Healthy **Weight**:
Healthy Wales

Llywodraeth Cymru
Welsh Government

All Wales Weight Management Pathway 2021

(Children, Young People and Families): Core Components

Purpose and Summary of Document:

This document details the revised All Wales Weight Management Pathway core components for weight management services for children, young people, and their families. It provides guidance to those looking to commission weight management services as well as to providers, detailing the minimum service requirements at each level and expectations for weight management services for children, young people and their families across Wales. This document also provides a summary of the interface between the levels and the minimum data set to be recorded by providers.

This document is one in a suite of planned documents to support the delivery of effective weight management services across Wales.

Acknowledgements

This document and the work that has been needed to reshape and develop a new approach to weight management services for children, young people, and families in Wales, in support of our Healthy Weight Healthy Wales Strategy, has drawn on the expertise and knowledge of a number of professionals across Wales. Their help has been invaluable.

We would particularly like to thank those who have participated in the pathway development groups and provided constructive feedback and advice throughout the process; in no particular order:

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1. Introduction

This document is one in a series setting out the components, standards and guidance to support the development and delivery of weight management services in Wales. This document sets out the key elements and principles underpinning the planning, commissioning and delivery of weight management services for children and young people in Wales.

The 2021 All Wales Weight Management pathway, replaces the previous pathway published in 2010 by Welsh Government [1] and focuses on the weight management journey, i.e., from early intervention to specialist support. It has been developed in partnership with professionals working in this field across Wales, drawing on the best available international evidence.

The essential but complex work of prevention, through developing healthy weight environments, healthy weight settings, and broader preventative approaches will be steered through the delivery of the Welsh Government's Healthy Weight: Healthy Wales strategy [2].

This revised weight management pathway (2021) seeks to improve outcomes for children, young people and their families by ensuring that all levels of service are built on a shared understanding of the complexity of factors which lead to overweight and obesity. Excess weight in childhood can be associated with conditions such as bone and joint problems, prediabetes, poor psychological and emotional health, for example many children and young people experience bullying linked to their weight.

Children and young people who live in a family where at least one parent or carer lives with obesity are more at risk of developing weight related problems compared to those whose parents are either overweight or a healthy weight. Family based approaches are therefore an important consideration when helping children and young people address their weight. The earlier action is taken the easier the issue is to address.

In both routine and opportunistic appointments, health professionals working in primary and community health roles such as GPs, health visitors, school nurses, practice nurses, as well as social care and education professionals are well placed to help families who may be encountering weight-related issues. Many medical issues such as disrupted sleep, pain, mechanical problems, metabolic, respiratory and psychiatric conditions are contributed to or exacerbated by excess weight.

Furthermore, primary and community care professionals can play an important role in helping families to recognise when a child or young person's weight is no longer in the healthy range, the risks associated with this and the health and wellbeing benefits associated with whole family behavioural changes.

This new weight management pathway (2021) is underpinned by the 10 national design principles outlined in *A Healthier Wales: our plan for health and social care* [3] and frame a transformative approach over the next decade.

The core components outlined in this document should be used in conjunction with the others including All Wales Weight Management Service Standards, which will be used to measure service quality and stimulate continuous improvement.

2. Fundamentals for service design and delivery

All services with the All Wales Children, Young People, and Families Weight Management pathway should integrate the following fundamentals into their design and delivery:

Person-centred

A person-centred, empathetic, non-judgemental approach based on mutual respect and honesty should be adopted by all staff at every level of the Pathway. Services for children, young people and families should take a United Nations Convention on the Rights of the Child (UNCRC) [4], approach and ensure children and young people are encouraged to express their views, feelings and wishes and to have their views taken seriously.

Psychologically and behaviourally informed

Doing no harm and creating a safe space for people managing their weight by delivering compassionate, non-judgemental, person-first services is essential. This principle will be upheld by ensuring that weight management staff are both psychologically and trauma informed and by challenging all factors that promote bias and stigma. Childhood obesity alone is not a child protection concern but all staff will need an increased awareness of when, in combination with other factors, weight is a safeguarding issue and be clear on the actions required in such circumstances [5].

Focussed on the long term

Taking a long-term approach that seeks to foster the development of sustainable self-care and self-management skills will support children, young people and their families to manage their own wellbeing, care and outcomes. Factoring in the support provided by social networks and community assets early in the weight management journey will help to develop resilience.

Integrated and co-ordinated supporting the patient journey

Every person's weight management support needs should be coordinated by an appropriately trained member of staff or a team who be responsible for ensuring overarching progress is reviewed in a timely manner. This is particularly relevant if programmes consist of separate components delivered by different providers.

Provide support for on-going weight management journey

Staff in all services should provide planning support and information to help participants continue their weight management journey once the active phase of the programme is complete.
Table 1 below summarises the revised pathway approach to the management of overweight and obesity based on individual complexity and need for specialist intervention and support. All services within the AW Children, Young People, and Families WMP will need to ensure that the fundamentals described are integral to the design and delivery of the services.

3. Children, Young People, and Families Weight Management Pathway

Table 1 below identifies the levels of weight management support that should be offered according to the BMI centile of the child or young person. These levels are then described in more detail in the subsequent sections.

However, BMI should never serve as the only indicator for weight management interventions. Obesity is a complex disorder with multiple causes. Drivers, barriers and complications of overweight and obesity will vary among individuals and families. It is important to base decisions on an holistic assessment of a child, young person and family's physical, psychological and social wellbeing.

Table 1: Children, Young People, and Families Weight Management Pathway 2021 - Summary of Levels for people 0-18 years

Level	Description	Criteria	Age	Referral
1	**Self-Directed support** Self-directed, support for achieving or maintaining a healthy weight. This could include support to develop parental confidence and skills improve diet, increase physical activity or play and reduce the amount of time spent being sedentary.	Children and young people with a BMI < 91st centile ***and*** parental concerns about potential weight problems, co-morbidities, family history.	0-18	Signpost from a professional in a helping role
2	**Multi-component weight management services** Age-appropriate, multi-component weight management interventions addressing dietary intake, physical activity levels, sedentary behaviour, positive parenting skills, based on core behaviour change principles. The different components may be delivered together or separately; either online, in primary care or in a range of community locations. Parents and or carers are invited to attend. Frequency of input and duration of programmes is dependent on individual need.	Children and young people with a BMI ≥ 91st centile	0-18[1] years	Self-referral Referral by a health, social care or education professional[2]
3	**Specialist multi-disciplinary weight management services** Services at level 3 are delivered by members of the level 3 multi-disciplinary team, (MDT). The MDT offer specialist assessment and specialist dietary, psychological, pharmacological and physical activity/mobility interventions tailored to the child/young person/ family's needs. Overall progress is monitored and reviewed by the MDT. To improve access, programme offers will include support provided online or via digital/telehealth.	Children and young people with a BMI ≥ 98th centile	< 2 years	Referral by a health professional
		Children and young people with a BMI ≥ 98th centile and one or more co-existing conditions[+] Children and young people with a BMI ≥ 99.6th centile	2-18 years	

[1]Depending on locality, support for children age 0- 4 may be delivered via health visitor and/or paediatric dietician.

[2] Health, social care and education professionals, including nutrition and dietetic teams, general practitioners, paediatricians, school nurses, health visitors, social work, dental and education professionals etc.

Level	Description	Criteria	Age	Referral
[+]Co-existing conditions or other special needs • Children with a suspected underlying medical (e.g. endocrine) cause of obesity • Children with Prader-Willi syndrome or where this is suspected. • Children with a strong family history of cardiovascular disease or type 2 diabetes • Complex social history including adverse childhood experiences (ACES). • Significant family/individual distress related to obesity e.g. depression or suicidal ideation, self-harm or other concerning behaviour • Concerns regarding possible eating disorder (including parent/carer history of a current eating disorder) • Children and young people who have previously accessed a level 2 service or similar structured programme and subsequently been identified as requiring more intensive support. • Children who may have serious obesity-related morbidity that requires weight loss (see below++):				
++ serious obesity-related morbidity that requires weight loss • type 2 diabetes • abnormal glucose or insulin metabolism (IFS/IGT, Hyperinsulinaemia) • hypertension * • cardiovascular disease • significant joint or mobility problems • dyslipidaemia* • benign intracranial hypertension • obstructive sleep apnoea • obesity hypoventilation syndrome, • features suggestive of polycystic ovarian syndrome • Acanthosis nigricans • Raised levels of alanine aminotransferase (>70) suggestive of Non-alcoholic fatty liver disease (NAFLD) ** the assessment of hypertension, dyslipidaemia and other metabolic comorbidities must be undertaken using age- and sex-appropriate centiles and may therefore be difficult to assess in primary care*				

3.1 Level 1 Brief advice and self-directed support

Level 1 involves the provision of brief advice and support, as well as signposting to self-directed support for children, young people and their families to support them in achieving or maintaining a healthy weight (step-down). Level 1 is typically provided by primary healthcare teams or other health and social care professionals providing support to children, young people and their families e.g. health visitor, school nurse.

Conversations about children and young people's weight need to be approached sensitively. It is important to discuss the concept of weight, the benefits of being a healthier weight and potential impacts of being outside a healthy weight range, using positive, non-judgemental or stigmatising language.

There is strong evidence that parents and carers find it difficult to identify when their child's weight is outside of the healthy range and

may not always be receptive to receiving that information from health and other professionals.

Community and Primary care practitioners are often the first point of contact for people with health and wellbeing concerns. Many medical issues such as disrupted sleep, pain, mechanical problems, metabolic, respiratory and psychiatric conditions are associated with excess weight. A family seeking help may or may not see weight as the most salient issue for them.

Routine child development assessments through the Healthy Child Wales Programme provide structured opportunities to review and discuss a young child's general health and development including growth.

Primary healthcare teams should ensure that the weight of all patients is monitored and discussed in a sensitive and non-stigmatising manner with the goal of preventing significant weight gain in addition to supporting weight loss. At level 1 children, young people, and their families should be offered help and support by the primary or community health professional. Supporting people to make changes to benefit overall health as well as addressing weight is a priority. Small yet significant changes should be encouraged and affirmed.

Health Boards should provide guidance to primary and community services on the range of options available locally. This may include local, family-focused weight loss groups; commercial weight loss services delivering 1:1, group or online services specifically for children and young people; online or other self-help materials in digital or other form to support children, young people and their families.

Opportunities at level 1 should be available close to people's homes, in the neighbourhood, local community and online. Level 1 should apply universally for prevention. Practitioners should discuss action according to the criteria below.

Level	Description	Criteria	Referral
1	**Brief Advice and Self-Directed support**	Children and young people with a BMI < 91st centile ***and*** parental concerns about potential weight problems, co-morbidities, family history.	Signpost from a professional in a helping role

If the young person or family feels supported long-term, they are more likely to engage with professionals, optimising the chance of making real changes that will impact the person's health.

There are a number of frameworks that can be used to structure the initial stages of helping those living with overweight and obesity within primary and community care [6], [7].

3.2 The 5As Framework for obesity management

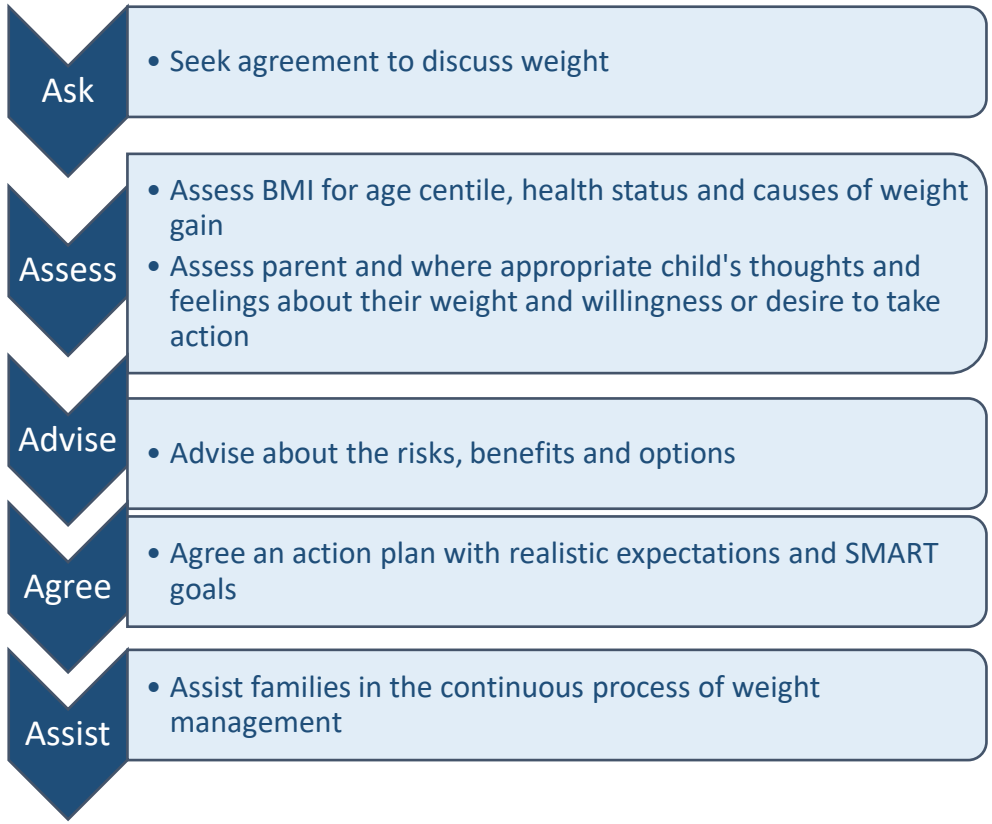
The 5As approach to obesity management is a widely used theory-driven, evidence-based behavioural change framework extensively utilised in addiction management. Developed and adapted by the Canadian Obesity Network, the 5 As of paediatric obesity management [8] is designed to facilitate obesity counselling and management by primary care practitioners (Figure 1).

The 5 As approach utilises Motivational Interviewing techniques which have been widely applied and shown to elicit and strengthen personal motivation for change [9] have also been adapted for primary care use in the UK [10].

Depending upon the pathway configuration in each Health Board, or how care is organised in each primary care organisation or cluster, these steps may be conducted by one health professional who raises the issue, works through the 5As with the young person or family until a plan of action is agreed. Alternatively, the process may be started by one health professional, for example a GP, who may raise the issue and take some basic health details ('Ask' and part of 'Assess' stage) and then additional appointment(s) take place to complete the process, either with the same or a different health professional, for example a practice nurse. Making Every Contact Count (MECC) training and skills can support having these conversations and promoting brief interventions.

The psychological consequences of overweight and obesity can present in different ways with children than with adults and include school refusal and impacts of bullying [11]. Close working arrangements between primary and community clinicians, mental health service professionals, and education and social care professionals are vital to ensure that problems are identified at an early stage and timely support is provided.

Figure 1: The 5 As of Obesity Management, Canadian Obesity Network [8]



3.2.1 ASK

It is important that professionals seek permission to open a dialogue and establish a shared understanding of the benefits to taking action. It will also, critically, help to establish how the parent and child feel about the issue. Many children and parents may be embarrassed or fear blame. Angry and aggressive responses may reflect a parent's sense of stigma, shame and responsibility. It is important that the conversation takes place in a way that helps a parent recognise that you want to offer help and support and not make judgements or apportion blame.

Determining if children, young people and parents are ready to consider making behavioural changes in their lives is essential. It is possible that children, young people and their parents may be at different stages in this regard. Initiating change when children and/or parents are not ready can result in frustration and may hinder future attempts to make healthy changes.

Taking a preventative approach also involves early identification of significant weight gain or loss, understanding how weight has changed or is changing over time is an important part of the assessment.

3.2.2 ASSESS

Assessing a child's weight and height is more complicated than with adults since development and growth occur throughout childhood and are affected by age and sex as well as family characteristics and environment. The Royal College of Paediatrics and Child Health (RCPCH) UK growth charts are used to plot a child's height and weight against other children the same age, and thus identify their weight status or Body Mass Index (BMI).

Centile Growth Patterns and Body Mass Index (BMI)

Body Mass Index (BMI) is a key index for relating weight to height. BMI is a person's weight in kilograms (kg) divided by his or her height in metres squared.

Appendix 1 gives details of age specific instructions for measuring weight and height (length for children under 2 years) and how to calculate BMI centiles for children.

BMI should never serve as the only indicator for weight management interventions. Obesity is a complex disorder with multiple causes. Drivers, barriers and complications of overweight and obesity will vary among individuals and families. It is important to base decisions on a holistic assessment of a child, young person and family's physical, psychological and social wellbeing.
Figure 2 below summarises the classification for children and young people measured individually.

Figure 2: BMI Classification for Children and Young People ([12])

BMI Centile	Classification
< 2nd	Underweight
2nd- 90th	Healthy weight
91st - 97th	Overweight
98th- 99.5th	Very overweight (clinically obese)
<99.6th	Severely obese

Discussing the BMI centile and implications with parents/carers

It is important to approach the topic of weight in a sensitive and non-judgemental manner. Terms such as 'obese' should be avoided when talking to parents about their child's weight. A preferable term may be 'very overweight'.

Consideration should be given as to how this feedback is given, depending on the age and maturity of the child or young person. Practitioners will need to listen carefully to find out how the child, young person and family feel about the outcome of that measurement. Sometimes parents or carers may find it hard to accept and may need time to think about the issue before engaging in further discussion about it. In this case, they should be encouraged to return for a further discussion when they are ready or highlight others that they may prefer to talk to such as the health visitor, GP, practice nurse or school nurse. It may also be helpful to establish previous experience of weight management, those who express multiple attempts and feelings of failure in the past may benefit from more specialist services.

Psychological Awareness

While practitioners in primary and community care settings are not expected to be able to make a psychological assessment it is essential that they are alert to the potential for psychological factors underpinning overweight and obesity. Equally it is important to identify whether the child or young person's mental wellbeing is affected by their weight. For example, whether there are any signs of family/individual psychological distress, depression, bulimia, suicidal ideation, self-harming, comfort eating, symptoms indicative of binge-eating disorder or other mental health problems related to their weight [13]. The psychological consequences of overweight and obesity can present in different ways to adults and include school refusal and impacts of bullying [11].

It is important that training is available to primary care practitioners to support them in identifying psychological factors relating to weight management, and for there to be close working arrangements between primary and community clinicians, mental health service professionals, and education and social care professionals to ensure that the right support is provided.

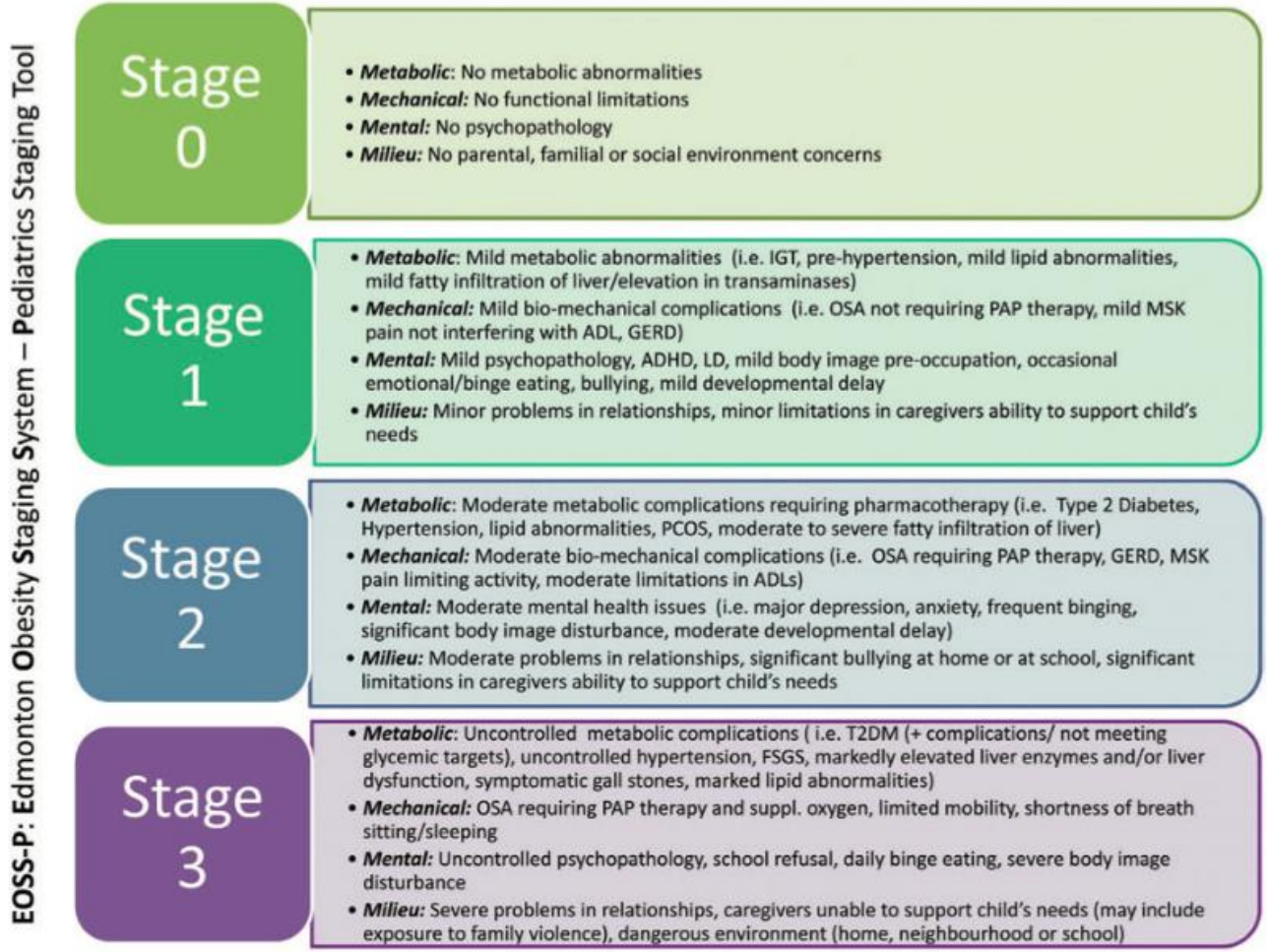
Where there are concerns about possible psychological factors referral to level 3 services is indicated to enable a full multi-disciplinary assessment including from a psychologist.

3.2.3 ADVISE

BMI should never serve as the only indicator for weight management interventions. Obesity is a complex disorder with multiple causes. Drivers and complications of obesity will vary among individuals. For example, there are patients with overweight or with lower levels of obesity who are profoundly affected by their excess weight with, for example, type 2 diabetes, obstructive sleep apnoea and depression. Alternatively, some people have a higher BMI but minimal physical, psychological or functional consequences. It is important to base decisions on an overall view of a person's physical, psychological and social wellbeing.

The EOSS staging scheme (Figure 3 below) can be a useful tool to help identify any co-morbidities or other factors that may place the child at increased risk of weight related health problems.

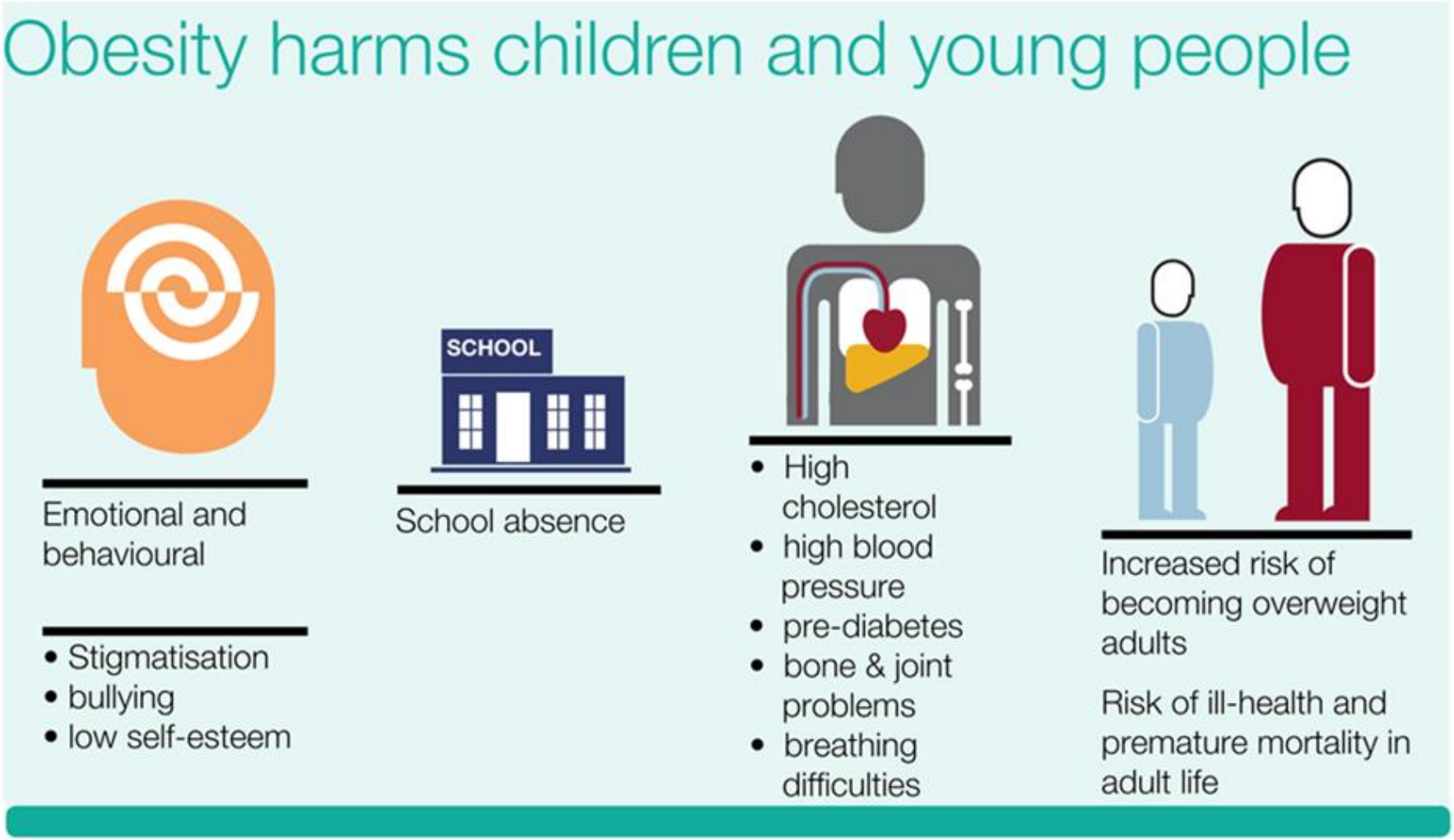
Figure 3: The Edmonton Obesity Staging System for Paediatrics,



Source: Hadjiyannakis et al, (2016) [14]

Once the initial assessment is complete the health practitioner will then advise about the risks of obesity. It is important that children and their families understand that excess weight is associated with several weight-related complications. These include diabetes, high blood pressure, and other cardiovascular, joint and psychological problems, see figure 4 below, and that that a sustained weight loss of as little as 5-10 % can have a beneficial effect on co-morbidities.

Figure 4: The varied risks associated with obesity impact the individual in different ways.



Source: PHE (2015) [15]

The benefits of healthier behaviours should also be explored. These benefits are likely to include improvements in the following (figure 5):

Figure 5: Benefits of healthy weight

○ Improved Fitness	○ Lipid profile
○ Improved Sleep	○ Blood sugar control
○ Positive Body image	○ Blood pressure control
○ Increased Self-esteem	○ Reduced Breathlessness

If the family is ready to consider accessing external support, then the primary care professional should explore the suitability of weight management options available in the weight management pathway. The benefits of accessing support through the pathway and the time and cost commitments required should be explored in relation to the personal and social circumstances of the child and the family.
It may be relevant to explain both adult and children/family services if either parent is living with obesity and seek this information.
Families with children < 2 years and growth significantly beyond optimal levels should be supported by the Health Visiting Team, with assistance from the GP, paediatric dieticians and advice and guidance from Level 3 teams as necessary.

Commissioners and local service providers need to give consideration to the services offered and delivered to those aged 16-17 years. There may be circumstances where, due to type of service provision or developmental age, it may be more appropriate for a young person (≥16 years) to access adult weight management services or be cared for by a combination of both paediatric and adult weight management services. In either case, careful reference should be made to Welsh Government Transition and Handover guidance (currently in consultation[3]) and NICE Guidance 43 [16]. Local child and adult weight management service providers will be expected to work together to enable reciprocal arrangements where appropriate.

3.2.4 AGREE

The AGREE stage is a respectful negotiation to agree realistic goals and expectations which depending on the age of the child may not include weight loss and plan the behavioural changes required if the young person/family is ready to progress.

The success of the actions that a child and family take, should be measured in improvements in the agreed and prioritised wider health and wellbeing benefits rather than focussing just on weight lost. Unrealistic weight-loss expectations can lead to disappointment and non-adherence. Be mindful that children, young people and their parents are likely to each have different aspirations and so may want to set different goals.

The primary care professional should focus on agreeing a reasonable goal and understand the key barriers or enablers of change. This may include understanding the drivers of weight gain e.g. poor sleep, anxiety, stress at home or at school, bullying. Subsequent steps should focus on actions to stabilise weight and prevent further weight gain before addressing weight loss.

3.2.5 ASSIST

Depending on the level of overweight or obesity, history and co-morbidities identified during the assessment, the primary and community care practitioner will, with agreement from the young person/ family, either signpost them to Level 1 support and resources available; refer to Level 2 services; or refer to Level 3 services, and document this in their notes.

[3] https://gov.wales/managing-transition-childrens-adults-healthcare-services

Ensure when referrals are made that the parent/carer/young person has consented to the referral and that they have reasonable expectations, including understanding what is involved, what success looks like and what they can reasonably expect for follow-up support.

Those who are not yet ready to engage in weight management at this point should be offered the chance to access further consultations when or if they are ready. For those not ready to engage, acknowledge this, and provide information on maintaining weight in the interim and signpost to community or web-based support and information.

Families should be informed that self-referral is acceptable to services at level 1 and 2 if they would like to access these at a later stage.

Given the chronic and relapsing nature of overweight and obesity; ongoing follow up is essential. Primary and community care professionals should continue to monitor, support and care for children and young people with overweight or obesity over the long term [17]. For families who have initiated changes through this process, follow-up appointments should take place annually, in a similar way to other chronic conditions, such as Asthma or Diabetes, to review progress, provide support, boost motivation and facilitate problem solving. These can be done remotely or by non-clinicians if appropriate and acceptable.

The role of the referring practitioner is to follow-up with the child and family to establish whether they attended the service to which they were referred or took the planned actions and the outcomes.

- *For those families and young people who have engaged and have met their initial goals;* provide positive reinforcement, acknowledge how difficult the journey can be, and discuss the benefits of continued weight management/maintenance. Consider continued support options in the community or a re-referral into the pathway if appropriate and beneficial.
- *For those families and young people who have engaged but have not met their initial goals;* provide positive reinforcement for their engagement, discuss their experience, any barriers encountered, discuss the benefit of continued weight management and the benefit of social support. Help them to understand why they feel they may not have achieved their goals and what further support they may need. This may include referral to the next level in the pathway where more intensive support may be provided, consider whether referral to level 3 is indicated to facilitate psychological support.
- *For those families and young people who have not engaged, or disengaged;* review the reasons for this, discuss the barriers they encountered and consider alternative options if appropriate, such as a different service at the same level or different level (if clinically appropriate).

It is important that the young person's /family's progress towards meeting their specified behavioural goals, agreed in earlier appointments, is documented and that they are supported to set new SMART behavioural goals based on their experiences so far.

4. Level 2 Multi-component weight management services

Level 2 involves specifically commissioned or funded services; addressing diet, physical activity, sedentary behaviour, positive parenting skills, behaviour change, and self-care skills, underpinned by behavioural science. The different components may be delivered together or separately, they would normally include referral to evidence based commercial provision, dedicated primary or community services delivered by dietitians or other professionals or digital services. The different components may be delivered together or separately or through a blended approach. The components may be delivered either online, in primary care or in a range of community locations with parents / carers invited to attend. Sessions should be offered over a minimum period of 12 weeks and should include a review by the referring professional at the end of the period.

Level	Description	Criteria	Referral
2	**Multi-component weight management support**	Children and young people with a BMI ≥ 91st centile	Self-referral Referral by a health, social care or education professional[4]

There should be a diversity of offers at Level 2, to meet the wide range of need in the population [18] . The offers should include funded access to evidence-based weight management programmes; programmes designed to appeal to families, children, and young people and more targeted programmes delivered or overseen by health professionals. All services included in the pathway should meet the requirements set out in this guidance.

Programmes should be designed and developed with input from a multidisciplinary team [19] and children, young people, and families with overweight and obesity. Practice based evidence suggests that the team involved in service design should include the following registered professionals [20] all of whom have a specialist interest/training in weight management:

- A paediatric dietitian
- A physical activity specialist/ occupational therapist/physiotherapist.
- A practitioner paediatric psychologist (clinical or educational)

Level 2 services can be delivered by public, private or third sector organisations. Those delivering the services do not necessarily need to be clinically trained or specialists, however all staff will need to demonstrate competency in delivering the overarching approach and competency for the component they are delivering.

[4] Health, social care and education professionals, including nutrition and dietetic teams, general practitioners, paediatricians, school nurses, health visitors, social work, dental and education professionals etc.

4.1 Level 2 Core Components

Programmes should comprise an active intervention phase of at least 12 weeks, followed by a managed exit route and maintenance plan [19]. The duration of each phase will be dependent on the needs of the child/young person and family.

Services should explore the role of relatives and friends in supporting change and create and nurture opportunities for parents to meet each other, develop relationships and build networks of support within and beyond programmes. Additional support can be accessed through Family Health Visitor Teams and Flying Start Children's Centres where available.

Services will need to ensure programme flexibility to meet the range and variety of family needs, for example, timeframes, local venues, transport and equipment needed.

Health Boards will determine an overall maximum duration for young people/ families to be supported in Level 2 services and any associated criteria and review points for local services.

4.2 Active Intervention phase

All interventions (individual or group) should comprise of a minimum of eight sessions per 12-week period and include an option to record weight at each session. Local areas are encouraged to trial and evaluate the effectiveness of longer/higher intensity interventions, as there is some evidence to suggest that there is a dose–response relationship between volume of intervention and outcome, particularly in a group setting [21].

- The emphasis should be on practical, interactive delivery to build confidence and enable skill development
- Programmes should encourage a whole-family approach, aiming to influence behaviours across the family.
- Programmes should provide opportunities for socialising with others to foster social support and involve positive relatable role models through child group sessions and parent group sessions.
- Achievable goals for participants' wellbeing, weight loss, and behaviour change should be agreed, monitored and reviewed at regular intervals.
- Participant's progress should be reviewed, and service feedback obtained from participants at the end of each agreed period e.g. 12 weeks

At the end of the active intervention phase, a progress review will be conducted, and preferred next step(s) agreed with the young person/ family. A report or letter detailing the child/ young person's progress and next step(s) should be sent to the person's GP (with consent) and referring professional (if different). A summary of engagement should be sent if the young person/ family is no longer attending at the progress review point. Local arrangements will determine if an appointment/consultation will be required to agree the next steps between them and their GP.

4.3 Level 2 Content

Core content at level 2 should include:

- Assessment of current and previous weight, eating habits, physical activity level, sedentary behaviour and personal wellbeing concerns should be conducted and recorded, recognising the complex nature of overweight and obesity.
- Person-centred and family-centred action plan developed, to address the root cause and drivers for overweight and obesity in their lives, using a framework to structure the conversation.
- Dietary components to help young people and families explore how to stabilise and reduce their energy intake, improve the quality of their diet and address potential barriers to change,

such as fussy eating, and stress triggers, such as family mealtimes, in line with Welsh Government and UK dietary guidelines https://gov.wales/eatwell-guide. Dietary approaches for under 5s should be tailored appropriately for this age group given that the Eatwell Guide does not apply to children under the age of 2. Between the ages of 2 and 5 children can transition towards the recommended principles of a healthy balanced diet. Examples and guidance can be found on the Every Child Wales website www.everychildwales.co.uk [5].

- Dietary approaches should develop families' skills and confidence through the use of interactive and practical sessions, covering the key components of stabilisation of food intake; improving the quality of the diet, and the barriers to change.
- Physical activity sessions can be embedded and delivered within the service or through sessions offered by delivery partners, such as leisure services. A range of physical activities and play (depending on age and stage) should be offered (such as games, dancing and aerobics) that the children or young people enjoy and that can help them gradually become more active. Participants should also be supported and empowered to meet the UK Chief Medical Officer's Physical Activity Guidelines (2019) within their own lifestyles through physical activities that can easily be integrated into everyday life and maintained (for example, by walking to school and through active play). Services should discuss with and signpost individuals to the local opportunities available to them to meet or exceed the CMO guidelines.
- Sleep and screen time should be discussed with families. Sleep requirements differ for individual children but as a guide, the NHS UK live well website[6] gives the approximate number of hours a family can aim for with children and young people between the ages of 0-18 years. This can be used as a tool within discussions/ activities exploring sleep since risk of sleep apnoea is high in children with obesity [22] and this can impact on daytime behaviours as well as cognitive development. Any symptoms of obstructive sleep apnoea should be investigated further, and families informed that weight loss is likely to reduce these symptoms.
- Behaviour Change and Self-care tools and techniques should be integrated into the design of all programme components, with the aim of developing confidence and skills in young people, and their families, to make changes to their behaviour and environment.
- The promotion of positive or 'authoritative' parenting since this has been shown to be an effective strategy to integrate within a multi-component programme for the management of childhood obesity [23]. This includes encouraging parents and carers to practise giving praise, avoid using food as a reward or punishment, role modelling healthy lifestyles themselves wherever possible and taking a whole-family approach to lifestyle changes planned [24].

Health Boards should ensure that Level 2 service providers have clear routes of access to specialist Eating Disorder Services to refer people who exhibit signs of eating disorders such as binge eating [25].

[5] Other examples of support for nutritional approaches are also available at the First Steps Nutrition Trust. https://www.firststepsnutrition.org/eating-well-early-years

[6] https://www.nhs.uk/live-well/sleep-and-tiredness/how-much-sleep-do-kids-need/

4.4 Weight Loss Continuation/ Maintenance plan

A weight loss continuation/maintenance plan should be developed with the young person/ family, to support continued progress following the active intervention phase since the evidence suggests that many people need considerably longer than the active intervention phase to develop the sustainable behaviour changes needed for weight-loss maintenance [26]. The plan will include SMART objectives which aim to support continued progress towards personal wellbeing and weight loss/weight maintenance goals. It will summarise relapse prevention strategies that have been explored during the active intervention and reinforce the importance of social support. Young people/ families should be advised of level 1 services that might support weight maintenance or continued weight loss.

Follow-up is the responsibility of the referrer unless specifically commissioned from the provider service and can be via telephone or digital means. A review should be undertaken at the end of the active intervention and should be followed up at 6 and 12 months. Core data should be collected at these follow-up points, which may involve either direct measurements of self-measurement depending on the mode of follow up. Ensure that at least one set of core data is collected 6 months after the completion of the active intervention phase.

5. Level 3 Specialist Multi-Disciplinary Assessment and Weight Management service

At level 3 specialist assessment and specialist interventions are delivered by members of multi-disciplinary team (MDT), including dietary, psychological, pharmacological and physical activity/mobility interventions. A participant and family's overall progress is monitored and reviewed by the MDT. The level 3 service should have clear pathways and partnerships with the relevant level 2 service and other key services such as the Eating Disorder service and Child and Adolescents mental health services. To improve access, programme offers should include support provided online or via digital/telehealth.

Programmes should be designed and coordinated by a multidisciplinary team [27] having considered the views of children, young people, and families with overweight and obesity and should be available at health board level.

Level	Description	Criteria	Age	Referral
3	**Specialist multi-disciplinary weight management services** Services at level 3 are delivered by members of the level 3 multi-disciplinary team, (MDT). The MDT offer specialist assessment and specialist dietary, psychological, pharmacological and physical activity/mobility interventions tailored to the child/young person/ family's needs. Overall progress is monitored and reviewed by the MDT. To improve access, programme offers will include support provided online or via digital/telehealth.	Children and young people with a BMI ≥ 98th centile	< 2 years	Referral by a health professional
		Children and young people with a BMI ≥ 98th centile and one or more co-existing conditions^{+} Children and young people with a BMI ≥ 99.6th centile	2-18 years	

The specialist multidisciplinary team involved in the design and delivery of services should consist of the following registered professionals with specific expertise in supporting children, young people and families and a specialist interest/training in weight management [28]:

- A paediatric dietitian
- A physical activity specialist
- A clinical psychologist with expertise in paediatrics and with access to a social worker
- A paediatrician, with a special interest in obesity
- A paediatric nurse

Teams will also need significant support from:

- A coordinator/ administrator
- An occupational therapist
- A paediatric physiotherapist
- A play therapist/ worker
- Support staff, such as dietetic support workers, physiotherapy technicians and assistant psychologists or counsellors to ensure the principles of prudent healthcare are upheld, for example, ensuring effective use of senior clinician time.

For those with very high BMI there will be a need for services to draw in other agencies, including social services and child and adolescent mental health services, to support these patients.

5.1 Level 3 Core Components

Programmes will typically be at least 1 year in total duration, however, this should not be too prescriptive and consideration should also be given to recent Level 2 service engagement and be kept under regular review. This should comprise an active intervention phase and a weight loss maintenance phase [24]. The duration of each phase will be dependent on individual needs. Evidence shows that those who engage more within the programme tend to have better outcomes and this should be shared with those taking part.

5.2 Active Intervention Phase

The duration of the active intervention phase should be a minimum of 24 weeks, but many people and families will need considerably longer. The length should be flexible and based on the needs of the young person/family [20].

One hour is a useful guide for face-to-face appointments within level 3, depending on specialism. Group sessions will be longer when physical activity is delivered as part of the session. Due to the likely complexity of these individuals'/ family's relationship with food, the development of emotional regulation groups should be supported.

During the active intervention phase, sessions should be delivered either weekly or fortnightly, regardless of method of delivery (whether face-to-face or virtual). Each session should include the offer of recording current weight. This may be through self-reported weight, self-weighing or being weighed by the session practitioners.

Young people/ families should be contacted by telephone or text message (as agreed) for appointment reminders and if an appointment/session is missed, to encourage re-engagement with the service. Use of the NHS principles and standards will help to promote the effectiveness of text messages [29].

During the active intervention phase, level 3 programmes will take the following approach:

- Use specialist multi-disciplinary assessment to develop a personalised formulation.
- Use tailored interventions designed to meet individual and family needs. These should be developed and agreed with the child/ young person/family to optimise health and wellbeing, including dietary, psychological, pharmacological and physical activity/mobility interventions, referring to other clinical pathways if appropriate, such as the eating disorder services for specialist assessment.
- Agree, monitor and review achievable goals for young people/ family's wellbeing, weight loss, and behaviour change.

At the end of the active intervention phase, a progress review will be conducted and preferred next step(s) agreed with the young person/ family. A report detailing their progress and preferred next step(s) should be sent to the person's GP and referring professional (if different).

5.3 Level 3 Content

Assessments will normally require around 1 hour [30]. A holistic, multi-disciplinary assessment protocol should be developed by the MDT for use in all level 3 assessments, which considers core components including weight history, psychological factors and clinical history. The key psychological factors that might influence engagement with a young person/ family in a standard level 3 assessment (which includes biopsychosocial and psychological assessment) are their history and current experience of:

- anxiety and depression
- self-harm and suicide ideation
- disordered eating and history of eating disorder, including binge-eating (whether or not diagnosed)
- history of mental ill-health
- substance misuse
- self-esteem, trauma and childhood adversity
- experience of weight stigma
- bullying

Data from the assessment should be recorded to inform individual progress review and anonymised data will form part of the minimum dataset. Plans should be delivered and implemented which provide:

- A collaborative person and family-centred approach, using the information gathered at referral, triage and assessment should be adopted to develop their programme plan. The plan should be reviewed at 6 months and 1 year from baseline assessment.
- Person-centred goal setting of both weight and non-weight related goals and outcomes need to be co-created to maximise likelihood of achievement.
- Psychologically informed components to help participants and their families develop self-awareness and develop self-care and self-management skills to support progress towards their current and future wellbeing goals.
- Behaviour change tools and techniques integrated into the design of all programme components, with the aim of enabling participants to feel confident in their use independently of the programme.

Nutrition

Nutritional components to help participants and their families to regulate their eating patterns, improve the quality of their diet, stabilise and reduce their energy intake where possible and address potential barriers to change such as fussy eating and stress triggers such as family mealtimes. Specialist staff should tailor their support to help individuals and families develop confidence, knowledge and skills to implement changes in their eating behaviours. Following this, short- and long-term dietary goals should be identified, agreed and reviewed on a regular basis.

Level 3 service professionals should work closely with the Eating Disorder Service to develop relationships and pathways to detect and treat children and young people with eating disorders such as binge eating [25].

Physical activity

Physical activity should be offered as part of the Level 3 programme following an assessment of the individual's current health status, risk profile and based on realistic and achievable goals. Programmes may include both structured exercise delivered within an appropriate, instructor-led environment and a home-based plan consisting of physical activities that can easily be integrated into everyday life and maintained in the long term. In certain circumstances, it may be helpful to initiate services at the family home. Services should offer free (or subsidised) access, at the point of use, to physical activity opportunities in either group or individual format during the active intervention phase e.g. bespoke services developed by local leisure services and continuing to offer subsided access to physical activity opportunities for the maintenance period [20]. Support for people to meet or exceed the appropriate Chief Medical Officer's physical activity guidelines (2019) within their own lifestyles through physical activities that can easily be integrated into everyday life and maintained in the long term (for example, walking, outdoor play). Services should discuss with and signpost young people and families to the local opportunities available to them.

Sedentary Behaviours

Sedentary behaviours should be explored, and a plan agreed with young people and their families, to test ways to break up long periods of sedentary behaviour in an acceptable and sustainable way.

Sleep and screen time

Opportunities for families to explore current sleep behaviour including timing of bedtime and morning waking and daytime naps (age appropriate) and understand the importance of sleep for children. With older children and young people, it will be important to share the benefits of optimal sleep and the importance of ensuring screen time does not displace physical activity and sleep.

Parenting

Stage-related, tailored support for parents to improve their skills and confidence in their parenting role, which will:

- support the development of responsive and nurturing parenting practices
- strengthen positive parenting skills
- promote role-modelling of healthy lifestyles themselves
- take a whole-family approach to lifestyle changes planned [19].

Pharmacological Interventions

These should be considered as part of a comprehensive plan for obesity management and follow NICE and Welsh guidance.

Children age ≤12 years

Drug treatment is not generally recommended for children younger than 12 years and should only be used in exceptional circumstances, if severe comorbidities are present. Prescribing should be started and monitored only in specialist paediatric settings.

Children/young people aged ≥12years

In children aged 12 years and older, treatment with Orlistat [27] is recommended only if physical comorbidities or severe psychological comorbidities are present (other drugs licensed for use with children over the age of 12 include Liraglutide, metformin and insulin for those with type 2 Diabetes).

Treatment should be started in a specialist setting, by multidisciplinary teams with experience of prescribing in this age group. Drug treatment may be continued in primary care for example with a shared care protocol if local circumstances and/or licensing allow.

5.4 Weight Loss Continuation/ Maintenance Phase

The duration of the weight loss maintenance phase is flexible and will be agreed with the participant based on their progress and individual needs.

A weight loss continuation/maintenance plan should be developed with all children, young people and their families, to support continued progress [26] following the active intervention phase. It will summarise relapse prevention strategies and reinforce the importance of social support.

Follow up support should be provided by level 3 staff (group or 1:1) during an agreed weight loss maintenance phase. Follow-up should be at a minimum of 3 monthly intervals post active intervention. Follow up procedures aim to maximise weight loss/reduction and support progress towards stated wellbeing goals and should include:

- a discussion around weight loss progress
- behavioural and psychological support for the family
- exploration of further support requirements.

A range of options for follow-up should be offered including via telephone and via face to face meetings (virtual or in-person). Core data should be collected 6 months after the completion of the active intervention phase.

A discharge plan, summarising outcomes achieved and next steps should be agreed with the young person/ family at the end of the weight loss continuation/ maintenance phase. The discharge plan also needs to highlight the importance of follow up over next two years in primary care as for other chronic conditions pathway management.

6. Level 4 Bariatric surgery and services

Bariatric surgery is generally not recommended for children and young people [27] However, there may be a small number of occasions where it is deemed the most appropriate method to achieve significant and sustainable weight loss for those who have already reached their physiological maturity.

Level 4 services for children and young people are commissioned in Wales through the Welsh Health Specialised Services Committee (WHSSC) through their Individual Patient Funding Request (IPFR) process.

Given the low numbers of young people accessing bariatric services, dedicated paediatric services have not developed. Surgery will therefore by undertaken in an Adult Surgical Service, but the perioperative support would be provided through the children and young people weight management services at the Level 3 /4 interface. It is therefore important that there are clear pathways and good communication between children and young people's weight management services and adult weight management services at level 3.

WHSSC utilises the NHS England [31] criteria for access to level 4 services for children and young people set out in the service specification.

- The adolescent has been evaluated by the appropriate specialist MDT (see service specification for details) and deemed suitable appropriate for surgery.
- The adolescent has a post pubertal BMI equal to more than 40kg/m2 (BMI SD>3.0) or 35kg/m2 (BMI SD.3.5) with significant associated comorbidities that are both predicted to have the potential to progress and are amenable to improvement/ resolution by weight loss. Obesity should have been present for several years.
- The adolescent has achieved physiological maturity (Tanner Stage 4 [32] or above)
- The adolescent has completed clinical assessment within a Level 3 service.
- The decision of the MDT regarding surgery will depend on the individual's engagement and response to weight management services, their co-morbidities and risk-benefit analysis. This analysis should assess the short and long term risks of not operating versus the risks associated with surgery. In addition, psychological factors, motivation/ compliance, learning difficulty issues and impact on education will also be taken into account.
- The adolescent is generally fit for anaesthesia and surgery
- The adolescent and their family commit to the need for long-term follow-up
- Adolescents with syndromic or monogenic obesity will also be discussed by the MDT on a case by case basis and arrangement made by the MDT to seek further national expert advice/ opinion on the ethical issues and supporting research.

7. Minimum Data Set

It is essential that both commissioners and providers of services are able to assess quality and outcomes of the services provided and where appropriate to compare services delivering at each level.

Welsh Government will also seek to monitor quality, access and outcomes in line with the implementation of the Healthy Weight Healthy Wales Strategy. Health Boards will be asked to provide routine reporting on obesity services and the implementation of the pathway.

It is recognised that providers will have established their own assessment and record keeping systems appropriate to the level of service provided and at level 3 and 4 these records should be shared by the multi-disciplinary team. However, information systems will need to be established that enable reporting against the core minimum dataset at agreed intervals in addition to allowing extraction of raw data to enable wider service evaluation and research to take place.

The proposed minimum data set is set out below and indicates information that will be reported as part of routine service monitoring and data that should be available in a readily exportable format to facilitate service provision and evaluation.

Whilst participants are within the active intervention it is the role of the weight management service provider to record the information, longer term follow up is the responsibility of the primary / community care professional who referred the individual.
All providers should contribute as required to the national minimum data set for weight management services.

Table 4: National minimum data set for weight management services for children, young people and families
Items in italics should be available for extraction, audit and evaluation but would not be routinely reported

Item reported	Routinely collected data	Level 1	Level 2	Level 3	Level 4
Activity in the reporting period	Number of new referrals Number of re-referrals Number and percentage offered appointments Number and percentage who attended first appointment Number on waiting list	n/a	✔	✔	✔
	Number and percentage of referrals not accepted by service	n/a	n/a	✔	✔
Weight Change	*Height and weight at start, BMI centile at start, BMI z score at start* *Weight/ BMI centile and BMI z score at end of active intervention* *Height and weight & BMI centile and BMI z score on discharge* Weight change in kg/BMI centile change at end of active intervention BMI centile change on discharge % of participants achieving ≥ clinically significant weight loss at end of active intervention programme	Initial weight and height Weight and height and BMI centile at initial review (12 weeks) Weight and height and BMI centile/ z score at 12 months	% children and young people achieving 5% change in BMI z score at 12 weeks	% participants achieving 5% change in BMI z score at 24 weeks % participants achieving 10% BMI z score at 24 weeks	
Engagement	% sessions attended during the reporting period	n/a	✔	✔	
	% attended at least 80% of sessions on discharge	n/a	✔	✔	

6 month follow up (post active intervention phase)	*Weight and height* *BMI centile/ BMI z score change in kg from end of active intervention* Mean change in BMI centile/ BMI z score from end of active intervention Percentage of children and young people maintaining change in BMI centile/ BMI z score Percentage of participants gaining weight	n/a	Optional depending on service	✔	✔
12 month follow up weight (after Active intervention has ended)	*Weight* *Weight change in kg from 6 month follow up* Mean change in weight in kg and BMI centile/ z score from 6 month follow up Percentage of participants maintaining weight loss Percentage of participants gaining weight	12 month follow up recommended in primary care	12 month follow up recommended in primary care	✔ 12 month follow up recommended in primary care	✔
Patient Satisfaction: Patient-Reported Outcome and Experience Measures (POEMs)	% POEMs completed by child/ young person/ parent; % POEMs report positive experience		✔	✔	✔

Outcome measures will be further refined with clinical delivery teams during the next year.

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9. Appendix 1: Source Documents

Source	Documents
WHO	World Health Organization (2015). Interim Report on the Effectiveness of Dietary Interventions for Children and Adolescents with Overweight and Obesity. https://www.who.int/end-childhood-obesity/commission-ending-childhood-obesity-interim-report.pdf?ua World Health Organization. (2019) Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. https://apps.who.int/iris/handle/10665/311664 WHO Multicentre Growth Reference Study Group (2006). WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development. Geneva: World Health Organization. https://www.who.int/publications/i/item/924154693X
UK Government	UK Government (2019) *UK Chief Medical Officers physical activity guidelines* https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report
Welsh Government	Welsh Government (2010) The All Wales Obesity Pathway https://gov.wales/sites/default/files/publications/2019-06/obesity-pathway.pdf Welsh Government (2015) Well-being of Future Generations (Wales) Act 2015 https://gov.wales/sites/default/files/publications/2019-02/spsf-1-core-guidance.PDF Welsh Government (2016) Securing health and well-being for future generations https://gov.wales/sites/default/files/publications/2019-04/securing-health-and-well-being-for-future-generations.pdf Welsh Government (2016) Healthy Child Wales Programme https://gov.wales/healthy-child-wales-programme-0 Welsh Government (2017) Parenting in Wales: Guidance on engagement and support https://gov.wales/sites/default/files/publications/2019-10/parenting-engagement-and-support-guidance-for-providers.pdf Welsh Government (2018) A Healthier Wales https://gov.wales/sites/default/files/publications/2019-04/in-brief-a-healthier-wales-our-plan-for-health-and-social-care.pdf Welsh Government (2018) A Healthier Wales: our plan for health and social care https://gov.wales/sites/default/files/publications/2019-10/a-healthier-wales-action-plan.pdf

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Public Health Wales	PHW (2018) The case for action on obesity in Wales https://phw.nhs.wales/topics/overweight-and-obesity/the-case-for-action-on-obesity-in-wales/ PHW (2021) Evidence into Practice. Family Relationships in the First 1000 days (in publication) PHW (2021) All Wales Obesity Pathway Review (in publication) PHW (2015) Adverse Childhood Experiences and their impact on health-harming behaviours in the Welsh adult population http://www2.nphs.wales.nhs.uk:8080/PRIDDocs.nsf/7c21215d6d0c613e80256f490030c05a/9a2fe7f1e063c61b80257fdc003ab86f/$FILE/ACE%20&%20Mental%20Well-being%20Report%20E.pdf
Public Health England	PHE (2017) A Guide to Delivering and Commissioning Tier 2 Weight Management Services for Children and their Families https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740151/tier2_child_weight_management_services_guide.pdf PHE (2015) Rapid Review to Update Evidence for the Healthy Child Programme 0–5 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/429740/150520RapidReviewHealthyChildProg_UPDATE_poisons_final.pdf National Obesity Observatory (2011) Obesity and Mental health https://www.mindcharity.co.uk/wp-content/uploads/2016/03/Obesity-and-Mental-Health.pdf PHE (2015) Childhood Obesity: applying All our Health https://www.gov.uk/government/publications/childhood-obesity-applying-all-our-health

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Dept of Health	Department of Health (2013). Developing a Specification for Lifestyle Weight Management Services: Best Practice Guidance for Tier 2 Services. DH, London https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/142723/Weight_Management_Service_Spec_FINAL_with_IRB.pdf
NHS Health Scotland	Health Scotland (2019) Children and young people weight management service delivery standards Health Scotland (2019) Summary of highly processed evidence on components of effective weight management interventions for children and young people https://healthscotland.scot/media/2657/summary-of-evidence-for-effective-weight-management-interventions.pdf Scottish Intercollegiate Guidelines Network (2010). Management of obesity: a national clinical guideline. Available at: www.sign.ac.uk/assets/sign115.pdf
Obesity Canada	The 5As of Pediatric Obesity Management (2018) https://obesitycanada.ca/wp-content/uploads/2018/02/Pediatric_5As_Practitioner_Guide_WM.pdf
NICE	NICE (2009) Child maltreatment: when to suspect maltreatment in under 18s (CG89) https://www.nice.org.uk/guidance/cg89/resources/child-maltreatment-when-to-suspect-maltreatment-in-under-18s-pdf-975697287109 NICE (2013) Weight management: lifestyle services for overweight or obese children and young people (PH47) https://www.nice.org.uk/guidance/ph47/resources/weight-management-lifestyle-services-for-overweight-or-obese-children-and-young-people-pdf-1996362978757 NICE (2014) Behaviour change: individual approaches (PH49) https://www.nice.org.uk/guidance/ph49/resources/behaviour-change-individual-approaches-pdf-1996366337989 NICE (2014) Obesity: identification, assessment and management (CG189)

	https://www.nice.org.uk/guidance/cg189/resources/obesity-identification-assessment-and-management-pdf-35109821097925 NICE (2015) Obesity in children and young people: prevention and lifestyle weight management programmes (QS94) https://www.nice.org.uk/guidance/qs94/resources/obesity-in-children-and-young-people-prevention-and-lifestyle-weight-management-programmes-pdf-2098969040581 NICE (2016) Obesity: clinical assessment and management (QS127) https://www.nice.org.uk/guidance/qs127/resources/obesity-clinical-assessment-and-management-pdf-75545363615173 NICE (2016) Transition from children's to adults' services for young people using health or social care services NG43 https://www.nice.org.uk/guidance/ng43/resources/transition-from-childrens-to-adults-services-for-young-people-using-health-or-social-care-services-pdf-1837451149765
Early Intervention Foundation	Asmussen et al (2016) Foundations for Life: What works to support parent-child interaction in the early years? https://www.eif.org.uk/files/pdf/foundations-for-life.pdf Asmussen and Brims (2018) What works to enhance the effectiveness of the Healthy Child Programme: an evidence update Harold et al (2016) What works to enhance inter-parental relationships and improve outcomes for children https://www.eif.org.uk/files/pdf/what-works-to-enhance-effectiveness-healthy-child-summary.pdf
Professional Organisations	Obesity Services for Children and Adolescents network (2011) Assessment of childhood obesity in secondary care: OSCA consensus statement British Obesity and Metabolic Surgery Society and Royal College of Surgeons (2014) Commissioning guide: Weight Assessment and management Clinics (tier 3) https://www.rcseng.ac.uk/library-and-publications/rcs-publications/docs/weight-assessment-guide/ British Obesity and Metabolic Surgery Society and Royal College of Surgeons (2017) 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 The British Dietetic Association Obesity Specialist Group (2018). Dietetic Obesity Management Interventions in Adults: Evidence Review and Clinical Application. http://www.efad.org/media/2154/bda-obesity-group-dietetic-intervention-in-adults-2018-final-version.pdf

The British Psychological Society (2019). Psychological perspectives on obesity: Addressing policy, practice and research priorities

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Royal College of Paediatrics and Child Health (2013). Royal College of Paediatrics and Child Health UK-WHO growth charts

UK-WHO 0-4 years growth chart https://www.rcpch.ac.uk/resources/uk-who-growth-charts-0-4-years

The Royal College of Paediatrics and Child Health (2019). The health impacts of screen time – a guide for clinicians and parents.

https://www.rcpch.ac.uk/sites/default/files/2018-12/rcpch_screen_time_guide_-_final.pdf

RCGP (2013) GP Ten Top Tips: Raising the Topic of Weight: Safe ways to introduce weight into a consultation without causing upset

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10. Appendix 2: Monitoring the weight, height and length of children and young people

Body Mass Index (BMI)

Instead of using fixed BMI thresholds to classify individuals, as used for adults, children's BMI is categorised using variable thresholds that take into account the child's age and sex. These thresholds are usually derived from a reference population. BMI thresholds are defined in terms of a specific centile on a child growth reference.

Once a child's BMI centile has been calculated, this figure can then be checked to see whether it is above or below the defined thresholds for the child growth reference used.

10.1 Equipment and calibration

Equipment must be in good working order and meet the required standards as below.

Weighing scales should be medical class 3 or above and must comply with EU Directive 90/384/EEC. Scales should be calibrated annually. If at any time there is reason to believe that the weighing equipment may be inaccurate, it should be recalibrated.

Stadiometer Height should be measured with an approved portable stand-on height measure (stadiometer) that shows height in centimetres and millimetres. Approved stadiometers include the Leicester Height Measure and the SECA 213. Wall-mounted, sonic or digital height measures should not be used. Stadiometers should be set up correctly according to the manufacturer's instructions. Stabilisers that enable the upright to rest against a wall are required for accurate measurements. The SECA stadiometer has a single stabiliser, whilst the Leicester has two. These should be clipped into the end of the upright sections to keep them safe when stored. The correct number of stabilisers should always be used. NOTE: When ordering replacement arms for Leicester height measures ensure that the correct part is selected as significant errors may occur if new model arms (blue box) are used with older models (black box).

10.2 Measuring children aged 0 -2

The Healthy Child Wales Programme outlines the schedule of growth assessments an infant will routinely receive (WG, 2018).
Babies and toddlers should be weighed and measured by suitably trained professionals. Length rather than height is measured for children under the age of 2.

- Class III electronic scales should be used to weigh babies and toddlers. Babies should be weighed naked and toddlers should be weighed in their underclothes. See figure 1 below
- Use a length board or mat to measure length. Ensure that shoes and nappy are removed. See figure 1 below. This video from the RCPCH demonstrates how to measure the length of a baby: https://www.youtube.com/watch?v=_Kx8DgJGuIs&feature=youtu.be
- Measure head circumference using a narrow plastic or disposable paper tape-measure. Ensure that hats are removed before measuring and that the measurement is taken from where the head circumference is widest, see figure 3 below.

Figure 1: Examples of using scales to weigh a baby and using a length board to measure a baby (Source: NHS UK & RCPCH)

Use the UK-WHO 0-4 years growth chart[7] to indicate a child's size compared with children of the same age and maturity who have shown optimum growth.

Further guidance on how to plot the measurements can be found here, including growth charts for specialist conditions: https://www.rcpch.ac.uk/sites/default/files/Plotting_toddlers.pdf

[7] [https://www.rcpch.ac.uk/resources/uk-who-growth-charts-0-4-years]

Figure 3: measuring head circumference (source: RCPCH)

10.3 Measuring the weight of children aged 2 - 4

The Healthy Child Wales Programme outlines the schedule of growth assessments a child between the ages of 2 and 4 years will routinely receive (WG, 2018).

Children aged 2 - 4 years should be weighed and measured by a suitably trained staff. Height should be measured once a child is 2 years or more, using a stadiometer or T-bar.

Ensure that you explain the procedure to the child and / or their parent or guardian, confirming that you will want them to stand as tall and straight as possible.

Children should remove their shoes and any outdoor or heavy clothing (e.g. sweater) that might interfere with taking an accurate height or weight measurement, see figure 4.

Weight

Ask the child to stand still with both feet in the centre of the scales. Record the weight in kilograms to the nearest 100 grams - (e.g. 20.6kg) and not be rounded to the nearest whole or half kilogram.

Height

To obtain the most accurate measurement, the child's head should be positioned so that the Frankfurt Plane is horizontal (see Figure 4). Gently ease head into correct plane i.e. eyes looking very slightly down so that centre of the ear hole is level with the lower border of the eye socket.

The measuring arm of the height measure should be lowered gently but firmly on to the head, ensuring good contact, before the measurer positions the child's head in the Frankfurt Plane.

Read instrument at eye level.

Record the height in centimetres to the first decimal place – (e.g.120.4cm). Measurements should not be rounded to the nearest whole or half centimetre.

Use the UK-WHO 0-4 years growth chart[8] to determine BMI centile for their age and gender.

10.4 Measuring the weight of children aged 4 -11

Children should be weighed and measured by suitably trained professionals using a stadiometer or T-bar and digital weighing scales.

Use the RCPCH UK growth charts to determine BMI centile for their age and gender.

10.5 Measuring children aged 12 and above

Young adults should be weighed and measured by suitably trained staff using a stadiometer or T-bar and digital weighing scales.

Use the RCPCH UK growth charts to determine BMI centile for their age and gender.

Figure 4: Measuring a child correctly (source: PHW, 2014)

10.6 Demonstrate to parents how centiles are plotted

When discussing a child's weight with a parent or carer, it is helpful to plot the result onto the age and gender appropriate growth chart as a visual demonstration, to help explain where their child's weight sits within a range. Multiple plots can be recorded over time, to provide a visual record of the child's growth trajectory for monitoring purposes. Ensure the result is recorded in the child or young person's Personal Child Health Record. health record as per the Healthy Child Wales programme guidance.

[8] https://www.rcpch.ac.uk/resources/uk-who-growth-charts-0-4-years

10.7 Using an online BMI Calculator

An alternative approach, which does not enable a visual representation but is quicker to perform is to use the online BMI Healthy Weight calculator tool. This tool is appropriate for use with children over the age of 2 years and enables you to calculate the child or young person's BMI centile from their height and weight measurements.
https://www.nhs.uk/live-well/healthy-weight/bmi-calculator/