach when coding systems, etc require the use of the term obesity

Stewart and Gillespie (2019) discuss the importance in childhood weight management on developing rapport with the CYP and their parents. Rapport can be developed through being –

- Non judgemental
- Positive

- Enthusiastic
- Sensitive
- Use active listening skills [67].

It is important that the CYP and their families have a positive experience of any weight management process and all aspects of the service and programme should be client centred and tailored to the needs of the CYP and their family [5,46,68].

Referral to Child and Mental Health Services

For some CYP a referral to CAMHs is an important part of the CYP's weight management therapy. Prior and current experiences may lead to them having an unhealthy and unhelpful relationship with food and eating behaviours. Although it is important not to medicalise normal behaviours around food and eating, a dietitian needs to be able to recognise behaviours and attitudes which require input from CAMH services. Indeed, the opportunity for professional discussions prior to formal written referral can greatly improve the quality of referrals to CAMHs and help upskill the dietitian around this important area. To achieve smooth referral and communication during treatment it is ideal for there to be an agreed pathway between the CYP weight management and CAMH services [22]. The gold standard would be to have a paediatric clinical psychologist dedicated or embedded within the CYP weight management team.

Another group of CYP who the dietitian may consider referring to CAMHs and after discussion with a Community Paediatrician, are those CYP who have no prior diagnosis but, demonstrate behaviours which appear to fit under for example Autism spectrum disorder (ASD) or Attention deficit hyperactivity disorder (ADHD).

Child Protection and Safeguarding

It is becoming increasingly accepted that obesity in CYP could be classed as a form of neglect.

As well as national guidance to cover the laws around in England and Wales each area should have its own local safeguarding/child protection children's board, with all local procedures published. In Scotland Child Protection Committees (CPCs) are responsible for multi-agency child protection policy, procedure, guidance and practice. The Scottish *Getting it right for every child (GIRFEC)* [16] provides a systematic framework for those working with CYP and their families. The National Society for the Prevention of Cruelty to Children (NSPCC) website

<https://learning.nspcc.org.uk/child-protection-system/> is a useful place for further information regarding child protection systems within the UK.

Undermining care plans, pseudo compliance, poor attendance, blame towards the CYP should be thought of as indicators towards neglectful behaviour and it is especially important to ensure joined up working is occurring i.e. the dietetic service with other health services and school [69].

The Manchester serious case review (2018) [70] suggest that Viner et al (2010) [71] framework for practice is used as a helpful guide when trying to assess if a case needs escalating:

“The framework suggests a safeguarding referral should be made where:

- There is a consistent failure on the part of a parent to change lifestyle and to address the concerns regarding a pattern of behaviour which is underpinning the obesity
- A lack of acceptance of professional advice
- Complete parental inability to take responsibility for their part in the problem and willingness to create change; the extreme end of this is where the parent blames the child completely for the problem, and is negative and denigrating of the child
- Lack of attendance of appointments, poor compliance with treatment regimens and lack of engagement/hostility to professionals
- The existence of co-morbidity such as asthma, sleep apnoea, joint problems, weight related injuries (sprains, breaks etc.), incontinence, skin conditions and diabetes
- The child’s outcomes are compromised by the obesity, e.g. social presentation/interaction with peers/educational attainment
- Concerns are escalating over time” [70].

It is worth remembering that other forms of child abuse such as physical, sexual and emotional can also be associated with forms of disordered eating and increased levels on overweight and obesity in CYP [72]. Viner et al (2010) give an excellent summary of the possible associations with child abuse and the risk of developing obesity [71]. Any dietitian working with CYP needs to be fully aware of possible child abuse warning signs and of their local procedures for escalating concerns.

Child and Young People with Learning Disabilities

All CYP's weight management programmes should be accessible in terms of appropriate for age, gender, culture and geography. A group which require particular consideration are CYP with learning disabilities and special needs. It is recognised that there is a higher prevalence of overweight and obesity in the population of CYP and adults with learning disabilities [73].

Learning disabilities is a broad term and will encompass those who with some support will be able to successfully engage with mainstream services through to those who require a programme to be delivered via their parent/carers. Dietitian's delivering CYP weight management services therefore, need to ensure that –

- the facilitates used can accommodate people with a range of physical difficulties
- resources and handouts are appropriate for young people with learning disabilities
- they have an understanding of the association of overweight and obesity with various hereditary and endocrine conditions [74]
- they have the skills to communicate effectively with this client group.

It is worth noting that reversing a trend of weight gain or the slowing down of weight gain can often be seen as successful clinical outcomes in CYP with learning disabilities (LD). In many cases most of the intervention will be directed at the parent or carer. Some CYP with LD will live in a care home and many will go to respite facilities. Therefore, a multitude of carers will be involved in their daily living. To support consistent advice around food, physical activity and screen time it is important that all these carers and institutions have an awareness of the CYP's weight management care plan.

Although aimed at adults a useful resource to help with further considerations is the Public Health England guidance on obesity and weight management for people with learning disabilities (<https://www.gov.uk/government/publications/obesity-weight-management-and-people-with-learning-disabilities/obesity-and-weight-management-for-people-with-learning-disabilities-guidance>).

Down's Syndrome

For CYP with Down's Syndrome there are specific UK growth charts which include a BMI conversation chart. The advice from the Down's Syndrome Medical Interest Group (DSMIG) and the Royal College of Paediatrics & Child Health (RCPCH) is that on these specific Down's Syndrome charts a BMI $\geq 71^{\text{st}}$ centile should be considered overweight and $\geq 91^{\text{st}}$ BMI centile as obesity [75].

Prader Willi Syndrome

Prader Willi Syndrome (PWS) is a condition that any dietitian working in CYP weight management should have an understanding of the syndrome and possible treatment pathways. Most CYP with PWS are routinely followed up in a tertiary centre however, they often can have shared care with local services. The Prader Willi Society (<https://www.pwsa.co.uk/>), as does the section on PWS by Chris Smith in the chapter on *Obesity* in the text book *Clinical Paediatric Dietetics* [11] offer very useful advice and information.

Autism Spectrum Disorders

CYP who sit on the Autism spectrum are at a higher risk of living with obesity [76]. Therefore, dietitians should expect to see a number of CYP with Autism Spectrum Disorders (ASD) in their clinics. Due to the complexity of working with CYP living with ASD and their families most of these would be seen in a tier 3 programme. As this is a spectrum there are varying levels of support required by CYP living with ASD. A knowledge of communication strategies, such as communication passports, and dealing with behavioural issues in a clinical setting are important for the dietitian.

Equipment and Environment Considerations

Due to weight bias many CYP living with overweight and obesity may have previously experienced negative healthcare experiences. Therefore, levels of anxiety may be high prior to their visit to the dietitian, particularly in the first appointment.

Anticipating the CYP's possible needs and attempting to create a physical environment that welcomes rather than challenges, is an important aspect of the sensitive care of CYP with obesity. The list below in table 4 gives some suggestions of how the environment can be altered to accommodate the needs of the CYP and their families; this may make an important contribution to an improved experience. It is also worth consideration of trying to offer all or some appointment times outside of normal school hours.

Table 4: Recommended environmental factors for clinical areas

Seating	<p>Adequate numbers of large chairs with armrests or regular chairs without arm rests and with sufficient space between chairs to allow easy movement.</p> <p>Consultation seating arrangement that avoids the practitioner seated behind a desk.</p>
Access	<p>Consider the location and size of clinical rooms and the impact this may have on access for those with mobility issues or when sibling's attend in prams/ buggys.</p>
Scales	<p>Scales with a wide base that weigh up to 200kg located in a private area and consider how wheelchair users will be weighed.</p> <p>In clinics for young people aged 16 years and over scales able to take weight greater than 200kg.</p>
Health promotion material	<p>Magazines, posters and leaflets with appropriate healthy lifestyle information, along with information on local leisure services and active clubs to be left in the waiting areas and consultation rooms.</p>
Play materials	<p>Ensure there are some books, toys, colouring equipment in both the waiting area and clinic room for distracting and entertaining younger children (informing families in a welcome letter on how long a first appointment may take will help parents prepare for longer sessions).</p>
Hazards	<p>Minimise the risks of potential hazards for younger children e.g. plug sockets covers, doors shutting on fingers.</p>
Temperature control	<p>The use of portable fans in waiting areas and consultation rooms to maintain ambient temperature. Windows being able to be safely opened.</p>
Telephones	<p>Interruptions during consultations to be</p>

	minimised where possible.
Fluids	Provision of drinking water where possible.
Vending machines	Try to avoid locating clinics near vending machines. If this is not possible discuss stocking healthier items with your catering team (or the owner of the machine).

Maintenance of Behaviour Changes

For the vast majority of CYP referred for weight management the clinical outcome is a maintenance of their weight, growth in height and thus a decrease in BMI and BMI SD score [8]. Therefore, for these CYP at the end of the active programme the ideal maintenance stage should be to continue growing in height with weight remaining stable or rising slowly until their BMI is in the healthy BMI range (<91st BMI centile) or in a lower BMI range than at referral. For those CYP who have lost weight then they require support to maintain the weight lost and the reduction in BMI and BMI SD score.

In order to continue this move towards the healthy BMI range the CYP and their family need to maintain the targeted behaviours they have changed during the active programme stage. As in adult weight management this is an area that requires consideration and more research. Obesity is a chronic disease and in childhood requires behavioural maintenance support and follow up post programme. Both NICE [5] and NHS Health Scotland [22] recommend continuing monitoring and support post programme. This may be achieved via face to face sessions, digital communication or via telephone. A combination of these may also be helpful. Further research is most certainly needed in this area to demonstrate the most promising methods.

CYP and their families should be encouraged to continue with or return to behavioural change tools, such as problem solving, goal setting and self-monitoring, learnt during the programme. Before the end of the programme discussions should take place regarding techniques for dealing with tricky or difficult situations such as Christmas and family holidays.

Evaluation of Weight Management Programmes

Evaluating a CYP's weight management programme is essential in ensuring the delivery of high-quality weight management, that is responsive to the CYP and their family's needs. Therefore, scrutinising the quality of the programme delivered in terms of its effectiveness, patient experience and safety is essential. This requires systems

to be put in place which facilitate data collection and monitoring, these should link with the initial assessment phase as well as ongoing monitoring [77].

In CYP it is important to understand that although collection of weight, BMI and BMI centile are important in clinical monitoring, for evaluation BMI SD score is the most relevant outcome [8,77]. For other outcomes such as changes in physical activity levels, dietary patterns and mental well-being only validated tools which are workable in clinical practice should be used [77].

For more on measuring mental well-being in CYP see

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/768983/Measuring mental wellbeing in children and young people .pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/768983/Measuring_mental_wellbeing_in_children_and_young_people.pdf) [78].

On measuring physical activity see <https://www.readkong.com/page/measuring-diet-and-physical-activity-in-weight-management-6878724> [79].

Clinical outcome measures are commonly considered when evaluations are planned but of equal importance are qualitative measures which explore patient reported experience (PREM's) and patient reported outcome measures (PROMS). Qualitative evaluation and 'patient stories' are often a powerful tool for demonstrating the day to day outcomes which are most relevant to the CYP and their families [80]. Consideration should also be given to demonstrating a systematic method of ensuring fidelity to the programme and that it is being delivered as planned across all delivery sites [77,81].

When planning the monitoring and evaluation it is important to have a firm grasp of the outcomes and outputs desired by the service commissioner or senior managers. Developing a logic model is one method of ensuring an understanding and agreement of relevant data to be collected. To help facilitate the development of a logic model and data collection Public Health England's key performance indicators (KPIs) for tier 2 CYP weight management

<https://www.gov.uk/government/publications/kpis-tier-2-weight-management-services-for-children> [82], the British Obesity and Metabolic Surgery Society

(BOMSS) Commissioning guide: Weight assessment and management clinics (tier 3)

<https://www.bomss.org.uk/wp-content/uploads/2017/10/Revision-of-Commissioning-guide-Tier-3-clinics-04042017.pdf> [83] and NHS Health Scotland's

minimum standard for CYP tier 2 and 3 weight services

<http://www.healthscotland.scot/media/2658/standards-for-the-delivery-of-tier-2-and-tier-3-weight-management-services-for-children-and-young-people-in-scotland-english-oct2019.pdf> [22] are useful documents.

Rigour of evaluation and data collection is important to ensure that value can be demonstrated [77,81]. There are a number of excellent papers written by Public Health

England that are highly recommended for anyone considering or undertaking evaluation of CYP weight management programmes and services.

- Evaluation of weight management, physical activity and dietary interventions: an introductory guide (2015)
<https://www.makeeverycontactcount.co.uk/media/1035/07-evaluationintroductorypdf.pdf> [81].
- Standard evaluation framework for weight management interventions (2018)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685545/SEF_weight_management_interventions.pdf [77].

Public Health England have also developed and made available an online downloadable data collection tool which includes calculation of BMI centiles but not SD scores; <https://www.gov.uk/government/publications/child-weight-management-services-collect-and-record-data>.³

When BMI centiles and SD scores are required for spread sheets or data-bases it is exceedingly important to ensure that the correct population reference data is used. For children under 4 years the WHO population data is available from <https://www.who.int/growthref/tools/en/> and for those 4 years and above the UK 1990 population data is available from <https://www.healthforallchildren.com/shop-base/shop/software/lmsgrowth/>.

Training and Life Long Learning

Dietitians working in this field should be able to identify themselves as paediatric dietitians or improve their knowledge in this area. Understanding usual growth, normal infant feeding including weaning, knowledge of major food allergies, behaviour expectations and safe guarding procedures/child protection is essential. We would recommend that the BDA's Paediatric Groups Module 1 course is undertaken by any dietitian working in child weight management, as soon as possible after commencing this role.

Obesity management is complex and the dietitian involved may work as part of a multidisciplinary team or they may be the main health professional involved. For those dietitians working within a multidisciplinary team they will have the opportunity to gain upskilling from on the job learning from their colleagues such as psychologists. For those working independently we recommend that they seek opportunities to shadow

³ All web site addresses given in this section were correct at time of writing, October 2019.

other professions.

Behaviour change skills are an essential skill when dealing with weight management, both within the adult and paediatric field. Stewart et al (2008) found that parents perceived the treatment programme more positively when these skills were used and a rapport was formed with the dietitian [2]. Parents' perception of the programme will impact whether the CYP is allowed to continue to attend sessions and / or the family implement changes at home.

Basic skills

- Basic behavioural change
- Active listening
- Group delivery (if working with groups)
- Safe guarding/child protection
- GIRFEC (Scotland) [16]
- Trauma informed training [84,85]
- Understanding and knowledge of norms of eating, eating patterns and developmental milestones at various age stages and development [86,87]
- Understanding and knowledge of disordered eating in children and young people
- Trained on appropriate techniques to take weight and height measurements in children and young people
- Plotting and interpretation of WHO/UK 1990 growth chart (see useful information below)
- Plotting and interpretation of WHO/UK1990 BMI charts (see useful information below)
- Age appropriate communication with CYP.

Advanced skills

- Advanced behavioural change technique and skills
- Complex case management (medical and social)
- Positive parenting facilitating skills
- Understanding of eating disorders in children and young people
- Ability to work and communicate effectively with CYP with learning disabilities
- To have sufficient skills and knowledge to be a source of information and training to gatekeepers and others on childhood obesity and raising the issue of weight (see useful information)
- Skills to report on outcomes and outputs for monitoring and evaluation [81].

Conclusions

This document sets out to provide a source of evidence and commentary in relation to the dietetic weight management for CYP. It was written to be a starting point to guide discussions with commissioners and senior managers and dietitians on weight management services for CYP and their families. As with all areas of paediatric dietetics there are many challenges in working in CYP weight management, although it can be an immensely rewarding field of dietetics for the practitioner. The complexities around case management, child protection issues and competing family motivation should not be underestimated by managers and commissioners.

To ensure the highest quality of weight management for CYP and their families investment in training at an undergraduate and postgraduate level, particularly in relation to interpersonal and advanced behavioural skills, is an essential aspect of maintaining and extending the various roles of dietitians in CYP weight management.

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Useful Information

RCPCH- <https://www.rcpch.ac.uk/resources/growth-charts> and <https://www.rcpch.ac.uk/resources/body-mass-index-bmi-chart>

Harlow Printing charts - <https://www.healthforallchildren.com/hfac-support/>

Eatwell Guide pdf -

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/528193/Eatwell_guide_colour.pdf

Prader Willi Society - <https://www.pwsa.co.uk/>

NSPCC - <https://learning.nspcc.org.uk/child-protection-system/>

PHE Healthy Conversations - <https://www.gov.uk/government/publications/healthier-weight-promotion-consistent-messaging/promoting-a-healthier-weight-for-children-young-people-and-families-consistent-messaging>

NHS Health Scotland, Raising the Issue of Child Healthy Weight <https://elearning.healthscotland.com/enrol/index.php?id=314>

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